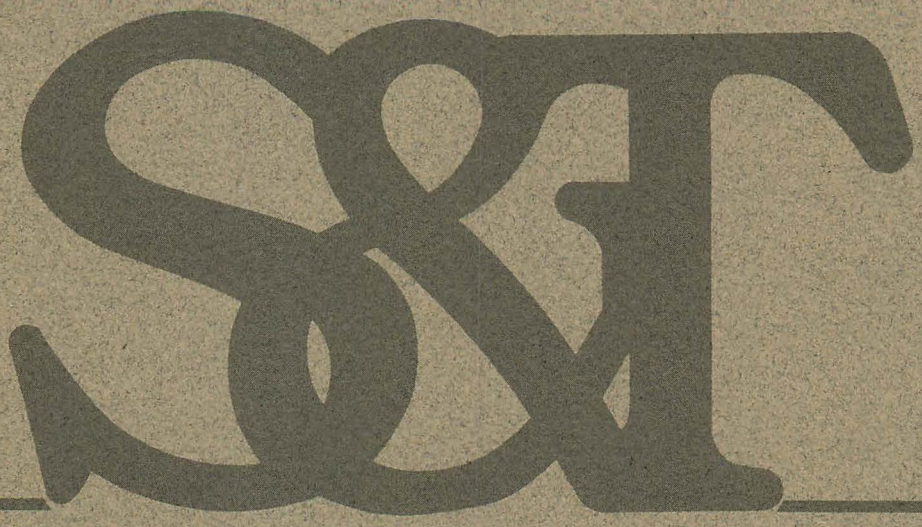
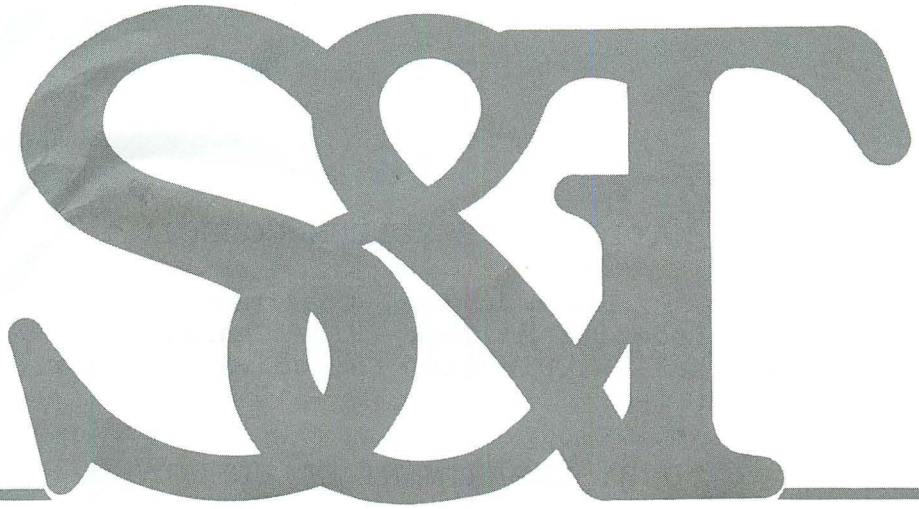


Natural Gas Transportation

Petroleum Storage & Transportation

National Petroleum Council • April 1989



Natural Gas Transportation

Petroleum Storage & Transportation

National Petroleum Council • April 1989

William E. Swales, Chairman, Committee on Petroleum Storage & Transportation

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The National Petroleum Council is a federal advisory committee to the Secretary of Energy.

The sole purpose of the National Petroleum Council is to advise, inform, and make recommendations to the Secretary of Energy on any matter requested by the Secretary relating to petroleum or the petroleum industry.

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VOLUME III

NATURAL GAS TRANSPORTATION

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INTRODUCTION

On February 20, 1987, the Secretary of Energy requested the National Petroleum Council (NPC) to undertake a comprehensive new study on petroleum inventory, storage, and transportation capacities to update the NPC's 1979 report, Petroleum Storage and Transportation Capacities, and its 1984 report, Petroleum Inventories and Storage Capacity. In requesting the study, the Secretary asked that:

> Emphasis should be given to the reexamination of minimum operating levels, the location of storage facilities and availability of inventories in relation to local demand, and the capabilities of distribution networks to move products from refining centers to their point of consumption particularly during periods of stress.

The full text of the request letter from the Secretary, a description of the National Petroleum Council, and a roster of the Council membership are provided in Appendix A.

To assist in responding to the Secretary's request, the NPC established a Committee on Petroleum Storage & Transportation under the chairmanship of William E. Swales, Vice Chairman - Energy, USX Corporation. Dr. H. A. Merklein, Administrator, Energy Information Administration (EIA), served as the Government Cochairman of the Committee, providing coordination between the U.S. Department of Energy (DOE) and the NPC. To assist the Committee, a Coordinating Subcommittee and three task groups were established: Natural Gas Transportation, Liquids Transportation, and Inventories and Storage. The Council's overall report, Petroleum Storage & Transportation, is contained in five volumes:

- Volume I - Executive Summary
- Volume II - System Dynamics
- Volume III - Natural Gas Transportation
- Volume IV - Petroleum Inventories and Storage
- Volume V - Petroleum Liquids Transportation.

In addition, detailed profiles of the companies that participated in the natural gas transportation and petroleum pipeline surveys are available from the NPC.

This volume contains the report of the Natural Gas Transportation Task Group, which was chaired by Ronald J. Burns, President, Interstate Pipelines, Gas Pipeline Group, Enron Corp., and cochaired by Joan E. Heinkel, Chief, Data Analysis and Forecasting Branch, Energy Information Administration, U.S. Department of Energy. Rosters of the study groups responsible for the development of this volume are included in Appendix B.

SCOPE

This report is a comprehensive study of U.S. natural gas transportation capacities that include pipelines, interconnections, underground storage, LNG, and other peak-shaving facilities. This report contains updates on the changes that have occurred since the 1979 NPC report. At the request of the Secretary of Energy, this study includes an examination of the capabilities of the U.S. natural gas distribution network to move gas from the producing areas to the points of consumption, particularly during periods of stress and considering shifting regional demand trends. Present and future capabilities are addressed. The analysis of the network's capabilities for 1992 used a range of representative supply-and-demand outlooks to test the U.S. pipeline network under various stress conditions. The use of these outlooks should not be construed as an endorsement of them by the National Petroleum Council. In addition, the analysis was based on existing pipelines, and no capacity expansions between now and 1992 were assumed. This report does not attempt to forecast whether adequate price incentives and resulting supplies and markets will be available in the future. This study was confined to regions based on modified PADDs (Petroleum Administration for Defense Districts), and the ability of pipelines or local distribution companies to deliver gas to customers within a region was not analyzed. The Council decided to modify the PADDs to better reflect the unique configurations of the existing pipeline system.

Data on natural gas storage and pipeline capacities were collected primarily by an industry survey. These data were combined in a linear programming model with various natural gas supply-and-demand projections to perform the network analyses. Stress scenarios were developed in order to test the abilities of the transportation system to operate under stress conditions.

A simplified industry network model was developed to evaluate the regional impact of various stress scenarios. The thrust of the analysis was to take the "worst case" approach to test the system, on the grounds that if the system can meet projected demands, then a certain confidence can be derived about the adequacy of the national system. Where inadequacies were observed, no determination was made as to how the shortfall could be alleviated, with the belief that the free market is best suited to select the right solution.

CONCLUSIONS

- The natural gas industry has undergone a significant structural transformation since 1979. This change has been in reaction to less federal regulation, the dramatic decline in the prices of oil and gas, the so-called "gas bubble," the advent of open-access transportation, and the resulting competitive environment for new, developing gas markets.

- Natural gas markets are expected to continue to be strong nationwide in the foreseeable future, with certain areas (the Northeast, California, and Florida) experiencing stronger growth.

- A vast resource base of natural gas exists in the Lower-48 States. A recent DOE study estimates that at current consumption levels, over 65 years of technically recoverable gas supply exists in the Lower-48 States. However, adequate economic returns to the industry will be needed to produce and deliver this gas to the markets. The DOE study concludes that 583 trillion cubic feet (TCF) of the technically recoverable resource could be economically recoverable at wellhead prices under $3 per thousand cubic feet (MCF). At prices up to $5 per MCF, the economically recoverable resource estimate is 757 TCF. Continuation of current depressed wellhead prices could dramatically affect the ultimate level of gas supply available for consumption.

- The natural gas transportation and supply system is extremely flexible and dynamic. It meets virtually all current "normal" demand requirements and most "peak" demand requirements. Storage facilities and peak-shaving plants play a critical role in the system.

- For the foreseeable future, natural gas transportation facilities are adequate in nearly all areas of the United States. In the worst-case scenarios studied for this report, in which no proposed facilities are implemented, partial curtailment of the electric utility, industrial, and/or commercial sectors in the Northeast and Florida is anticipated under unstressed conditions during peak demand periods. Partial curtailment in other regions may be experienced under stressed conditions. In either case, the natural gas demands of residential and other high-priority consumers are expected to be met. The enhanced oil recovery (EOR) and cogeneration markets developing on a year-round

basis in California may necessitate expanded pipeline transportation capabilities. However, the data were not available to quantify the magnitude of such need.

- The responsiveness and flexibility of the natural gas system enable natural gas to be substituted for oil with a very short lead time. In most instances, the switching can be accomplished in a matter of hours. This provides considerable fuel switching flexibility to the electric utility and industrial sectors.

- With further relaxation of regulations, future construction of natural gas facilities will be increasingly driven by market conditions improving overall responsiveness to demand.

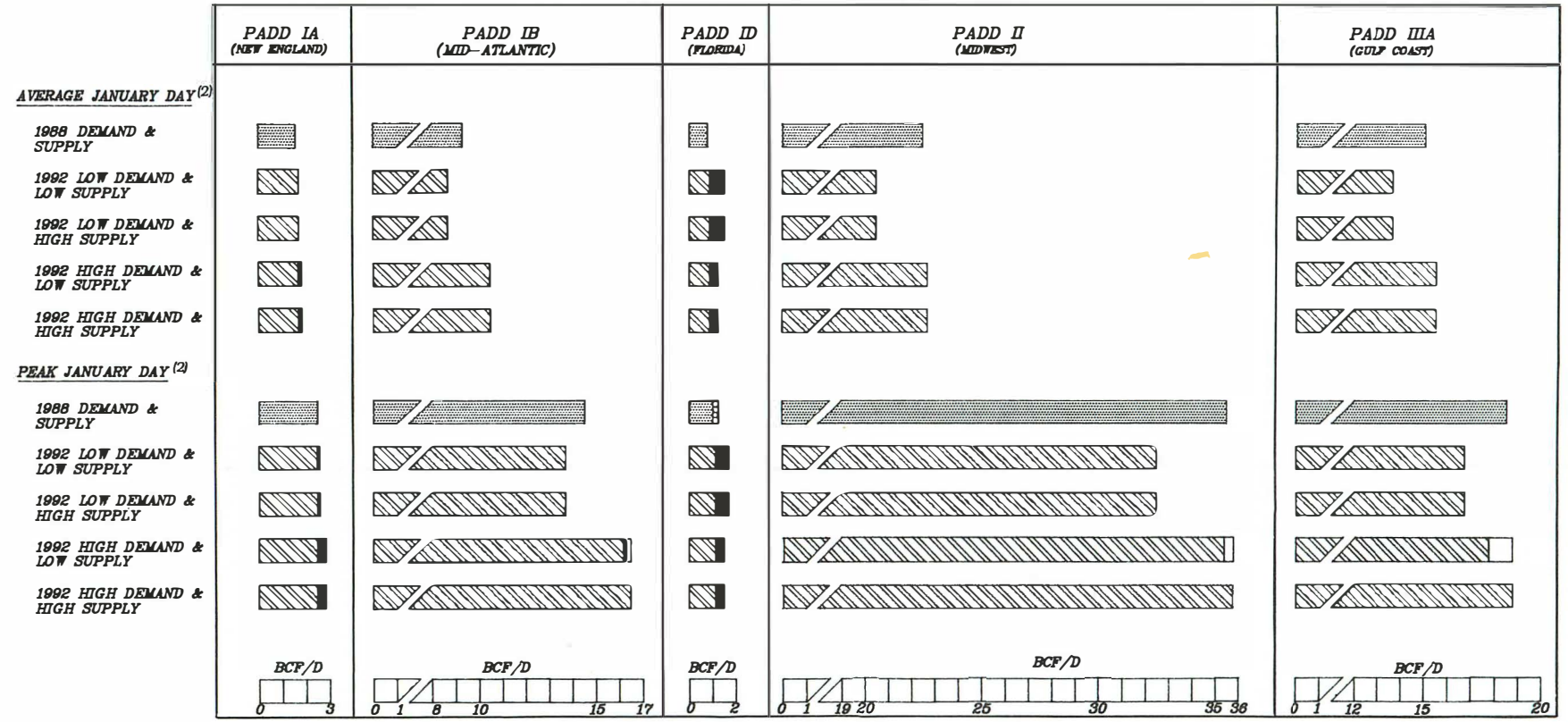
- Regulatory issues still remain to be resolved at both the federal and state levels. The producers, pipelines, local distribution companies, and other industry participants need to continue to work with these regulators and legislators to continue the evolution towards a freer marketplace.

STRESS SCENARIOS

The ability of the national pipeline network to serve demand during the heating season was modeled under a set of cases comprised of a typical winter and a series of assumed stress conditions within a broad range of supply and demand projections. Conditions for both 1988 and 1992 were analyzed. Figure 1 summarizes the results for typical conditions in January. The model utilized a range of demand forecasts and supply projections for 1992. The Low Demand projection was derived from a forecast prepared by Data Resources Inc. (DRI) and the High Demand projection was derived from an American Gas Association (A.G.A.) forecast. The Low Supply and High Supply projections assumed annual Lower-48 production to be 15 TCF and 17 TCF, respectively. Each demand forecast is based on many different assumptions pertaining to population growth, alternative fuel costs, and timing patterns. The two forecasts' differences in regional (PADD) demands for natural gas and the associated capacity issues are highlighted in Figure 1.

These forecasts show the natural gas transportation and supply system as an extremely flexible and dynamic system that meets virtually all current normal demand situations, and provides considerable flexibility in meeting most peak-demand situations normally encountered. For the foreseeable future, only partial curtailment of electric utility/industrial/commercial supplies due to a lack of pipeline capacity is anticipated in some areas during peak-demand days in order to ensure full supplies for residential and other consumers.

Figure 1. Summary of Results Showing Potential Capacity Needs and Additional Supply Requirements Under Typical January Conditions -- 1988 and 1992.[1]



NOTES:

(1) Adequate capacity and supply are available to serve projected demand in all other PADDs

(2) Low Demand=January projections derived from DRI forecast
High Demand=January projections derived from A.G.A. forecast
Low Supply=Annual Lower-48 production equal to 15 TCF
High Supply=Annual Lower-48 production equal to 17 TCF

(3) Adequate capacity exists to serve demand if additional supply is available.

Figure 2 represents the high-end "demand" case, wherein the nation's existing pipeline system is stressed to meet the growing demands of the market (High Demand and High Supply projections). Using the Low Demand projection, similar capacity needs were identified, but to a smaller extent, for PADD IA (New England), PADD IB (Mid-Atlantic), and PADD ID (Florida). At the opposite end of the spectrum, Figure 3 depicts the low-end "supply" case, wherein the nation's available supply of gas is stressed to meet demand (High Demand and Low Supply projections).

As can be seen in Figures 2 and 3, additional market capacity expansions may be needed by 1992 to accommodate increased potential demand for an average January day in PADDs IA, IB, and ID. Capacity expansion projects are also forecast to move additional gas supply out of PADD II (Midwest). In addition, there are major new markets evolving in California on a year-round basis that may also require capacity expansions. (The analysis does not denote these localized intra-PADD constraints.) It should also be mentioned that the producing regions of the country may encounter future capacity constraints, particularly if a dramatic and unanticipated shift occurs from one supply basin to another.

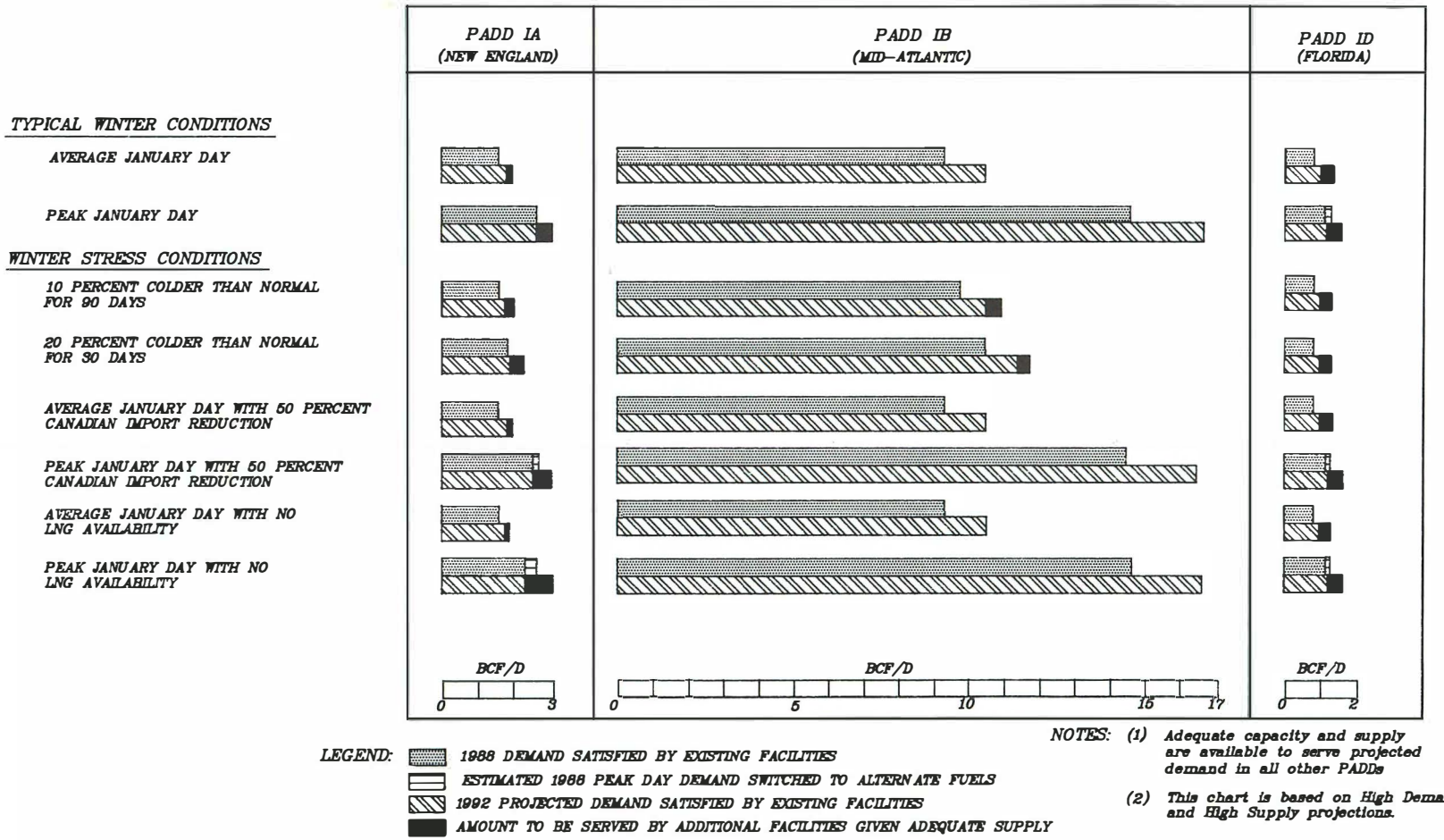
The dynamics and flexibility of the natural gas transportation system to respond to stresses will be highly dependent on proper storage management, the availability of gas supply from Lower-48 production, the construction of new pipelines, and the impact of Canadian imports and liquefied natural gas (LNG). Given adequate economic incentives to producers to find and develop additional reserves, and given the proper incentives to the U.S. natural gas pipeline system, the industry can play a major role in lessening the nation's increasing dependence on oil imports. In turn, this will help the nation meet tougher environmental standards and offset shortfalls (especially during off-peak season) in the oil sector of the United States.

PIPELINE TRANSPORTATION CAPACITIES

Since 1979, there has been an increase of approximately 3.2 billion cubic feet per day (BCF/D) of capacity in the United States. The capacity of the nation's natural gas network to transport gas out of the major domestic supply regions under peak winter conditions is approximately 33.7 BCF/D. The pipelines can also handle net peak-day volumes of 4.6 BCF/D of Canadian gas. In addition to 1.2 BCF/D of expansions, several new pipelines have been constructed or converted to gas transmission service in order to gain access to new supply areas. The major projects in this regard include the 1.1 BCF/D Northern Border pipeline, the 0.4 BCF/D Trailblazer system, and 0.4 BCF/D via conversions of the Texoma and Seaway pipelines. Figure 4 summarizes the existing inter-PADD gross transportation capacities of the U.S. pipeline network as obtained from NPC survey information.

For an average January day in 1992, the High Demand forecast projects an increased demand of approximately 0.3 BCF/D for PADD

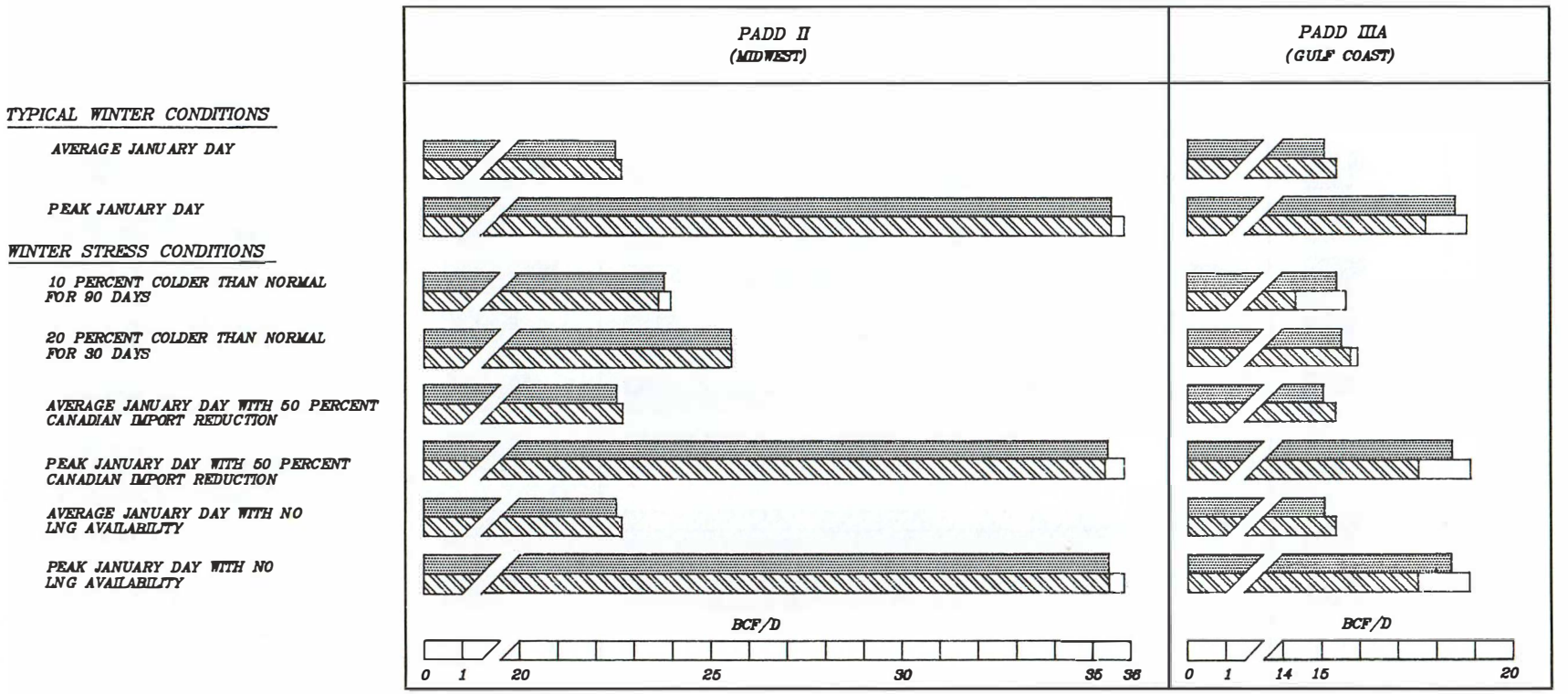
Figure 2. Summary of Results Showing Potential Capacity Needs Under Assumed Stress Conditions -- January 1988 and 1992.[1][2]



NOTES: (1) Adequate capacity and supply are available to serve projected demand in all other PADDs

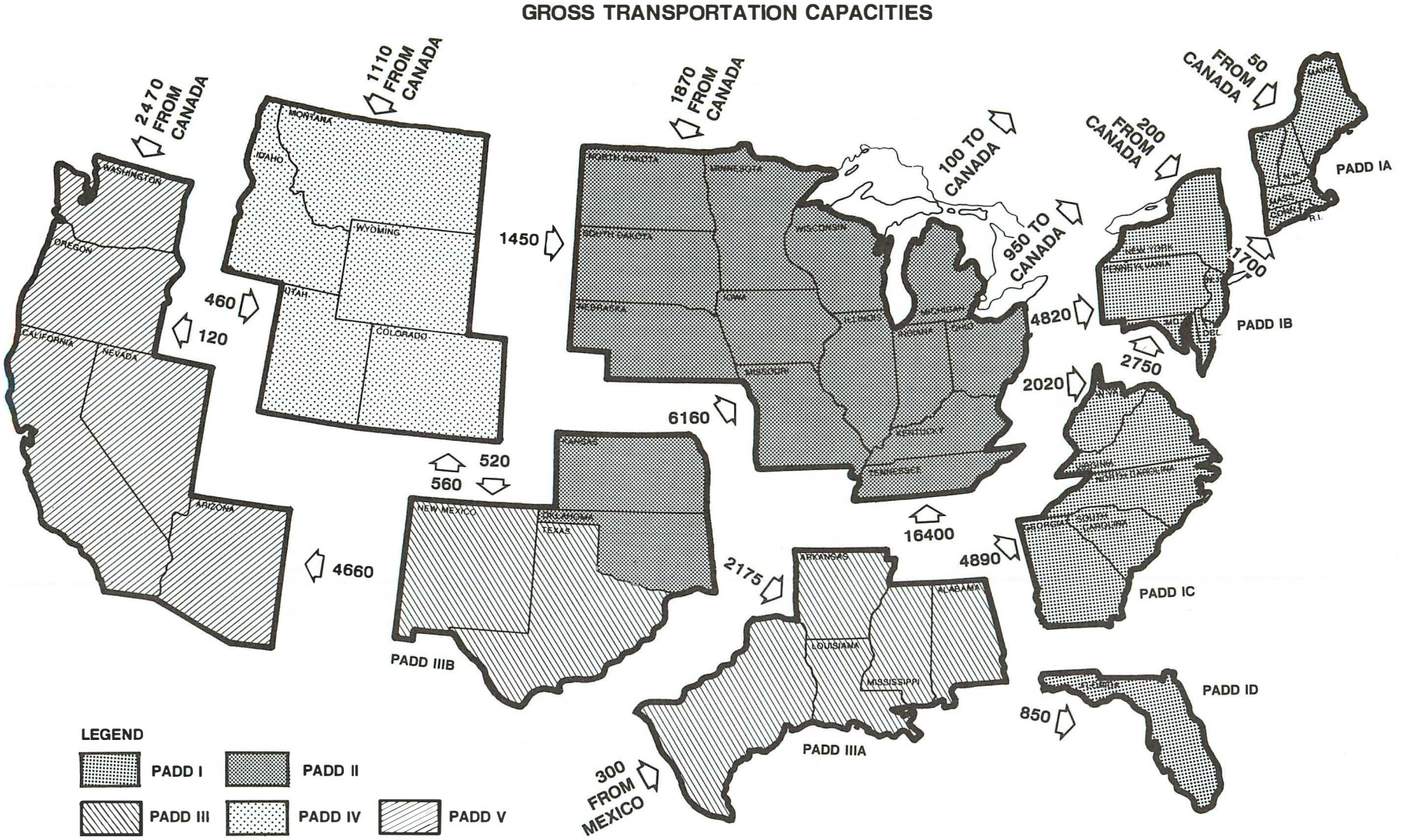
(2) This chart is based on High Demand and High Supply projections.

Figure 3. Summary of Results Showing Additional Supply Requirements Under Assumed Stress Contitions -- January 1988 and 1992. (1)(2)



LEGEND:
- 1988 DEMAND SATISFIED BY EXISTING FACILITIES
- 1992 PROJECTED DEMAND SATISFIED BY EXISTING FACILITIES
- 1992 PROJECTED DEMAND TO BE SERVED THROUGH EXISTING FACILITIES GIVEN ADEQUATE SUPPLY

NOTES:
(1) Negligible supply shortfalls also occur in PADD IB, PADD IC, and PADD ID under some 1992 assumed stress conditions. Adequate supply is available to serve projected demand in all other PADDs.
(2) This chart is based on High Demand and Low Supply projections.



NOTE: PADD IA = New England = IX; PADD IB = Mid Atlantic = IY; PADD IC = South Atlantic = IZ (— Florida); PADD ID = Florida; PADD II = Midwest (— Kansas and Oklahoma); PADD IIIA = Gulf Coast; PADD IIIB = Southwest (+ Kansas and Oklahoma); PADD IV = Rocky Mountain; PADD V = Pacific.

Figure 4. National Petroleum Council 1988 Survey of Natural Gas Storage and Pipeline Capacities (All Volumes in MMCF/D).

IA (New England), 1.2 BCF/D for PADD IB (Mid-Atlantic), and 0.3 BCF/D for PADD ID (Florida). The industry has proposed several new projects totaling 2.7 BCF/D to serve new gas markets in California, the Northeast, and Florida, which are awaiting federal approval. These projects, however, represent less than a 5 percent increase in the currently installed capacity of the U.S. pipeline network. Other projects to open up new or capacity-constrained gas supply areas such as Oklahoma and offshore Alabama have also been proposed.

SYSTEM DYNAMICS

The U.S. natural gas pipeline system extends from border to border and from coast to coast. This extensive network with its system of interconnections gives access to virtually every supply and market area in North America (including Canada and Mexico), and enables the pipelines to operate as an integrated grid system for moving gas supplies from one region to another. The pipeline capacities are supplemented, during peak-demand periods, by almost 52 BCF/D of withdrawal capability from large underground storage facilities located strategically throughout the United States. Another 7.9 BCF/D of supply is available from various liquefied natural gas (LNG) and other peak-shaving facilities. The extent and magnitude of these interconnected facilities give the industry tremendous flexibility, enabling the system generally to respond to unanticipated increases in demand in a matter of hours or days.

The industry is moving toward increased automation of its facilities in order to improve efficiency, reliability, and responsiveness. Underground storage continues to play a critical role in enabling the industry to meet peak demands and to equalize the load factors on the pipelines. This results in the need for substantial peak storage but at significant capital, inventory, and operating costs. A key issue is the allocation of these costs.

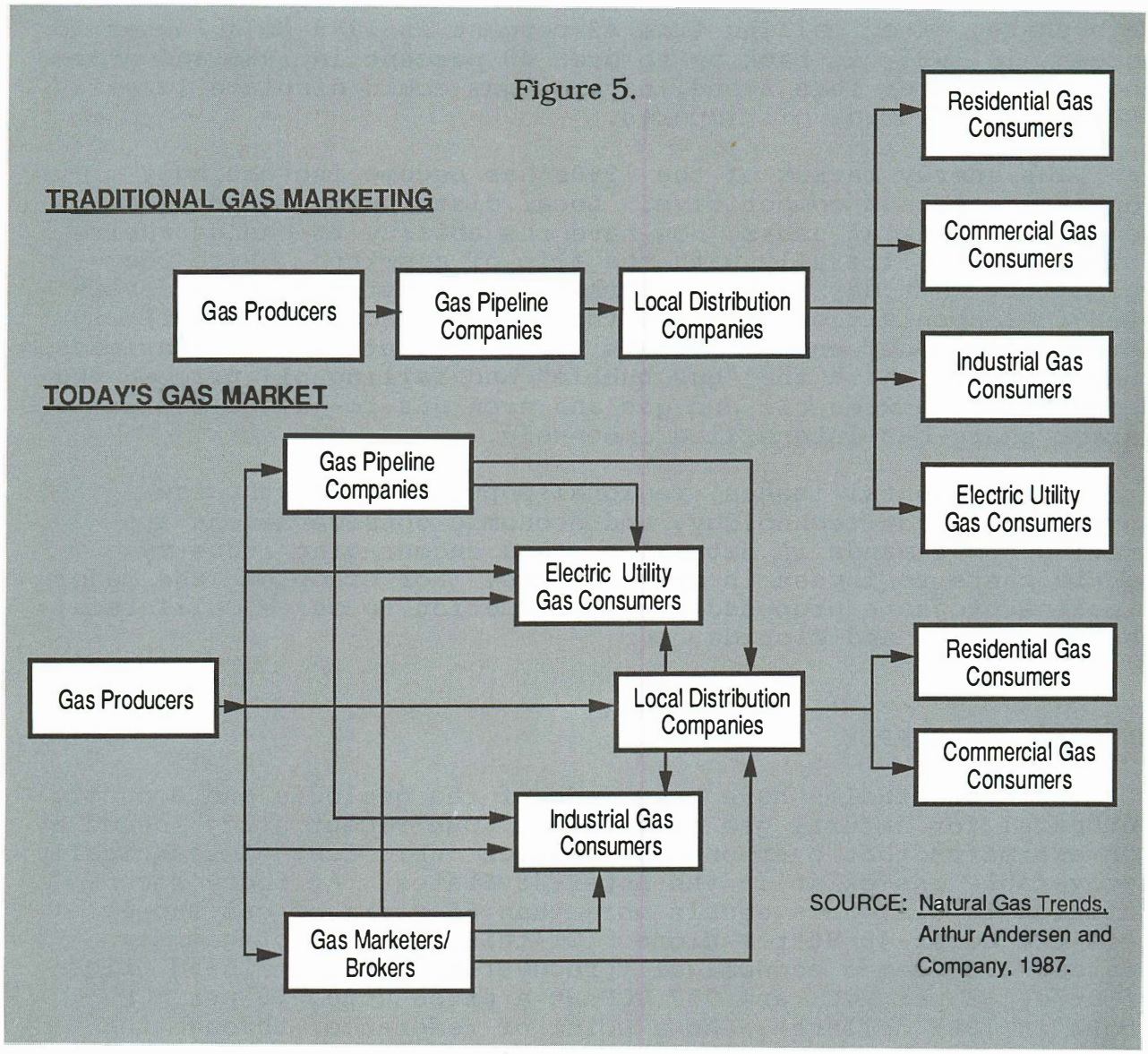
STRUCTURAL CHANGES IN THE INDUSTRY

Responding to the Natural Gas Policy Act of 1978 and Federal Energy Regulatory Commission (FERC) Orders 380 (1984), 451 (1986), and 500 (1987), the gas industry has made structural changes affecting the way business is conducted in the natural gas marketplace. Figure 5 highlights this transformation as industry reacts to less regulation, more competition, open-access transportation, elimination of the minimum-bill obligation, and the opening of new markets for the producers, pipelines, local distribution companies, and other industry participants.

NATURAL GAS MARKETS

The expected turnaround in natural gas demand in the United States occurred in 1987, and as a result industry confidence has improved dramatically. An active spot market for gas has evolved

Figure 5.



simultaneously with the unbundling of services rendered by the gas pipeline industry. Another factor contributing to the development of a spot market has been the partial deregulation of wellhead prices.

As deregulation continues, this should enhance the marketplace's ability to send pricing signals of relative gas availability between the gas-supply and the gas-consuming sectors of the nation. U.S. natural gas demand in the Lower-48 States, which was 16.9 TCF in 1987, is expected to grow to about 18 TCF in 1988. The forecasts used in this study range from 16.5 TCF to 18.7 TCF of Lower-48 gas demand in 1992. The differences between these forecasts are essentially in the assumptions about the potential growth in the commercial, cogeneration, EOR, and electric power generation markets.

Natural gas currently provides more energy to U.S. markets than all U.S. energy imports combined. Concerns exist today regarding the share of oil imports in total U.S. oil consumption.

This share, after falling from 42 percent in 1979 to a low of 26 percent in 1985, is back up to over 40 percent in 1988 and growing. To counter this trend, natural gas could displace large quantities of crude oil imports.

The energy market of the 1980s has become increasingly sophisticated and competitive. Local distribution companies, as well as industrial users, now have the ability to change their energy source literally with the flip of a switch. With the volatility in today's energy market, most customers have developed fuel acquisition programs that provide accurate and timely information about energy markets and the strategic opportunities they present. With the "gas bubble" and falling oil prices, the competition between oil and gas and even gas-to-gas to retain market share has intensified immensely.

Environmental issues, regional population growth, new energy-efficient technology, and economic considerations are driving new demands in natural gas and encouraging industry participants to invest in new projects. For example: the major pipeline projects proposed for construction to serve California, the Northeast, and Florida.

NATURAL GAS SUPPLY

Various studies have been made of the geologic and economic potential for natural gas production. One recent study issued by DOE estimates that over one quadrillion cubic feet of technically recoverable gas exist in the Lower-48 States. At today's consumption levels, this equals more than 65 years of gas supply from the Lower-48 States alone. Of this, 583 TCF of gas resources are deemed economically recoverable at a wellhead price of under $3 per MCF, and 757 TCF at a price under $5 per MCF (both in 1987 dollars). As a point of reference, through the first six months of 1988, gas sold at an average of $1.71 per MCF at the wellhead -- well below the level needed to supply significant new reserve additions.

U.S. gas supply could also be supplemented by significant Canadian imports. As a result of the changes in U.S.-Canadian energy policies, certain barriers have been removed, permitting increasing supplies of Canadian gas to the United States. The Canadian National Energy Board indicates that with adequate new pipeline capacity on both sides of the border, exports could grow from 6 percent in 1987 to as much as 10 percent of U.S. gas demand. In addition, gas supply could be enhanced in the short term by means of LNG imports, or by the more remote possibility of imports from Mexico.

For the short term, the market dynamics will work to balance gas supply and gas demand. In the longer term, U.S. producers will need proper economic incentives to explore for, and develop domestic hydrocarbon prospects to ensure an adequate gas supply to U.S. consumers.

CHAPTER ONE

THE DEVELOPMENT OF THE NATURAL GAS INDUSTRY

BACKGROUND

The development of the natural gas industry has been a function of both technology and regulation. Gas was used as a fuel in the United States as early as 1821; however, it was not until the 1920s that technological advances brought about the transportation of natural gas over long distances, from the major gas fields in the Southwest to the industrial Midwest. After World War II, pipeline activity expanded rapidly through the mid-1960s. From 1945 to 1967, over 30,000 miles of pipeline were constructed, resulting in a network basically resembling that which exists today.[1] The United States has by far the most well-developed natural gas pipeline network in the world, connecting East Coast to West Coast and the Canadian border to the Mexican border.

While technology created the infrastructure, government regulations shaped the industry. A discussion of the regulatory history of the natural gas industry from the Natural Gas Act of 1938 to the Natural Gas Policy Act of 1978 (NGPA) is included in Appendix C.

CHANGES SINCE 1979

The 1970s were a period of natural gas shortages and curtailments, which reached emergency proportions during the harsh winter of 1976-1977. Historically, the natural gas industry has been characterized as highly structured, with inherent regulatory, institutional, and contractual rigidities. With the passage of the NGPA, a series of changes swept throughout the industry. This section focuses on the regulatory reformations since 1979 and the changing dynamics taking place in today's natural gas environment. This historical perspective has been extracted and updated from the February 1987 NPC report entitled Factors Affecting U.S. Oil & Gas Outlook.

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[1] Arlon R. Tussing and Connie K. Barlow, The Natural Gas Industry: Evolution, Structure, and Economics (Ballinger Publishing Company, 1984).

The Natural Gas Policy Act

After 18 months of deliberation, Congress passed the NGPA in 1978 as part of the National Energy Plan. Under the Act, wellhead prices for certain categories of gas were to be decontrolled permanently in 1985 and in 1987, but other categories were to remain price-controlled in perpetuity until produced and depleted. As a result, approximately half of domestic gas remained under price controls beyond the January 1, 1985 deadline and a limited amount, without further deregulation, will still remain under controls in 1990. In addition, in an attempt to resolve the disparity between the interstate and intrastate markets, the NGPA brought intrastate gas under federal regulation for the first time. The legislation also limited FERC's authority to determine ceiling prices, except for certain powers to increase, but not decrease, the ceiling prices on pre-NGPA gas.

The NGPA's partial decontrol, phased over time, reflects judgments made in 1978 about U.S. energy, macroeconomic, and social policy. The Act was based on the premise that a soundly crafted price structure would concurrently stimulate domestic gas production and yet avoid unwanted consumer and macroeconomic effects associated with generally higher prices. However, the projected price structure chosen was based on then-current forecasts through 1985, which later proved to be inaccurate. The price structure of the NGPA tied gas prices to a base-year crude oil price of $15 per barrel (in 1978 dollars), escalating to $18 per barrel in 1985. In fact, crude oil escalated to a peak of almost $40 a barrel in 1981 (about $34 a barrel in 1978 dollars). The NGPA did not provide a mechanism to permit FERC to modify the ceiling prices when actual oil prices did not match the forecasted level.

The NGPA provided for:

- Price Ceilings. The NGPA set a series of maximum lawful prices for various categories of natural gas, including gas sold in both the interstate and intrastate markets. This eliminated the regulatory distinction that had previously existed between the two markets, with interstate rates set on the federal level and intrastate rates largely unregulated.

- Deregulation of New Gas. Price controls on new gas and certain intrastate gas were lifted as of January 1, 1985. Certain high-cost gas was deregulated approximately one year after the NGPA's enactment. Gas from certain new onshore wells was deregulated in July 1987. Old gas and some new gas from old leases will remain under price controls indefinitely.

- Incremental Pricing. The purpose of this provision was to protect residential consumers from large price increases by first passing some portion of increased gas prices to industrial users. The concept never worked

as planned and instead resulted in tying certain industrial gas prices to oil prices. Consequently, the incremental pricing provisions of the NGPA were repealed in 1987 when the Fuel Use Act was amended.

- Transportation Flexibility. The NGPA brought about the advent of self-implementing transportation. It authorized single-state carriers to transport gas on a contract basis for interstate pipelines (and vice versa) without federal review of transmission charges.

Despite unsuccessful attempts in Congress to modify the NGPA deregulation schedule, partial decontrol of natural gas was in fact accomplished on January 1, 1985, as scheduled.

The Fuel Use Act

The Powerplant and Industrial Fuel Use Act was also enacted in 1978 as part of the National Energy Plan. It is important to remember that the Act was devised in reaction to the shortages and curtailments of the mid-1970s and predicated on the belief that the United States was running out of gas.

The Powerplant and Industrial Fuel Use Act prohibits the use of oil and gas as primary fuel in any newly constructed utility power generation facility or in new industrial boilers with a fuel heat input rate of over 100 million British thermal units (BTU) per hour (unless exemptions are granted by DOE). The Act also limits the use of natural gas in existing powerplants to the proportion of total fuel used during 1974-1976, and prohibits fuel switching from oil to gas. In May 1987, Congress amended the Act to repeal many restrictions on the burning of natural gas, so that new facilities now need only have the inherent design characteristics necessary for burning coal in order to be fired with natural gas at the outset.

The Public Utility Regulatory Policies Act

The Public Utility Regulatory Policies Act of 1978 (PURPA) strengthened federal involvement in the regulation of the electric utility industry. PURPA was designed to increase efficient use of resources, conserve natural gas, improve wholesale distribution of electricity, improve reliability of electric service, and provide for equitable rates to consumers. The statute was intended to promote conservation through the encouragement of rate reform, cogeneration, and alternative energy sources (wind, geothermal, waste, and small hydroelectric generation).

Rate reform at the state level under PURPA included the use of time-of-day rates, load management, master metering, and automatic adjustment clauses. When passing PURPA, Congress believed that conservation would be best enhanced by broadening the base of electric power generation beyond traditional utilities. Cogenerators and small power producers who met certain statutory standards were exempted from regulation. Utilities were directed

to permit cogenerators and small power producers to join the grid and to purchase their power at avoided (marginal) cost.

The Post-NGPA Environment and Formation of the "Gas Bubble"

In reaction to NGPA price incentives and removal of price controls, domestic gas producers responded with record drilling in 1980 and 1981. For the first time in over a decade, reserve additions in 1981 exceeded annual consumption. Management of curtailments gave way to management of a surplus, the "gas bubble." Market demand for natural gas fell as prices increased and as fuel efficiency and conservation took hold on a national basis -- in reaction to the price increases arising from FERC Opinion 770 and the NGPA. After 1981, this excess supply problem was compounded by further decreases in demand as gas consumption was displaced by fuel oil when oil prices fell. As a consequence, reserve additions again began to fall, because the "incentive" prices authorized by the NGPA became uncollectible in the marketplace, and revenues realized by producers declined.

In terms of its impact on increasing domestic supplies of natural gas, the NGPA -- like FERC Opinions 770 and 770-A -- had precisely the desired effect. Through the use of incentive and market pricing, accompanied by rising oil prices, it stimulated new drilling activity and resulted in new gas production, which previously had been thought to be limited. The principal shortcoming was its rigidity in pegging gas ceiling prices to a fixed projection of rising oil prices.

FERC Order 380 -- Eliminates Minimum Bill Obligation

As a means of giving interstate pipeline customers greater flexibility in choosing between competing suppliers, FERC implemented Order 380 beginning in May 1984. The Order removed gas costs from pipeline minimum bills. The effect was to greatly reduce the minimum costs of not purchasing gas from a pipeline supplier. No concomitant relief was given to pipelines on their contractual take-or-pay obligations to producers. FERC argued lack of jurisdiction to modify pipeline-producer contracts, as contrasted to pipeline-customer contracts. The effect of Order 380 was to give pipeline customers the freedom to seek gas from suppliers other than their traditional pipeline supplier. Thus, the door was opened for pipeline-to-pipeline competition and accelerated growth of the spot market for natural gas.

Special Marketing Programs

In an attempt to address the problems associated with the gas bubble and maintain existing sales, FERC authorized the use of special marketing programs (SMPs) in 1983. They were the first of a series of gas sales programs that allowed discounted system supply gas to be sold directly to off-system customers and industrial end-users rather than through the traditional tariff mechanisms. SMPs were designed to retain lost direct and indirect pipeline customers that were threatening to switch to an

alternative fuel. Since most of the customers that can switch fuels are industrial users, SMPs were aimed primarily at them. On May 10, 1985, the U.S. Court of Appeals for the District of Columbia decided Maryland People's Counsel v. FERC and found SMPs and certain other transportation programs flawed because they discriminated against local distribution companies and captive customers.

FERC Orders 436 and 500 -- Create Open Access Transportation

In October 1985, FERC issued Order 436 in an attempt to revamp the regulation of gas pipeline operations and to respond to Maryland People's Counsel v. FERC. The transportation program outlined in Order 436 requires nondiscriminatory access to a pipeline's carriage service, and volumetric, downwardly flexible cost-of-service rates for firm-service and interruptible-service transportation.

Although FERC has previously adopted programs aimed at allowing pipelines to transport gas for others (so-called "contract carriage") under certain circumstances, Order 436 was designed to allow broad, simplified self-implementation of such programs. Order 436 resulted from a belief by FERC that end-users and local distributors should be able to receive the benefits of competition. FERC planned to increase competition by giving distributors and end-users access to interstate pipeline capacity by allowing them either to reduce their contract demand rights or to convert them to firm-service transportation.

On June 23, 1987, the U.S. Court of Appeals for the District of Columbia vacated Order 436 and remanded the rule to FERC for further proceedings. In the case Associated Gas Distributors [AGD] v. FERC, the Court ruled that the contract demand adjustment provisions of Order 436 suffered "from a want of both legal authority and reasoned decision making." The Court held that Order 436 ignored the fact that unilateral contract demand reductions would exacerbate the take-or-pay problem facing the natural gas industry.

On August 7, 1987, FERC responded to the AGD decision by issuing Order 500, an "Interim Rule and Statement of Policy." Order 500 kept those portions of Order 436 generally upheld by the Court intact while addressing those elements of Order 436 which the Court found objectionable. FERC postponed the implementation of the contract demand-reduction provision of the original order, reserving the option to revisit the issue in its final order. In addressing the Court's concern with the take-or-pay issues, Order 500 provides pipeline companies with policies for settlements of take-or-pay deficiencies. To offset existing take-or-pay deficiencies, the interim Order permits interstate pipelines to require, as a condition to providing transportation, offers from producers that allow a pipeline to credit gas transported against the pipeline's take-or-pay liability under contracts entered into prior to June 23, 1987; and provides pipelines with rate mechanisms to recover take-or-pay

and buydown costs associated with past liability. Order 500 sets forth principles for designing future gas-supply charges to prevent future take-or-pay liability. As of November 1, 1988, a final rule had not been issued in this controversial proceeding.

FERC Order 451 -- Establishes Single Wellhead Ceiling Price

Shortly after issuing Order 436, FERC began consideration of a rule proposed by DOE to fundamentally restructure the "old" gas-pricing system. The DOE proposal would have eliminated vintage pricing and replaced the various ceiling prices with a single ceiling price -- the ceiling price for old gas brought into production after 1974.

In May 1986, FERC issued Order 451, modifying the DOE proposal. This rulemaking would eliminate the large number of vintages of old gas by establishing a single ceiling price for gas dedicated to interstate commerce prior to enactment of the NGPA, and for still-regulated categories of gas sold under rollover contracts. The rule also establishes procedures for renegotiation of contracts to receive prices up to the higher ceiling, and allows pipelines with multi-vintage contracts to nominate high-cost gas for renegotiation when a producer nominates lower-cost old gas under the same or other existing supply contracts between the parties.

FERC Order 490 -- Removes Producer Service Obligations

To further competition in natural gas wellhead markets, FERC has taken initiatives to remove another obstacle -- producer service obligations. In the regulated environment, producers continued to be obligated to the pipelines even after their contracts expired. FERC began to loosen the constraints of producer service obligations in Opinion 245 (issued December 9, 1985) by offering producers Limited Term Abandonments of their sales obligations to pipelines. On July 21, 1987, in Consolidated Edison Co. of New York v. FERC, however, the U.S. Court of Appeals for the District of Columbia reversed FERC's decision because of its detrimental effect on pipelines' take-or-pay exposure.

FERC issued Order 490 on February 5, 1988. Under Order 490, producer-pipeline service obligations may be abandoned by mutual consent. Additionally, producers may choose unilaterally to stop selling gas to a pipeline once a contract with a pipeline expires. A pipeline may only initiate abandonment of expired pipeline-producer contracts if it is an Order 500 transporter. Order 490 is silent concerning pipeline service obligations to customers.

INDUSTRY IN TRANSITION

As discussed in the previous section, significant deregulation of supplies and markets began with the NGPA and is

continuing with the issuance of FERC Order 380, Order 451, Order 500, and related regulations. These actions have changed the way business is conducted in the natural gas industry. Today's environment has less centralized control, more volatility, risk, and fragmentation, coupled with more opportunity (for consumers, local distribution companies, pipeline companies, and producers). This section elaborates on some of the effects of reduced government regulation and increased competition.

Demand Patterns

In the 1970s, the nation was striving to meet its growing energy needs. Since 1979, the growth in gas markets has become more pronounced in certain regions of the United States.

The physical pipeline network of the nation is in a mature state. Virtually every area of the country is served by at least one pipeline. Although there have been changes in the pattern of demand and regions of supply over the years, the nation's pipeline capacity has essentially remained the same. While on a national basis there is adequate capacity, pipeline capacity issues are a concern in certain areas of the United States. Regional gas demand has increased over the last decade due to:

- Residential and commercial growth, significant fuel substitution in the electric utility sector, and cogeneration markets in the Northeast
- The advent of the EOR and cogeneration markets in California
- Strong electric power generation, residential, and commercial markets in Florida.

Another significant issue facing the industry is the seasonal demand for natural gas. Service to cover high peak demands in the winter poses a challenge for the industry. Although the average annual demand for natural gas over the last decade has dropped significantly, peak winter demand continues to tax the existing national pipeline network in certain regions of the country. The more pronounced seasonality of pipeline loads in combination with lower annual demand, however, make investment in new pipeline construction difficult to justify economically.

Gas-to-Gas Competition

In the late 1970s and early 1980s, gas competed against alternative energy forms such as oil, coal, nuclear, hydro, electric, and solar energy. With the advent of the gas bubble, the drop in market barriers for producers and end-users, and the increased unbundling of services and transportation arrangements being offered by pipelines, many sources of gas supply across the country began competing, for the first time, against each other for national market share.

New End-Use Markets

As a result of legislation passed in 1978 (i.e., NGPA and PURPA), new markets have developed for industry participants in the natural gas business. Specifically, PURPA stressed conservation and promoted alternative energy projects and cogeneration. The cogeneration of steam and electricity in the U.S. manufacturing industry has technical and economic attractions that are both large and growing. When cogeneration is accomplished with "combined cycle" systems, in which hot exhaust gases from a natural gas-fired combustion turbine are used to power a separate steam turbine, higher fuel-use efficiency results. The combination of this higher efficiency with relatively low-cost natural gas makes the basic economics of cogeneration appealing for industrial users.

Electric power generation is another strong new growth market for the U.S. natural gas industry. Natural gas holds an economic advantage as a fuel source for fuel-switchable applications and for additions to generating capacity by power companies. The 1987 repeal of certain restrictions of the Fuel Use Act allowed the electric utility industry to select gas-fired generation facilities to meet increased electricity requirements. These requirements for more electricity have begun to develop in certain regions of the United States, notably the Northeast and Florida.

A third new market developing is the California EOR projects, located in Kern County. In order to comply with federal and state clean air standards -- and due to competitive pricing for natural gas versus burning lease crude oil for EOR thermal use -- natural gas is playing a primary role as the fuel source to generate steam for thermal recovery.

With technological advances, natural gas has the potential for new end-use markets as an alternative fuel (compressed natural gas) for: fleet use of transportation vehicles; space conditioning for cooling of commercial buildings; commercial applications for appliances (fryers, griddles, ovens, water heaters, and steam cooking systems); use in pollution control (mitigating emissions from hazardous-waste incineration and cleaning up contaminated ground water)[2]; and conversion to polyethylene. Additionally, growing concern over the greenhouse effect may promote gas as a fuel of choice over other fossil fuels.

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[2]Gas Research Institute, 1989-1993 Research & Development Plan, GRI, June 1988.

Changing Relationships Between Producers, Pipelines, and Local Distribution Companies

Industry restructuring has resulted in a rethinking of historical roles and in recognition of relative risks and rewards. Each segment of the natural gas industry (producer, pipeline company, local distribution company, and new market entrant) is looking for new ways to expand its role within the industry and is seeking increased independence. Examples:

- Local Distribution Company (LDC) -- The elimination of the minimum bill obligation has provided the LDC added supply options at varying costs. The supply portfolio with its inherent risk is increasingly managed by the LDC and has somewhat reduced the role of the pipeline as the gas supply aggregator. LDCs are increasingly moving into the role of securing adequate supplies of gas and are learning inventory and storage management, which historically has been provided by the pipeline companies.

- Producer -- The effects of the post-1979 regulatory initiatives have opened up new markets for the producer. No longer is the producer captive to the pipeline; producers now can negotiate directly with end-users for markets and with intermediate pipelines for transport. The result is a new competitive arena for gas supply and market.

- Pipeline -- Pipeline companies are continuing their traditional obligation of serving, while at the same time discounting to compete in the open marketplace and providing transportation services to maintain throughput levels and retain markets. Take-or-pay issues are continuing to be addressed. Historically, the function of the pipeline has been to act as a merchant. Pipelines took title of the gas from the producer, balanced the supply and demand of gas through gas storage management, and sold the gas to the LDCs. In response to the NGPA and with the advent of open access, the role of the pipeline has shifted from being solely a merchant to being both a merchant and a transporter. In this transporter role, the pipelines are encouraged to unbundle services to allow customers to pay for only those services they desire.

- New Participants -- Deregulation has brought about a new group of industry participants, i.e., brokers, independent marketers, pipeline and producer marketing affiliates, information purveyors, and consultants, who are seeking expanded market niches made possible by less regulation and more freedom of choice.

Promotion of Competition in Sales and Transportation

The lessening of wellhead price control (NGPA) has enabled natural gas prices to approach market clearing levels, a sign of improved economic efficiency.

To ensure access to alternative sources of gas and to encourage competition between pipelines, FERC has implemented rules on flexible purchase gas adjustments, flexible transport rates, self-implementing certificates, and a comprehensive package of reforms that provides for open-access on pipelines. FERC also adopted procedures for pipelines to implement a gas inventory charge in recognition of the fact that a valued service is provided when supplies are reserved through contractual arrangements.

The evolution of supply/market deregulation, while allowing producers and independent marketers to compete directly for customers, is also allowing pipelines and affiliates to compete with producers and marketers, and to compete against alternative fuels in both the sales and transport functions.

Administrative Complexities

The changes driven by regulatory reform since 1979 have significantly increased the administrative burden and simultaneously shortened the participants' response time. Traditionally, the gas pipelines and LDCs were the aggregators of supply and demand through which all transactions passed. Today, transactions can occur between several participants. This multiplies the number of transactions exponentially. Coupled with the introduction of the spot market, interruptible transportation, unbundled services, and increased market fragmentation, the complexity increases; transactions become shorter term and decisions regarding contracts, nominations, and scheduling must be completed in compressed time frames. This complexity and fragmentation of the industry have exacerbated the problem of gas volume imbalances, which because of the price volatility, can result in significant unexpected financial losses or gains.

These problems have caused substantial increases in support staffs in all segments of the industry, and increased need for advanced information systems. The consequence is not only increased costs and management challenges, but the fragmentation impedes the operation of a coordinated network.

Realignment of Supply Portfolios

Order 380 and other deregulation moves have provided LDCs a great deal more freedom in the market. To serve interruptible customers with fuel-switching capabilities, they can purchase gas in the spot market at competitive prices. They can lock in long-term supply or transportation capacity to back up their long-term obligations. They can now develop a portfolio of supplies to best serve the needs of their whole range of customers. This

freedom comes with additional responsibility. As the pipelines' obligation to serve is reduced, LDCs will increasingly assume the risks of supply assurance at acceptable prices. Price-hedging strategies, such as a national gas futures market, may become necessary to keep these risks manageable.

Reformation of Supply Contracts

The gradual deregulation of the industry, the emergence of a dynamic spot market, and the accumulation of large take-or-pay obligations in the early 1980s have encouraged a movement toward reforming contracts between industry participants to become more market-responsive.

In addition, industry participants are signing an increasing number of short-term contracts in reaction to changes in the marketplace as the industry adapts to the relaxation of the regulatory process, excess gas supply, and the forces of increased competition. The net result is twofold. First, obligations, commitments, and relationships are developing on a much shorter-term basis. Contracts are not as long term as they have been historically, due to the strategic positioning of industry participants in a changing environment. Second, contracts are being structured to be market-responsive and sensitive to changes in gas prices.

Impact of Increased State Regulation

As FERC reduces its restraints on the marketplace, the needs and wants of the customer and the state Public Utility Commissions (PUCs) will play an increasing role in the marketplace. The regulatory bodies of some states have placed a greater emphasis on the cost of serving different customers and have modified their regulations to allow local utilities greater freedom to charge different prices to different classes of customers. Another significant issue in the industry is the "bypass" issue in which customers (primarily large industrials) are bypassing LDCs and purchasing their fuel direct from a pipeline or producer. To ensure retention of their businesses and customers, industry participants are responding to these changes in the marketplace and the actions of the state PUCs. The industry is concerned about mixed signals being sent to the marketplace by the actions of 50 separate state PUCs. In fact, the increased scale of industry regulation at the state level may offset or reduce the benefits of reduced regulation at the federal level.

SUMMARY

The 1980s have marked a renewed evolution of the natural gas industry. The scope of this transformation is attributable to changes in:

- The regulatory process
- The basic patterns of gas demand

- The economic fundamentals of gas supply
- The structure and economics of the industry.

Significant issues face the industry as it adapts to the impact of less regulation and increased market competition. The industry is moving through a phase in which each of its three component entities (producer, pipeline, distributor) is engaged in buying, transporting, and selling activities. As the myriad industry participants adjust to the signals of an increasingly competitive, complex market environment, the nation is expected to benefit over the long term. Nevertheless, until the industry settles more comfortably into this evolving economic environment, a major stress to the system is likely to uncover unexpected local supply and demand imbalances. Such imbalances could well entail considerable short-term increases in prices.

CHAPTER TWO

NATURAL GAS SUPPLY AND DEMAND OUTLOOK

NATURAL GAS SUPPLY

Evaluations of the gas resource base by DOE, the Potential Gas Committee, the Minerals Management Service, and the U.S. Geological Survey have indicated large quantities, possibly up to as much as 1,000 TCF, of natural gas that will be the basis for future production. A recent analysis of the gas resource base was published in May 1988 by DOE. "An Assessment of the Natural Gas Resource Base of the United States" indicated that 1,059 TCF of technically recoverable gas exist in the Lower-48 States, which at current consumption levels equals over 65 years of gas supply. Of this, 583 TCF of gas resources are deemed economically recoverable at a wellhead price of under $3 per MCF and 757 TCF at a wellhead price under $5 per MCF (both in 1987 dollars). As a point of reference, through the first six months of 1988, gas sold at an average of $1.71 per MCF at the wellhead -- well below the level needed to support significant new reserve additions.

Proved Reserves

Proved reserves refers to that portion of the natural gas resource base which has been discovered and about which there is a "reasonable certainty" of its existence and recovery under current economic and operating conditions. At year-end 1987, the Lower-48 States had proved reserves of 154 TCF. Historical statistics concerning proved reserves and the production versus reserve additions in the Lower-48 States are illustrated in Figures 6 and 7, respectively. Twenty years of steady growth characterized the historical proved reserves up to 1967, at which time the reserves achieved a peak level of 289.3 TCF. After that peak year and prior to 1981, annual production was larger than annual reserve additions, causing a steady decline in reserves. The ratio of proved reserves to production ("reserve life index") is a useful statistic that indicates the intensity of production. A low ratio indicates vigorous production relative to exploratory activity; a high ratio suggests the capability of increasing production. Figure 8 illustrates a declining trend of the reserve life index from 1947 to 1979 for the Lower-48 States. This index has increased since 1979 and is indicative of the production level below the maximum possible -- the gas bubble.

Prior to 1970, federally established wellhead prices for interstate gas (below the cost of alternative fuels) caused consumers to increase demand for natural gas, but also limited prices to below the producers' cost to replace produced reserves. The consequences of this became apparent when Lower-48 annual

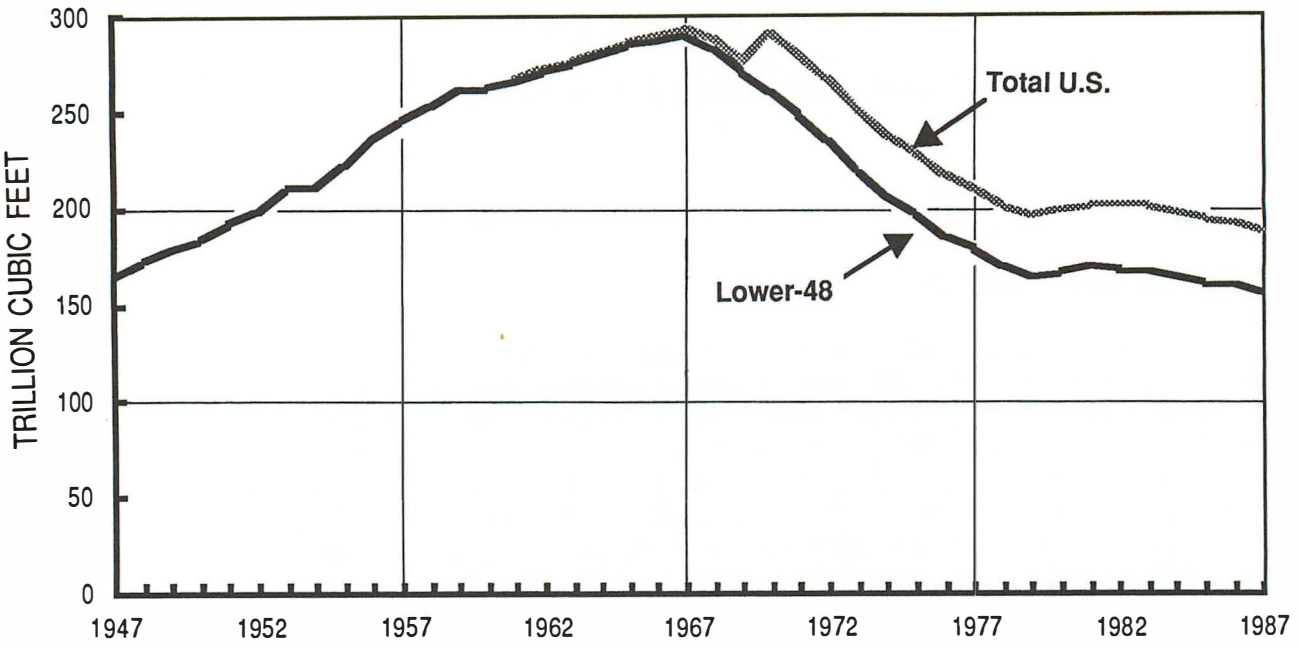

Figure 6. Proved Reserves (Year End).

SOURCE: 1947-1979 -- *Reserves of Crude Oil, Natural Gas Liquids, and Natural Gas in the United States and Canada - 1979,* American Gas Association, Arlington, Virginia, 1980; 1979-1987 -- *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves - 1987 Annual Report,* Energy Information Administration, Washington, D.C., 1988.

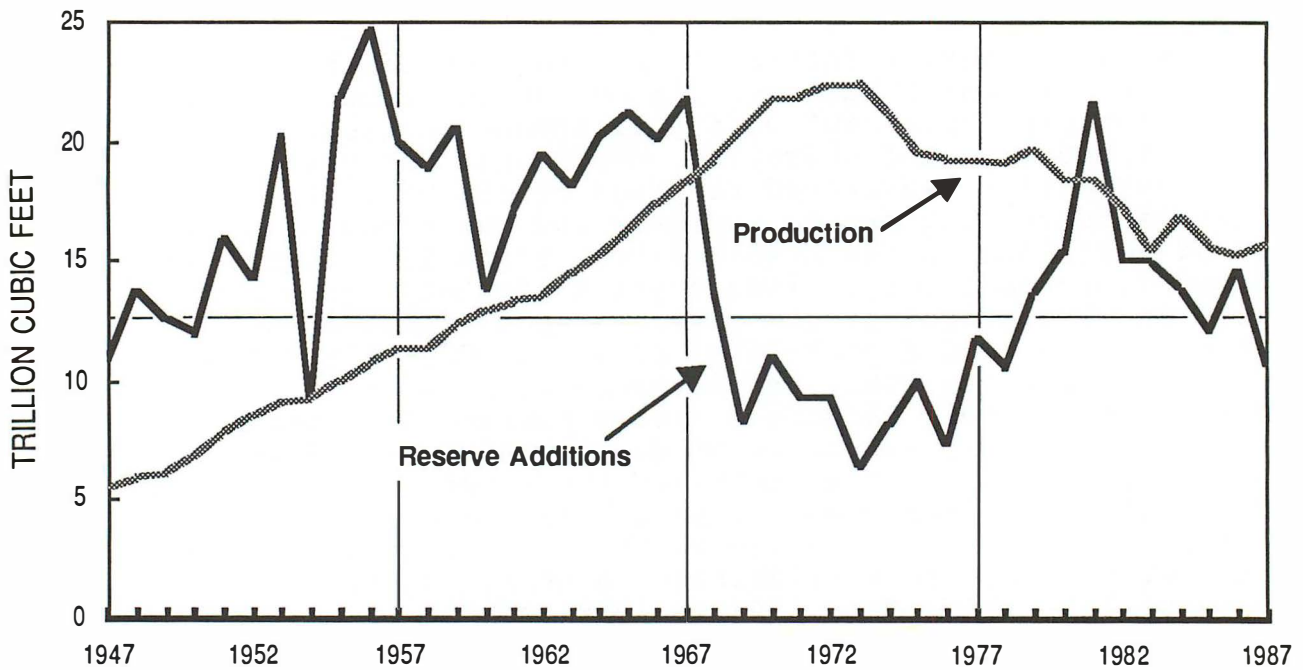

Figure 7. Production vs. Reserve Additions (Lower-48 States).

SOURCE: 1947-1979 -- *Reserves of Crude Oil, Natural Gas Liquids, and Natural Gas in the United States and Canada - 1979,* American Gas Association, Arlington, Virginia, 1980; 1979-1987 -- *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves - 1987 Annual Report,* Energy Information Administration, Washington, D.C., 1988.

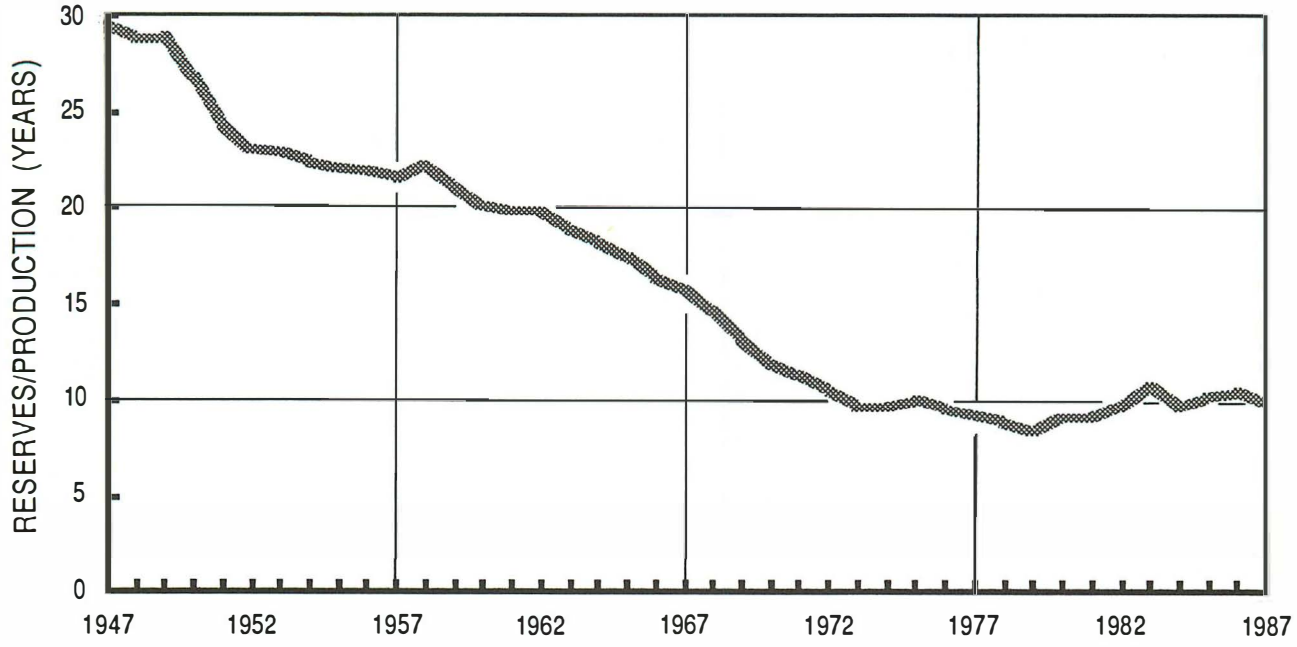

Figure 8. Reserve Life Index (Lower-48 States).

SOURCE: 1947-1979 -- *Reserves of Crude Oil, Natural Gas Liquids, and Natural Gas in the United States and Canada - 1979,* American Gas Association, Arlington, Virginia, 1980; 1979-1987 -- *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves - 1987 Annual Report,* Energy Information Administration, Washington, D.C., 1988.

reserve additions dropped below 12 TCF after 1968. During the early 1970s, some price adjustments in the federally established wellhead prices for interstate gas were authorized. These improved prices led to increases in the gas-oriented drilling activity in the mid-1970s.

By 1973, after six years in which reserve additions were less than half of production, the level of annual production began to decrease. This decline was initially due to production limitations, but demand reductions became dominant in the 1980s, so that by 1987 production was only 16.3 TCF. During this long-term decline in production, the reserve additions statistics began to improve with rising prices, and they jumped significantly as a result of the passage of the NGPA. This legislation was designed to increase the incentives to find new gas, and to increase gas supplies by granting higher prices for recently discovered gas and deregulating the price of most of this gas by January 1, 1985. In addition, a single market was created whereby intrastate and interstate companies could sell gas to each other.

Reserve additions in the early 1980s as shown in Figure 7 were improved. In 1981, reserve additions for the total United States were 114 percent of production. Lower-48 reserve additions in that year were reported by EIA to be 21.56 TCF -- the highest level of reserve additions since 1959. Although declining prices for oil and gas after 1981 have resulted in continually declining reserve additions, the ratio of reserves added to

production for the Lower-48 States averaged 89 percent. This trend has been declining since 1981 -- in 1987 it was 69 percent. In contrast, this ratio for the decade preceding passage of the NGPA averaged only 45 percent. The direct response of reserve additions to the price of gas has been demonstrated in times of rising and falling prices.

New additions to proved reserves are likely to require more drilling (or well completions) than has been required in earlier years. Figure 9 illustrates the decline in gas discoveries per gas well completed since 1966. This trend reflects the increasing difficulty of developing the remaining gas resources and the tendency of some small independent producers to drill in low risk, low productivity areas. This type of drilling activity surged in the late 1970s and early 1980s. Both factors have contributed to the drop in reserves added per gas well from 3.0-4.0 BCF per well in the mid-1960s to the 0.7-1.0 BCF per well levels of the later 1980s.

Drilling Activity

Increasing prices and demand for natural gas contributed to increased gas well drilling through much of the 1970s. With passage of the NGPA in 1978, this activity received a significant boost. Rig counts, seismic crew counts, and gas well completions reached all time highs in 1981, when 19,900 gas wells were completed. Many of these wells were in-fill wells to increase

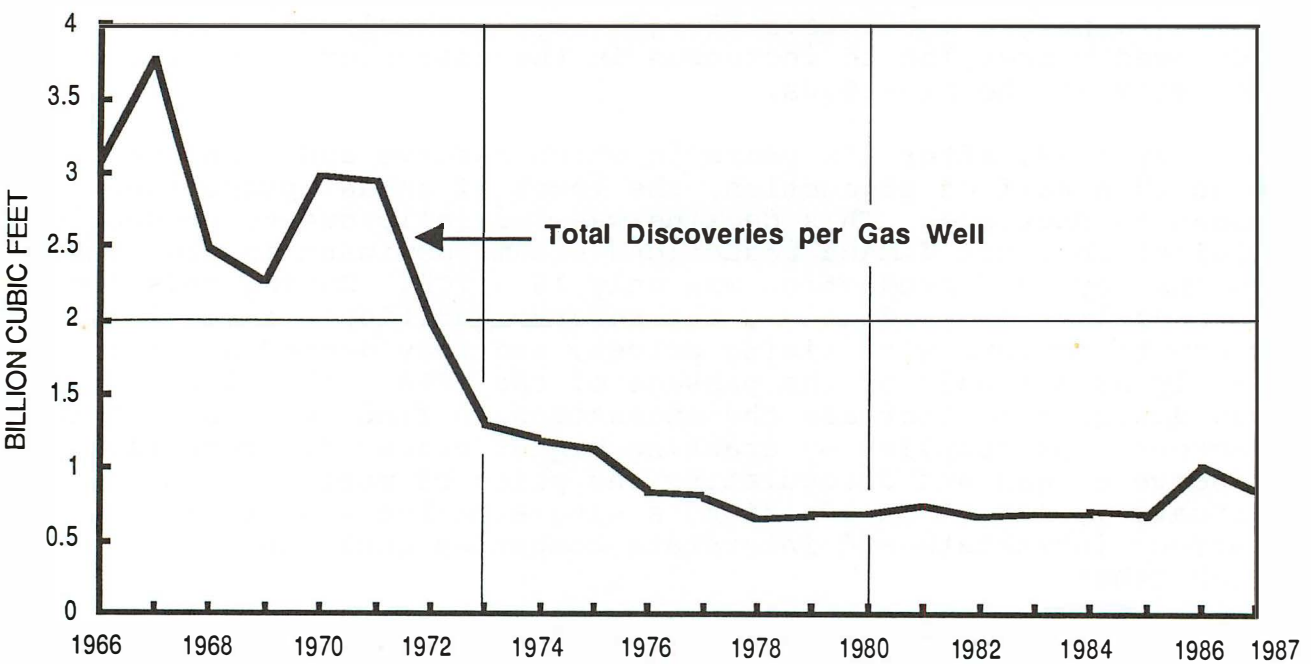

Figure 9. Reserves Added Per Gas Well -- 1966-1987.

SOURCE: 1947-1979 -- *Reserves of Crude Oil, Natural Gas Liquids, and Natural Gas in the United States and Canada - 1979,* American Gas Association, Arlington, Virginia, 1980; 1979-1987 -- *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves - 1987 Annual Report,* Energy Information Administration, Washington, D.C., 1988.

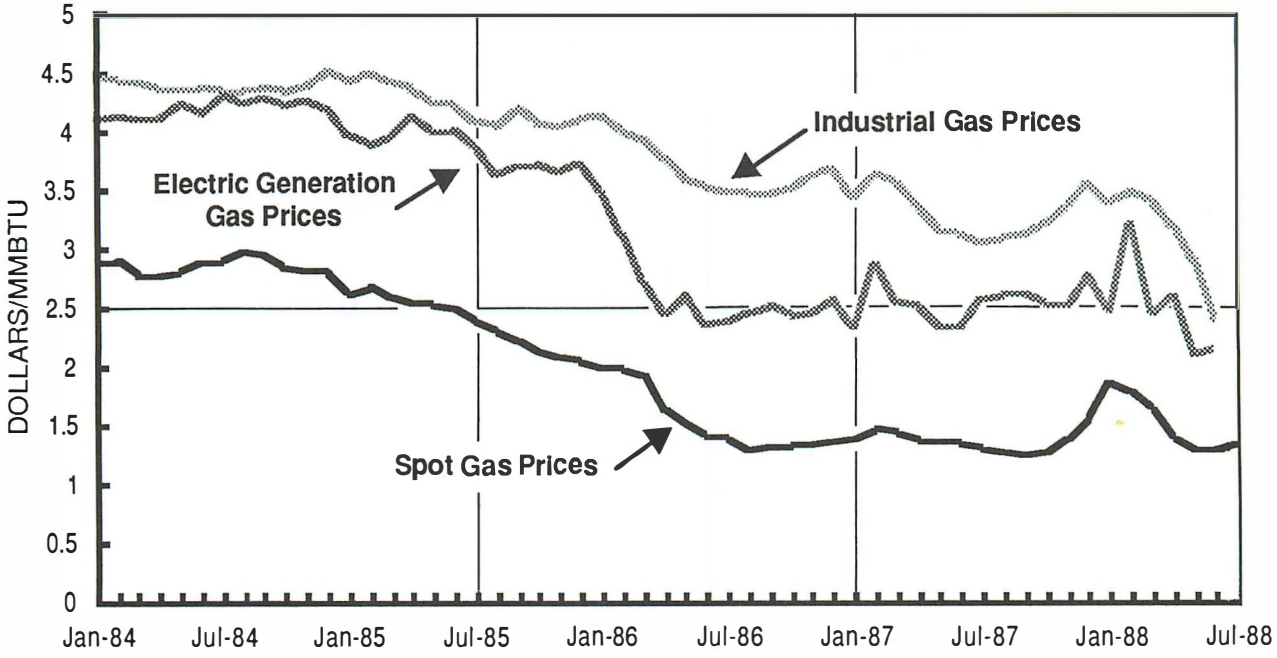

Figure 10. Monthly Spot, Industrial, and Electric Generation Gas Prices.

SOURCE: Spot prices from Natural Gas Intelligence, Gas Price Index.
Industrial and electric generation prices from the American Gas Association, Gas Stats.

deliverability, but their effect on reserve additions was also significant.

While this drilling activity strengthened production capability, losses in demand led to the so-called "gas bubble," production capability that exceeded demand for gas. The lower production levels in the early 1980s were typically the result of reduced demand for gas -- not a limitation in production capability. In fact, production capability remained well above actual demand through the 1980s. Current estimates generally show that the excess (annualized) production capability could disappear in the early 1990s. However, during winter peak-demand periods, it is quite possible that no excess deliverability could exist -- as early as the winter of 1988-1989. Seasonal peak loads that occur during the winter heating season usually require peak monthly production, as well as storage and peak-shaving inputs to satisfy the seasonal demand.

As a result of the annual gas supply bubble, many producers experienced difficulty in selling gas at high delivery rates or at maximum permissible NGPA prices. These marketing problems caused significant reductions in drilling, beginning in 1983. This reduction in drilling activity accelerated between 1983 and 1988, as producers reacted to the disincentive for drilling created by the gas bubble and generally declining wellhead prices. Figure 10 illustrates the spot-market prices paid in the producing regions of the country. While the gas supply bubble exists

on an annual average basis, production capabilities are generally fully utilized during peak winter periods.

Although levels of gas well completions from 1985 to 1988 are depressed from the peak year of 1981, they are not exceptionally low in a broader historical context. Note in Figure 11 the growth in gas well completions since 1968. With the exception of the peak drilling period in 1978-1984, the number of gas well completions in 1985 was higher than any other year in history, while 1987 levels were higher than any year prior to 1975.

Potential Future Impact

However, with the decline in gas discoveries per well drilled, the 1987 level of 7,570 gas well completions will need to be increased before additions to proved reserves could again achieve the replacement ratios of the early 1980s. As shown in Figure 12, the number of rigs operating per week has been reduced from the peak level of over 4,000 in 1981. While the decline in drilling activity since then has produced severe hardships in the oil services industry, some economic benefits have been realized. Due to increased efficiency and increased competition, the cost of drilling has declined significantly from the peak levels of the early 1980s. It is possible that future reserve additions could be produced, with lower drilling costs than those which characterized the statistics from the traditional areas during the early 1980s, until demand for and supply of drilling rigs and seismic crews approach balance. On the other hand, increases in

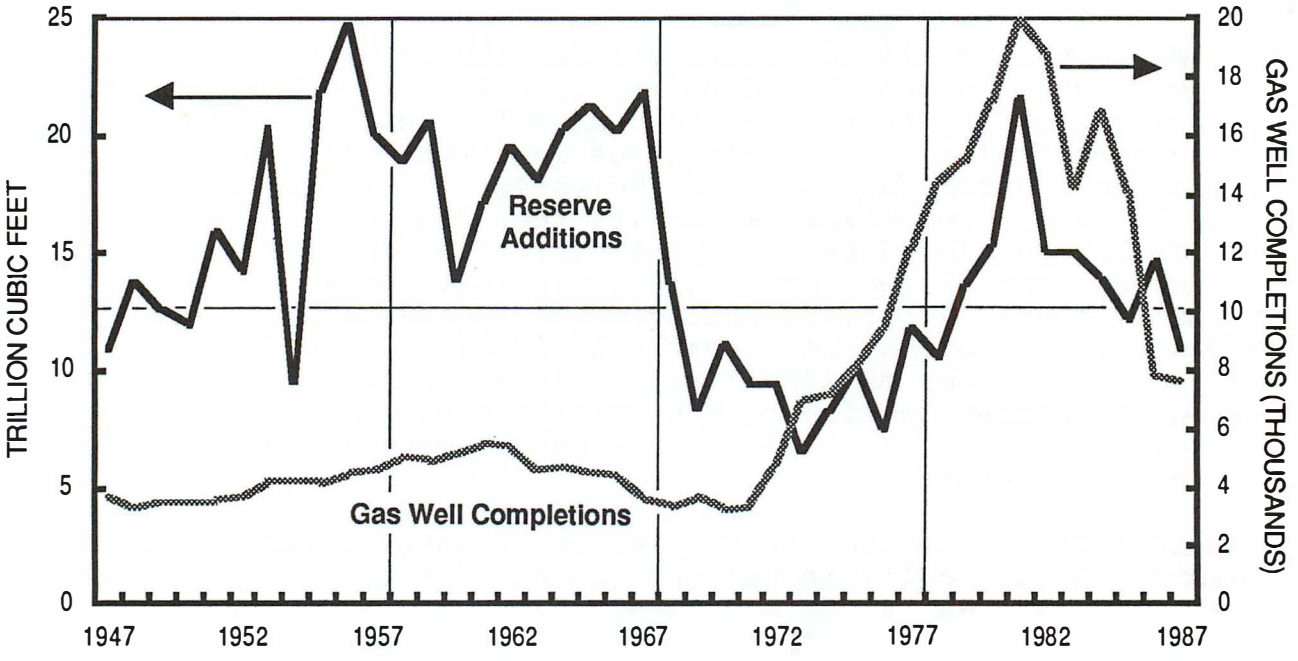

Figure 11. Reserve Additions and Completions (Lower-48 States).

SOURCE: 1947-1979 -- *Reserves of Crude Oil, Natural Gas Liquids, and Natural Gas in the United States and Canada - 1979,* American Gas Association, Arlington, Virginia, 1980; 1979-1987 -- *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves - 1987 Annual Report,* Energy Information Administration, Washington, D.C., 1988.

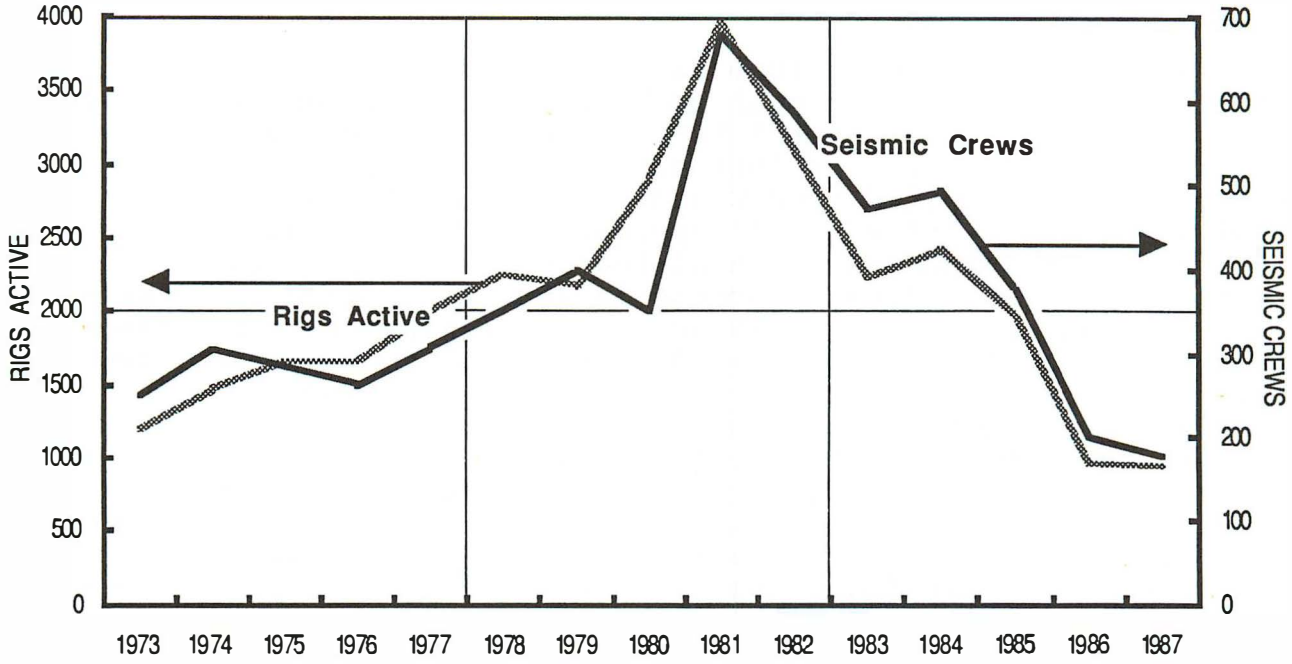

Figure 12. Average Weekly Rotary Rigs and Seismic Crew Count.

SOURCE: Monthly Energy Review, Energy Information Administration, Washington, D.C.

drilling costs may occur from drilling in deep water, from higher pressures, greater hydrogen sulfide concentrations, and the like. Also, the recent movement toward deregulation of the gas industry will closely link gas production activity and the gas market. As a result, the level of drilling activity will depend much more on the economics of the gas marketplace than it has in past years. In the absence of stable and profitable gas prices, drilling activity could be severely restricted, jeopardizing the availability of natural gas in future years.

Gas Supply Summary

Total U.S. gas production peaked in the early 1970s at nearly 22 TCF. The impacts of low regulated prices on U.S. gas production and the inability to expand Canadian exports led to a decline in U.S. gas supply to about 20 TCF by 1975. Supplies stabilized at this level through 1981, as increasing price ceilings led to increased exploration and development in the United States and increased availability of Canadian gas in U.S. markets. Beginning in 1981, reduced activity in many large gas-using industries, a shift in the industrial structure toward less gas-intensive industries, fuel switching, and conservation resulted in reduced gas supplies being required by U.S. gas customers by 1986. Since 1987 there has been a recovery in demand. Despite this increased consumption of gas, total supply availability on an annual basis, including imports and synthetic gas, still exceeds the demand for gas, although the excess is narrowing.

Canadian Gas Imports

Natural gas imports from Canada represent an important supply to U.S. markets. Through much of the 1970s, imports exceeded 0.9 TCF, and in 1979, over 1 TCF was imported. By 1986, only about 0.75 TCF of gas, or just over 4 percent of U.S. gas consumption, was imported from Canada. This level rose again in 1987 to nearly 1 TCF and will approach 1.3 TCF annually by year-end 1988. The Canadian National Energy Board indicates that exports could grow from 6 percent in 1987 to as much as 10 percent of U.S. gas demand, with adequate new pipeline capacities on both sides of the border. By 1990, the amount of gas imported from Canada will depend on a number of factors, including Canadian pricing policies, concerns over the rate of resource development, the rate of growth of gas demand in Canada, and the impact of changing markets on U.S. gas resource development. After 1990, the development of the frontier areas and the construction of transportation systems for this gas will become significant factors in the level of exports. However, as shown in Figure 13, the size of the Canadian gas resource is not viewed as a factor that would significantly limit the amount of gas available for export in the time-frame of this report. Although U.S. gas potential, reserves, and production are much greater, Canada has a much higher reserves-to-production ratio, suggesting a potential for much greater gas production.

Mexican Gas Imports

A large gas resource base exists in Mexico. Much of this resource is associated-dissolved gas that is produced in conjunction with oil. Most estimates confirm the existence of a potentially large gas resource base of 200 TCF or greater. Between 1980 and 1984, the United States imported between 50 and 105 BCF per year from Mexico. The resumption of this trade between the United States and Mexico is limited more by economic and political issues than by physical capabilities. Clearly, Mexico has placed a high priority on the use of this gas domestically in order to maximize their oil exports. Although exports to the United States could be resumed at any time, most observers do not anticipate such imports to be a significant contributor to the U.S. supply picture in the next five years.

Alaskan Gas

EIA reported proved Alaskan reserves at year-end 1987 to be 33.2 TCF. Of this total, 24.6 TCF has been "written down" by producers, because these reserves on the North Slope of Alaska do not, at present, have a market outlet. However, the Alaskan Natural Gas Transportation System or LNG shipments from southern Alaska could affect the gas markets in the Lower-48 States by the turn of the century. Current economics limit the construction needed to market these gas supplies.

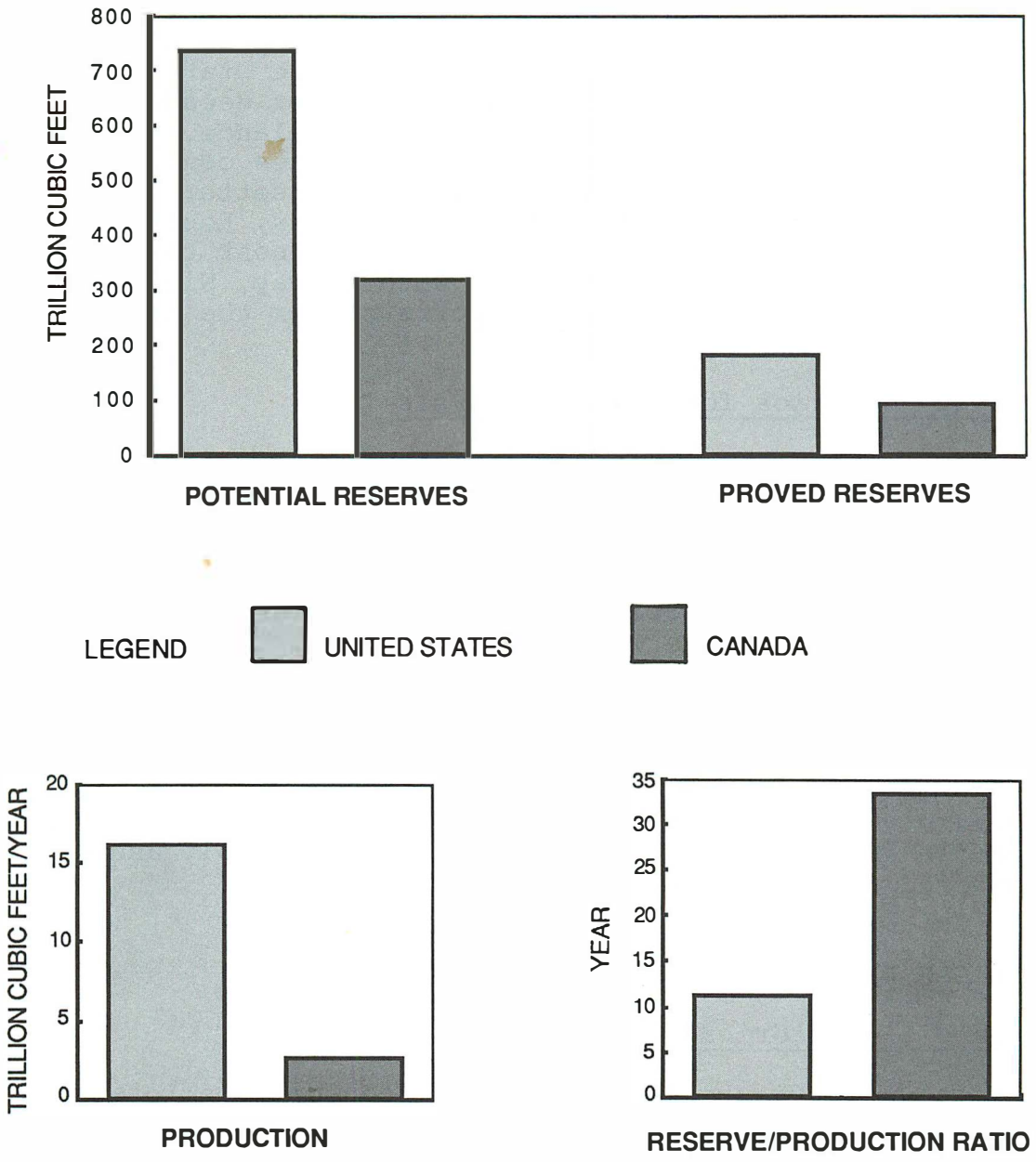

Figure 13. Natural Gas Statistics (U.S. and Canada).

SOURCE: "An Assessment of the Natural Gas Resource Base of the United States," U.S. Department of Energy, May 1988.
NOTE: Gas "potential" is based on a wellhead price of $5 per MCF (in 1987 dollars).

LNG Imports

Large, worldwide gas resources are not geographically close to markets. As a result, these resources have potential to contribute gas to the world LNG trade. This trade started 30 years ago and has increased significantly in the past decade. When the U.S. gas supply and demand come into closer balance, the resumption of large LNG imports into the United States could occur. The established terminals at Everett, Massachusetts; Elba Island, Georgia; Cove Point, Maryland; and Lake Charles, Louisiana are the most likely terminals to be used. In the near term, imports from Algeria will dominate the trade with Norway, Nigeria, and Trinidad-Tobago as potential new exporters over the next 10 to 15 years.

Gas Supply Scenarios for Stress Analysis

In evaluating the impact of certain stresses on the ability of the U.S. pipeline system, various available forecasts were examined to gauge the range of gas supply estimates for 1992. The lower and higher forecasts were discarded as being sufficiently different from the other forecasts. Two levels of forecasts for Lower-48 production, 15 TCF and 17 TCF in 1992, were selected to represent the mid-range forecasts. A production level of 15 TCF is characteristic of the NPC lower price case in the 1990-1995 period -- described in detail in the 1987 NPC report, Factors Affecting U.S. Oil & Gas Outlook. Also based on that report, the high estimate of 17 TCF is derived from the "upper price trend." The NPC report derives production levels of approximately 17 TCF in the 1990-1995 time period. The treatment of Canadian imports, Mexican imports, and LNG supply assumptions is discussed in detail in Chapter Four.

NATURAL GAS DEMAND

Background -- Historical Perspective

As shown in Figure 14, natural gas consumption rose steadily through the 1960s, peaked in 1972, then declined through the mid-1980s. Gas consumption dropped from about 30 percent of total energy use in the pre-oil-embargo period to just over 22 percent in 1987. Traditional gas markets were eroding and new gas markets were struggling to get off the ground. Over this period, total U.S. energy consumption grew 2.7 percent. While natural gas did participate in the early 1970s pre-embargo energy consumption peak, it lost market share to coal, oil, hydro, and nuclear fuel during the post-embargo energy consumption peak of the late 1970s. Regulatory constraints at the wellhead and new hook-up moratoria at the burner tip were primary contributing factors to the gas industry's loss of market share over the 1973-1979 period.

However, 1987 was a turnaround year for natural gas. Consumption increased 4 percent between 1986 and 1987. The factors

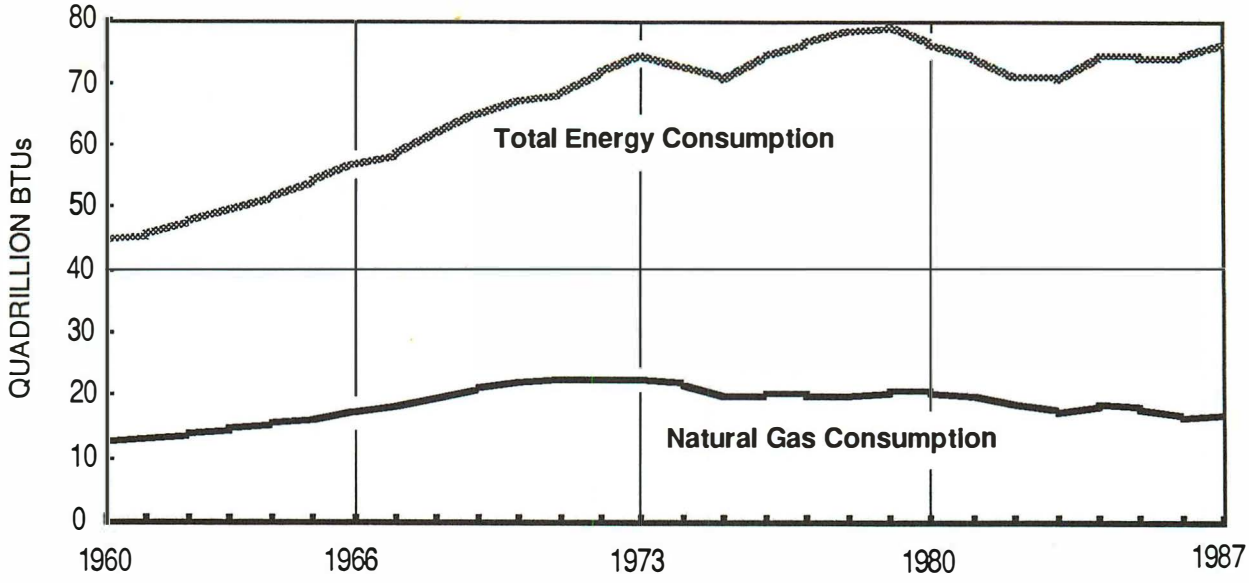

Figure 14. Annual Total Energy and Natural Gas Consumption.

SOURCE: Prior to 1977, U.S. Bureau of Mines; for 1977 and beyond, U.S. Department of Energy, Energy Information Administration, Monthly Energy Review.

causing this increase in gas demand were: (1) growth in residential and commercial customers, (2) colder winter weather, (3) lower natural gas prices, (4) robust economic activity in manufacturing industries operating at peak capacity levels, and (5) increased need for gas in electric power generation. Preliminary data from the EIA indicate that annual gas consumption in 1988 was about 7 percent above the 1987 level.

Recent data on residential space-heating consumption confirm that there has been a weakening in the conservation trend that developed over the 1972-1982 period. This apparent softening in conservation since 1982 is consistent with the continued decline in natural gas prices. The fact that this price-induced conservation trend has not reversed dramatically as prices have declined may be obscured by the increased share of high efficiency heating units in the market, as well as home weatherization efforts undertaken during the past several years.

Conservation, defined as the decline in consumption per customer adjusted for weather, appears to have bottomed-out in 1982 at 23 percent below the pre-embargo level. For the period from 1983 to 1985, however, conservation has averaged about 22 percent below the pre-embargo level. This modest decline in conservation follows a 10-year period (1972-1982) of rapidly accelerating conservation associated with rapidly increasing real gas prices (see Figure 15).

Natural gas demand forecasts show growth in the near term through 1992 aided by export-led economic growth and by the emergence of potential new gas markets. These new markets

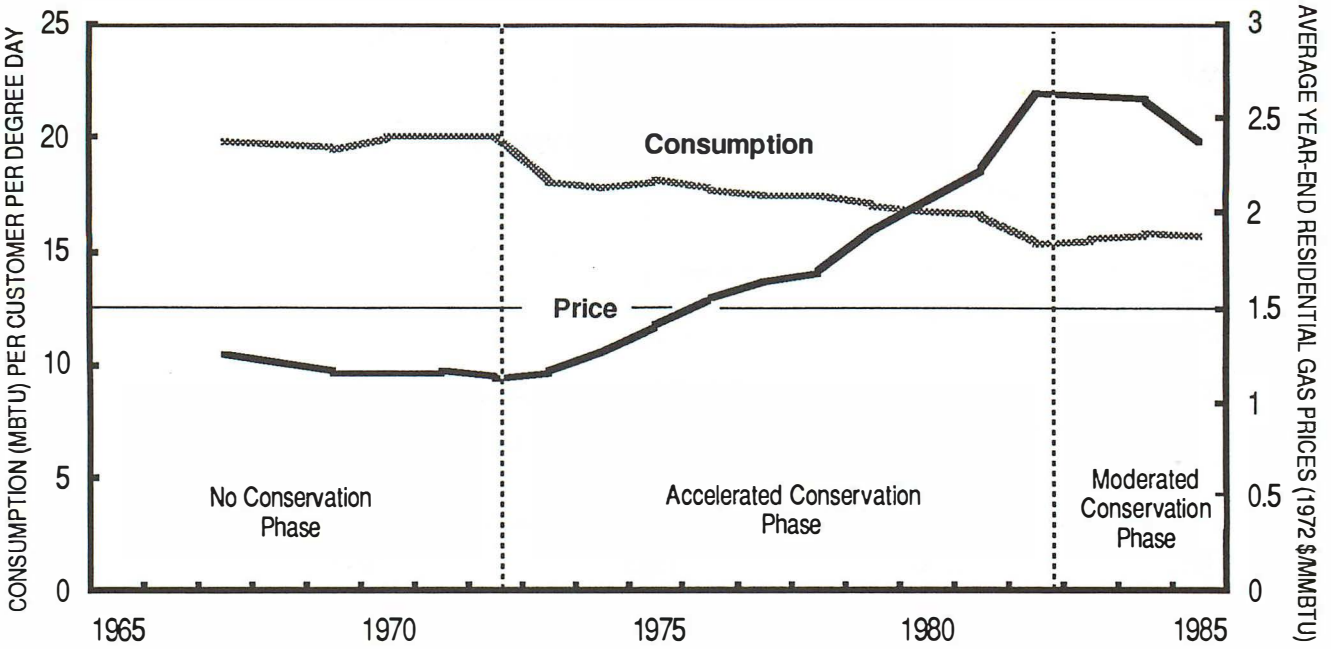

Figure 15. U.S. Residential Gas Space Heating Consumption vs. Price.

SOURCE: American Gas Association, Conservation in the Residential Gas Space Heating Market - 1986 Update, EA 1986-13, October 20, 1986.

include cogeneration, combined-cycle power plants, select use (co-firing retrofits), natural gas powered fleet vehicles, and gas cooling.

Seasonality

The demand for natural gas has traditionally been highly sensitive to weather patterns. As illustrated in Figure 16, total monthly gas utility sales consistently peak in the January-February period of the heating season and bottom-out during July and August. Recent consumption peaks (1986-1987 and 1987-1988) are about 16-23 percent lower than pre-embargo levels (1971-1972). The higher consumption in January 1988 versus January 1987 was highly affected by the 9 percent colder weather in January 1988 compared to January 1987, as shown in Table 1.

Of particular interest is the fact that while peak-month sales in 1987-1988 were 16 percent lower than the pre-embargo peak month in 1971-1972, total natural gas sales over this same period declined 24 percent, indicating continued demand strength during peak periods even at lower total consumption levels. This should not be surprising since peak period demand in some areas (especially the Northeast) was constrained in the earlier period, as now, by physical delivery limitations. In New England, for example, consumption per customer, normalized for weather in the peak quarter for 1986 versus the peak quarter for 1973, actually rose 12.9 percent, due to the large amount of heating-customer conversions to gas from non-heating, while all other regions declined.

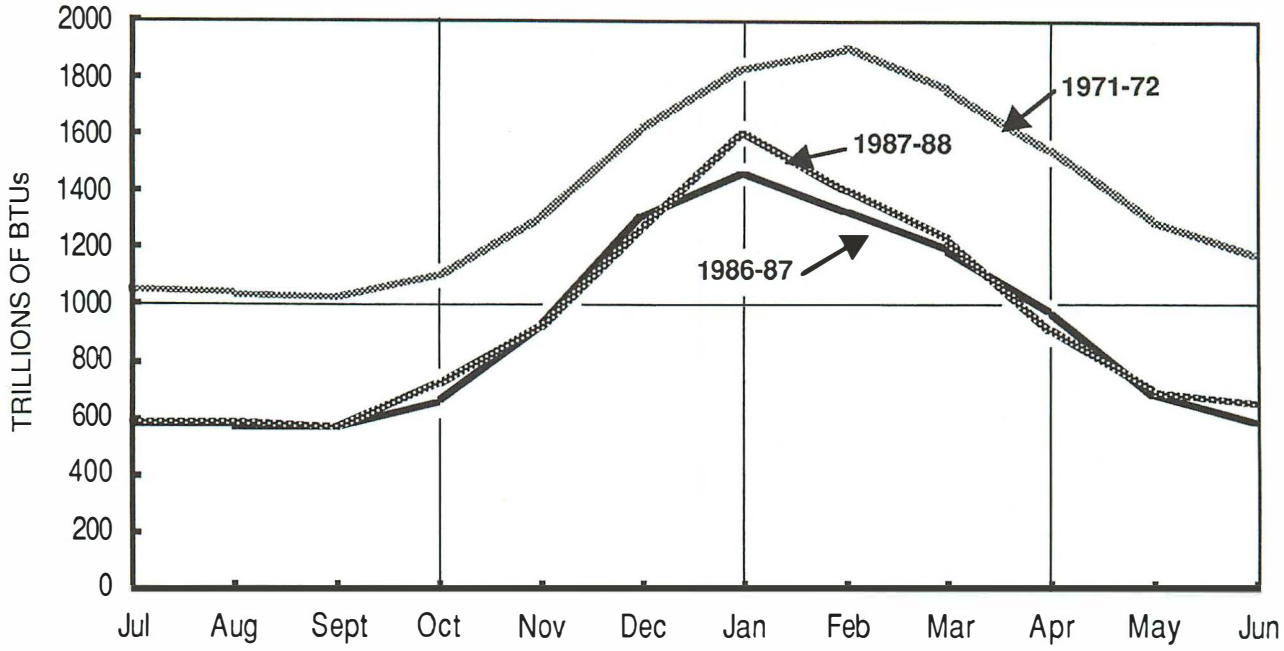

Figure 16. Total Monthly Gas Utility Sales.

SOURCE: American Gas Association, Gas Stats, June 1988.

TABLE 1

GAS CONSUMPTION PER PEAK HEATING DEGREE DAY MONTH

	Jan. 1972	Jan. 1987	Jan. 1988
Heating Degree Day (HDD)	915	943	1,031
Consumption*	1,833.1	1,462.6	1,607 .8
Consumption/HDD*	2.00	1.55	1.56

*Trillions of BTUs.

Source: American Gas Association, Gas Stats, June 1988.

Seasonality is also evident in prices at the wellhead in the spot market. As Figure 10 indicates, the January and February spot prices have consistently outpaced the July and August spot prices for the same calendar year since 1985. The price swings ranged from $0.10 per million BTUs in 1985 to $0.70 per million BTUs in 1986. These swings reflect the greater ability of today's more competitive market to transmit price signals between consumer and producer. The spot market also reflects the general weakness in gas prices since 1984 (as demand fell, resulting in excess delivery capability and the formation of the gas supply bubble), dropping over $1.50 per million BTUs. Figure 10 also indicates the seasonality in gas price trends reflected at the end-user level. Monthly seasonality notwithstanding, Figures 17 and 18 show the close correlation between annual average gas and oil prices since 1979 in both the electric power generation and industrial markets.

Regional Demand Growth

Gas consumption in the Northeast (PADDs IA and IB) increased 16 percent between 1977 and 1987, while aggregate U.S. gas consumption declined by 15 percent over the same period. The demographics for natural gas use in the Northeast are different from other regions of the United States. First, although the market share for gas in the Northeast has traditionally been low, when oil prices increased rapidly in the late 1970s there were a significant number of conversions from oil to gas. Second, the Northeast does not have easy access to coal production or trans-

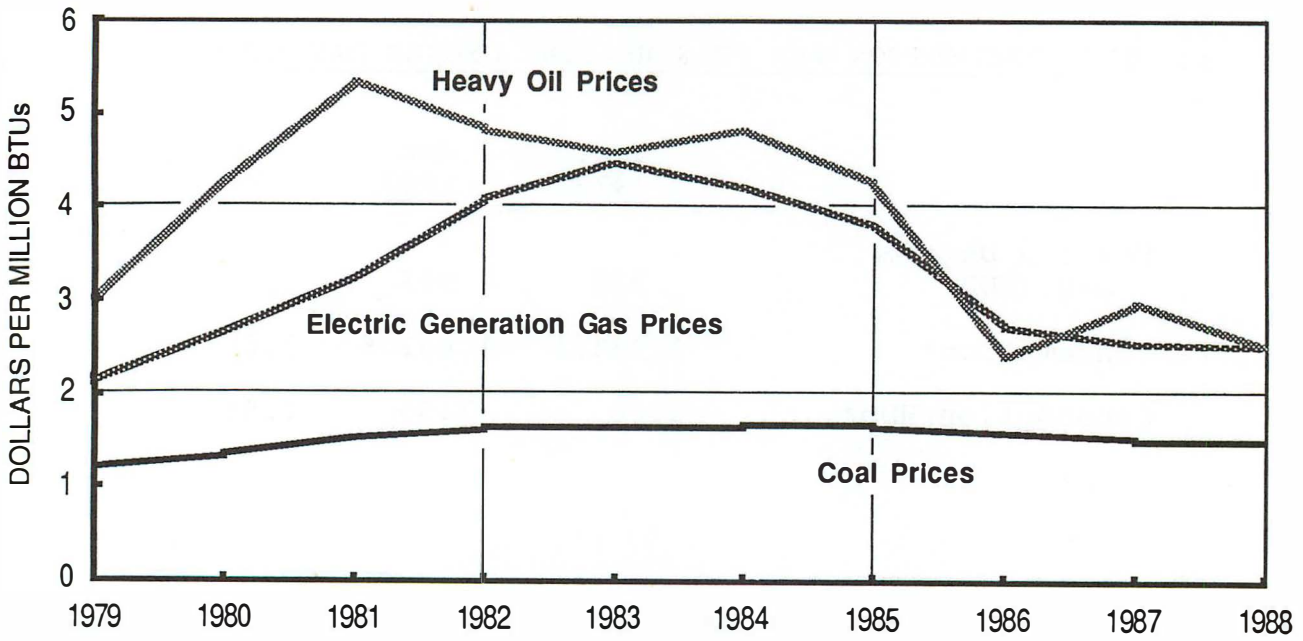

Figure 17. Average Annual Electric Power Generation Fuel Prices.

SOURCE: Electric generation gas prices to be revised using EIA data; heavy oil and coal prices from the U.S. Department of Energy, Energy Information Administration, Monthly Energy Review.

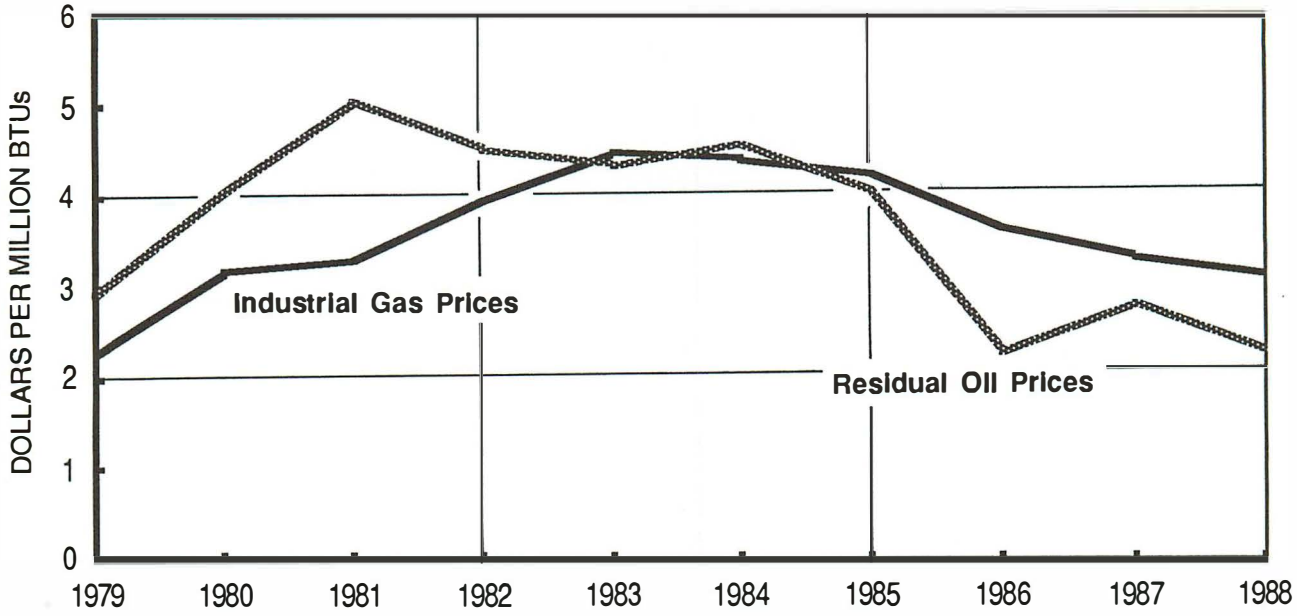

Figure 18. Average Annual Industrial Gas and Oil Prices.

SOURCE: Industrial gas prices to be revised using EIA data; residual fuel oil prices from U.S. Department of Energy, Energy Information Administration, Monthly Energy Review.

portation, and environmental concerns limit the use of coal as a primary fuel. Finally, the Northeast is experiencing a resurgence in population, housing starts, and business activity. There is also evidence that demand growth is accelerating. In April 1988, gas deliveries to all consumers in New England alone were up 12 percent over April 1987.

In addition, the Pacific (PADD V) and Florida (PADD ID) regions are exhibiting strong growth characteristics in specific sectors. Projects in the California EOR market suggest solid gas demand potential in this segment of the industrial sector. Environmental concerns also appear to be increasing, resulting in gas displacement of oil in electric power generation. Similarly, increased gas demand potential is anticipated in Florida's power generation market, due to the rapid pace of electricity demand growth and the scheduled retirements of old generating units.

Technology

While technology has advanced steadily in the supply area, there have also been major technological achievements in the gas utilization area. For example, the select use or co-firing of gas with coal is a means of reducing emissions from coal burning plants at low cost.

Combined-cycle gas turbines offer electric utilities a new technology to generate base-load and peak-load electricity at relatively low cost, efficiently and with short lead times. With

TABLE 2

PROJECTIONS OF 1992 NATURAL GAS CONSUMPTION
FOR THE LOWER-48 STATES
(BCF/Year)

	1987 Actual	1992 DRI	1992 A.G.A.
Residential	4,302	4,287	4,589
Commercial	2,392	2,513	2,551
Industrial	5,827	5,330	6,312
Electric Utility	2,814	3,109	3,891
Subtotal	15,335	15,239	17,344
Lease and Plant Fuel	1,033	820	901
Pipeline Fuel	517	487	436
Total	16,885	16,545	18,681
Refiner's Acquisition Cost of Crude Oil (1987 $/barrel)	$17.91	$21.62	$19.18

Sources: 1987 historical consumption, Energy Information Administration, Natural Gas Annual 1987; 1992 DRI Projection, Data Resources ECONTROL0288; 1992 A.G.A. Projection, American Gas Association, taken from the forecast presented in the report Total Energy Resource Analysis 1988-1, January 15, 1988.

TABLE 3

SUMMARY OF 1992 DEMAND PROJECTIONS
ANNUAL BASIS

Modified PADD	Low Demand (BCF/Yr.)	High Demand (BCF/Yr.)
PADD IA	395	603
PADD IB	2,052	2,647
PADD IC	791	742
PADD ID	533	470
PADD II	4,032	4,571
PADD IIIA	4,304	4,784
PADD IIIB	1,623	1,883
PADD IV	479	579
PADD V	2,337	2,403
	16,545	18,681

TABLE 4

SUMMARY OF 1992 DEMAND PROJECTIONS
AVERAGE JANUARY DAY

Modified PADD	Low Demand (MMCF/D)	High Demand (MMCF/D)
PADD IA	1,585	1,839
PADD IB	8,719	10,337
PADD IC	3,292	3,056
PADD ID	1,307	1,167
PADD II	20,466	22,584
PADD IIIA	13,684	5,270
PADD IIIB	5,783	6,731
PADD IV	2,072	2,448
PADD V	7,735	8,039
	64,644	71,471

the electricity reserve margins expected to be very tight in the 1990s, new gas technology such as combined-cycle gas turbines can help to solve this problem. Similarly, commercial gas cooling can supplement electric air-conditioning, thereby reducing peak electric requirements and building gas loads on off-peak periods.

Gas Demand Outlook

Natural gas consumption for 1987 in the Lower-48 States (16.9 TCF) was up an estimated 4 percent from 1986. Weather that was 10 percent colder than in 1986 helped increase residential and commercial demand by 11 percent. Industrial use of gas (including lease and plant fuel) was up by 20 percent. Gas demand for electric power generation was at the same level for the first quarters of 1987 and 1988. However, hot weather and drought throughout most of the nation during the summer of 1988 increased gas demand in this sector as hydropower was reduced and peaking requirements expanded. Natural gas consumption was about 7 percent higher for all of 1988 and may continue to grow in 1989 and the following years, aided by export-led economic growth and by the rapid development of new gas markets.

As with gas supply, a variety of forecasts were examined and two were selected as representative of the range. The gas demand forecasts used for this study were prepared by Data Resources, Inc. (DRI), and the American Gas Association (A.G.A.). The DRI case chosen was the 1988 reference case that made up the low end of the range of 16.5 TCF in 1992. At the upper end of the range was the A.G.A. Total Energy Resource Analysis 1988-1 Base Case that forecasts 18.7 TCF in 1992. Tables 2 and 3 show the estimated demands in 1992 on an annual basis, broken down by sector and by PADD. Table 4 shows the estimated demands in 1992 for the average January day, by PADD. A detailed breakdown of 1992 data by PADD and by sector for the average January day, 10 percent colder weather, and 20 percent colder weather using DRI and A.G.A. data is contained in Appendix G.

CHAPTER THREE

SUMMARY OF PIPELINE CAPACITIES, INTERCONNECTIONS, AND STORAGE

The natural gas transportation system is comprised of transmission, gathering, branchline, storage, peak-shaving, LNG, and pipeline-interconnecting facilities. As shown in Figure 19, this extensive transportation network stretches from border to border and coast to coast in the continental United States.

SIGNIFICANT CHANGES SINCE 1979

Since 1979, two major pipelines have been built to provide access to new gas supply regions. In 1981, the Trailblazer system was completed to move Rocky Mountain gas to the Midwest. In 1982, the Northern Border Pipeline was constructed to bring Canadian gas into the Midwest. And in 1984, Texoma and Seaway were converted from oil to gas transportation to allow shut-in Oklahoma gas to move to Gulf Coast markets. Since 1979, several major pipeline expansion projects totaling approximately 1,200 MMCF/D have been constructed to serve additional markets in California, the Northeast, and Florida. Some of these major market expansion projects include the 100 MMCF/D Florida Gas Transmission Company's Phase I Expansion, the 240 MMCF/D expansion of Pacific Gas Transmission's Western Leg, and the Northeast expansion projects for Tennessee, Transco, and Texas Eastern Transmission Company totaling 860 MMCF/D. With regard to storage capabilities, the nation has seen an increase of over 1,200 BCF in working gas storage capacity above the 5,700 BCF storage capabilities reported for 1977 in the 1979 NPC report. Otherwise, the capacity of the nation's pipeline network has remained relatively unchanged. To improve and maintain pipeline reliability and efficiency, and to minimize operating and maintenance expenses, many of the pipeline companies have initiated requalification programs to inspect, repair, and replace the aging portions of their systems. Assuming there is sufficient annual supply to start the peak season with all storage facilities full, the nation's existing pipeline network, with some regional exceptions, has sufficient pipeline capacity to meet current peak-day requirements.

NATURAL GAS SURVEY

Two surveys were sent to approximately 80 natural gas pipeline transmission and storage companies. The first survey was distributed primarily to the interstate transmission companies. It focused on major pipeline segment and interconnection capabilities, as well as storage and peak-shaving/LNG information. General data such as the average BTU content of their system gas and the relationship between average January day requirements and

peak January day requirements were also requested. The second survey was an abbreviated version of the first, concentrating on storage data. This survey was distributed to intrastate gas companies and natural gas storage companies. The intent of the surveys was to determine the overall capabilities of the nation's natural gas transmission and storage system. In an effort to ease the burden of responding, and to reduce the amount of insignificant data, only data on those pipeline segments and interconnections in excess of identified minimum capacities was requested. The survey responses included the vast majority of the interstate pipeline capacity in the United States. The two survey forms and a listing of respondent companies can be found in Appendix D.

The survey data was then aggregated and analyzed relative to the PADD boundaries. Emphasis was placed on inter-PADD transmission capacity and intra-PADD storage and pipeline interconnection capability. For the few companies that did not respond, information from FERC Section 260.8, Form 567 reports, and various A.G.A. publications was utilized to supplement the data received.

The PADD boundaries for this study differ from those presented in other NPC reports. The modified boundaries were arranged so that a more representative transmission capacity analysis could be performed under the stress scenarios. Boundary changes include the creation of PADD ID to make the studies of this region sensitive to potential future capacity restrictions into Florida. Also, Kansas and Oklahoma were shifted into PADD III. Then, PADD III, which contains the nation's more abundant supply areas, was divided into two parts along Texas Railroad Commission District boundaries. PADD IIIA included the East Texas and Texas Gulf Coast regions (Texas Railroad Commission District 1 through 6). PADD IIIB included the North Texas and West Texas areas (Texas Railroad Commission District 7B through 10). This PADD breakdown allowed the flow studies to distinguish pipeline transmission capabilities between the Southeast (onshore and offshore, Texas and Louisiana) and the Southwest (Oklahoma and the northern Texas area) and to determine possible capacity restrictions into neighboring PADDs.

PIPELINE CAPACITIES

The respondent pipeline companies were requested to provide maximum design-day capacities of their major transmission segments. The segments were to be limited to capabilities of 100 MMCF/D or greater. Segment capabilities were analyzed and aggregated to determine the maximum transmission capacity between PADDs. Figure 20 is a national map that shows the location of major gas pipelines, the modified PADD boundaries, and the capacities of major transmission segments identified in the survey responses. Figures 21 through 29 are more detailed maps that show the locations of major gas pipelines with capacities in excess of 0.1 BCF/D within each PADD. The present capacity of the nation's natural gas network to transport gas out of the major domestic supply regions (PADD III) under peak winter

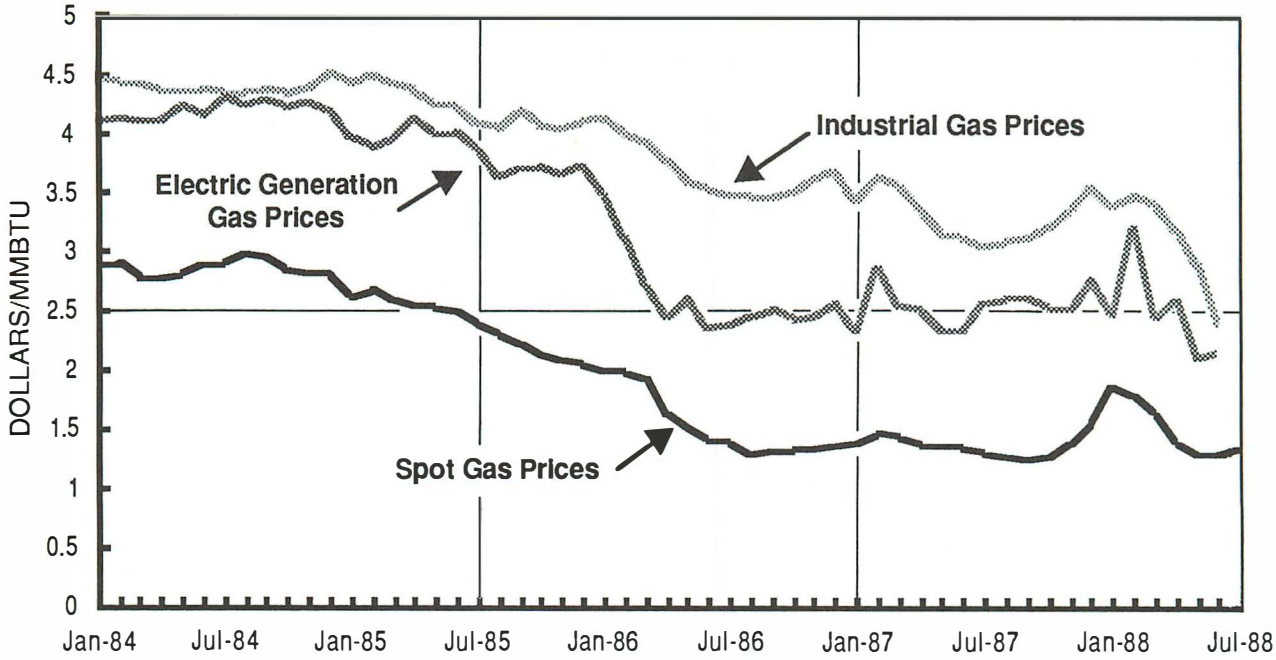

Figure 10. Monthly Spot, Industrial, and Electric Generation Gas Prices.

SOURCE: Spot prices from Natural Gas Intelligence, Gas Price Index.
Industrial and electric generation prices from the American Gas Association, Gas Stats.

deliverability, but their effect on reserve additions was also significant.

While this drilling activity strengthened production capability, losses in demand led to the so-called "gas bubble," production capability that exceeded demand for gas. The lower production levels in the early 1980s were typically the result of reduced demand for gas -- not a limitation in production capability. In fact, production capability remained well above actual demand through the 1980s. Current estimates generally show that the excess (annualized) production capability could disappear in the early 1990s. However, during winter peak-demand periods, it is quite possible that no excess deliverability could exist -- as early as the winter of 1988-1989. Seasonal peak loads that occur during the winter heating season usually require peak monthly production, as well as storage and peak-shaving inputs to satisfy the seasonal demand.

As a result of the annual gas supply bubble, many producers experienced difficulty in selling gas at high delivery rates or at maximum permissible NGPA prices. These marketing problems caused significant reductions in drilling, beginning in 1983. This reduction in drilling activity accelerated between 1983 and 1988; as producers reacted to the disincentive for drilling created by the gas bubble and generally declining wellhead prices. Figure 10 illustrates the spot-market prices paid in the producing regions of the country. While the gas supply bubble exists

on an annual average basis, production capabilities are generally fully utilized during peak winter periods.

Although levels of gas well completions from 1985 to 1988 are depressed from the peak year of 1981, they are not exceptionally low in a broader historical context. Note in Figure 11 the growth in gas well completions since 1968. With the exception of the peak drilling period in 1978-1984, the number of gas well completions in 1985 was higher than any other year in history, while 1987 levels were higher than any year prior to 1975.

Potential Future Impact

However, with the decline in gas discoveries per well drilled, the 1987 level of 7,570 gas well completions will need to be increased before additions to proved reserves could again achieve the replacement ratios of the early 1980s. As shown in Figure 12, the number of rigs operating per week has been reduced from the peak level of over 4,000 in 1981. While the decline in drilling activity since then has produced severe hardships in the oil services industry, some economic benefits have been realized. Due to increased efficiency and increased competition, the cost of drilling has declined significantly from the peak levels of the early 1980s. It is possible that future reserve additions could be produced, with lower drilling costs than those which characterized the statistics from the traditional areas during the early 1980s, until demand for and supply of drilling rigs and seismic crews approach balance. On the other hand, increases in

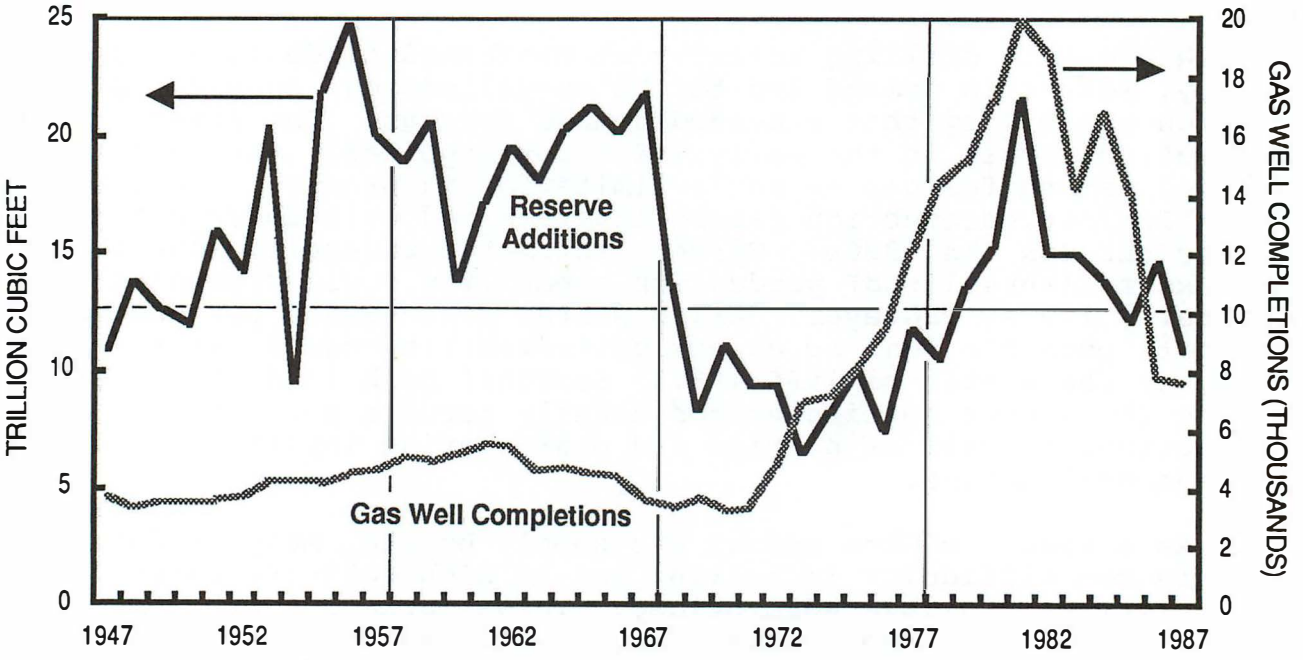

Figure 11. Reserve Additions and Completions (Lower-48 States).

SOURCE: 1947-1979 -- *Reserves of Crude Oil, Natural Gas Liquids, and Natural Gas in the United States and Canada - 1979,* American Gas Association, Arlington, Virginia, 1980; 1979-1987 -- *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves - 1987 Annual Report,* Energy Information Administration, Washington, D.C., 1988.

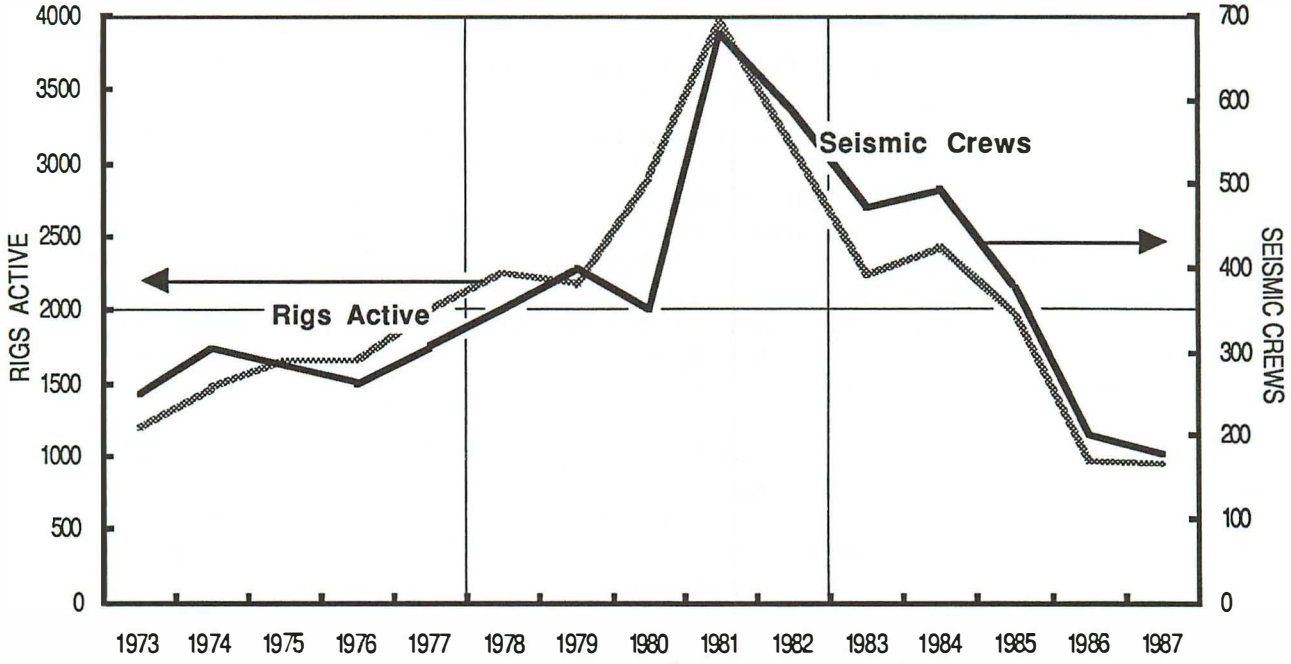

Figure 12. Average Weekly Rotary Rigs and Seismic Crew Count.

SOURCE: Monthly Energy Review, Energy Information Administration, Washington, D.C.

drilling costs may occur from drilling in deep water, from higher pressures, greater hydrogen sulfide concentrations, and the like. Also, the recent movement toward deregulation of the gas industry will closely link gas production activity and the gas market. As a result, the level of drilling activity will depend much more on the economics of the gas marketplace than it has in past years. In the absence of stable and profitable gas prices, drilling activity could be severely restricted, jeopardizing the availability of natural gas in future years.

Gas Supply Summary

Total U.S. gas production peaked in the early 1970s at nearly 22 TCF. The impacts of low regulated prices on U.S. gas production and the inability to expand Canadian exports led to a decline in U.S. gas supply to about 20 TCF by 1975. Supplies stabilized at this level through 1981, as increasing price ceilings led to increased exploration and development in the United States and increased availability of Canadian gas in U.S. markets. Beginning in 1981, reduced activity in many large gas-using industries, a shift in the industrial structure toward less gas-intensive industries, fuel switching, and conservation resulted in reduced gas supplies being required by U.S. gas customers by 1986. Since 1987 there has been a recovery in demand. Despite this increased consumption of gas, total supply availability on an annual basis, including imports and synthetic gas, still exceeds the demand for gas, although the excess is narrowing.

Canadian Gas Imports

Natural gas imports from Canada represent an important supply to U.S. markets. Through much of the 1970s, imports exceeded 0.9 TCF, and in 1979, over 1 TCF was imported. By 1986, only about 0.75 TCF of gas, or just over 4 percent of U.S. gas consumption, was imported from Canada. This level rose again in 1987 to nearly 1 TCF and will approach 1.3 TCF annually by year-end 1988. The Canadian National Energy Board indicates that exports could grow from 6 percent in 1987 to as much as 10 percent of U.S. gas demand, with adequate new pipeline capacities on both sides of the border. By 1990, the amount of gas imported from Canada will depend on a number of factors, including Canadian pricing policies, concerns over the rate of resource development, the rate of growth of gas demand in Canada, and the impact of changing markets on U.S. gas resource development. After 1990, the development of the frontier areas and the construction of transportation systems for this gas will become significant factors in the level of exports. However, as shown in Figure 13, the size of the Canadian gas resource is not viewed as a factor that would significantly limit the amount of gas available for export in the time-frame of this report. Although U.S. gas potential, reserves, and production are much greater, Canada has a much higher reserves-to-production ratio, suggesting a potential for much greater gas production.

Mexican Gas Imports

A large gas resource base exists in Mexico. Much of this resource is associated-dissolved gas that is produced in conjunction with oil. Most estimates confirm the existence of a potentially large gas resource base of 200 TCF or greater. Between 1980 and 1984, the United States imported between 50 and 105 BCF per year from Mexico. The resumption of this trade between the United States and Mexico is limited more by economic and political issues than by physical capabilities. Clearly, Mexico has placed a high priority on the use of this gas domestically in order to maximize their oil exports. Although exports to the United States could be resumed at any time, most observers do not anticipate such imports to be a significant contributor to the U.S. supply picture in the next five years.

Alaskan Gas

EIA reported proved Alaskan reserves at year-end 1987 to be 33.2 TCF. Of this total, 24.6 TCF has been "written down" by producers, because these reserves on the North Slope of Alaska do not, at present, have a market outlet. However, the Alaskan Natural Gas Transportation System or LNG shipments from southern Alaska could affect the gas markets in the Lower-48 States by the turn of the century. Current economics limit the construction needed to market these gas supplies.

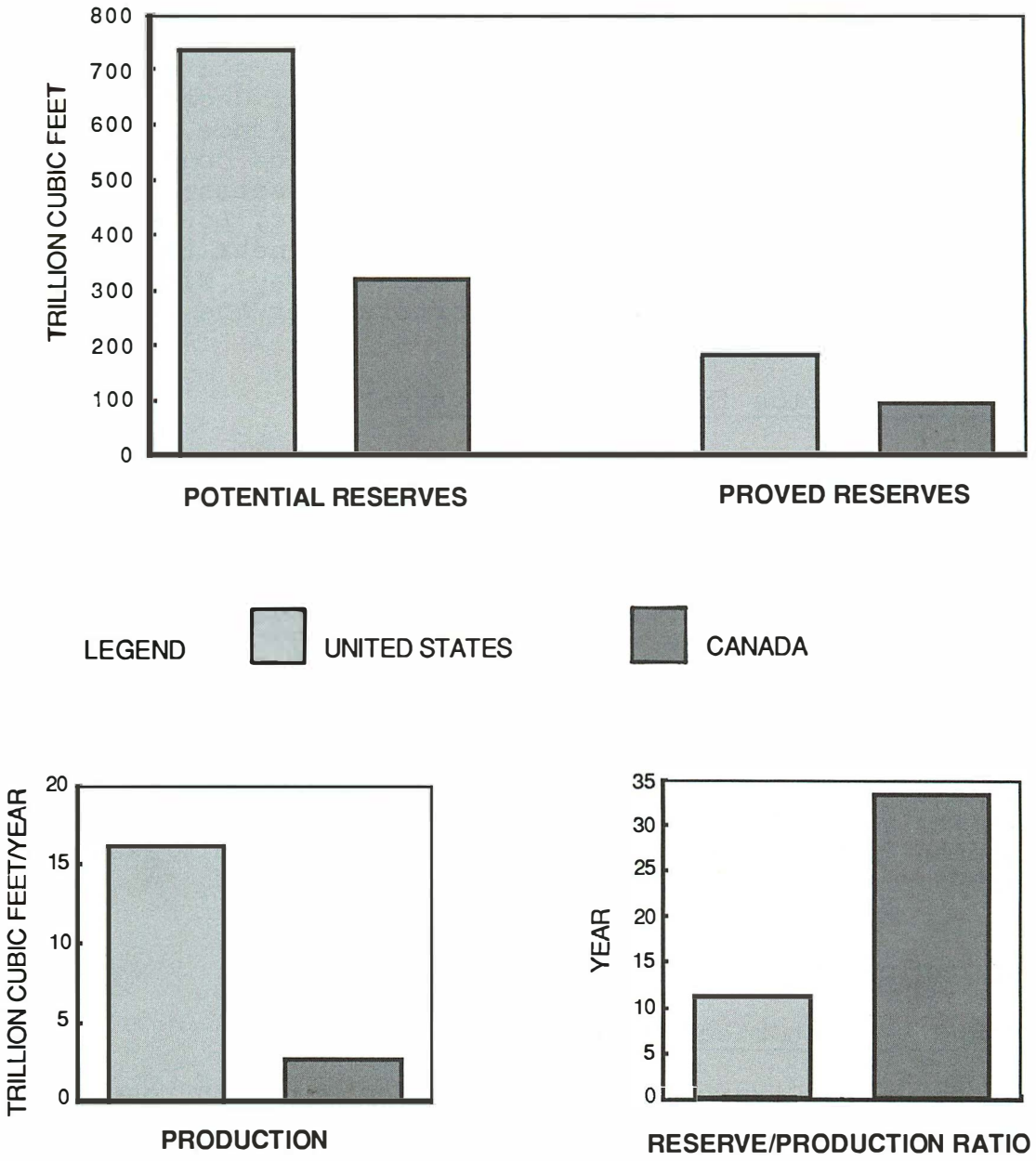

Figure 13. Natural Gas Statistics (U.S. and Canada).

SOURCE: "An Assessment of the Natural Gas Resource Base of the United States," U.S. Department of Energy, May 1988.
NOTE: Gas "potential" is based on a wellhead price of $5 per MCF (in 1987 dollars).

LNG Imports

Large, worldwide gas resources are not geographically close to markets. As a result, these resources have potential to contribute gas to the world LNG trade. This trade started 30 years ago and has increased significantly in the past decade. When the U.S. gas supply and demand come into closer balance, the resumption of large LNG imports into the United States could occur. The established terminals at Everett, Massachusetts; Elba Island, Georgia; Cove Point, Maryland; and Lake Charles, Louisiana are the most likely terminals to be used. In the near term, imports from Algeria will dominate the trade with Norway, Nigeria, and Trinidad-Tobago as potential new exporters over the next 10 to 15 years.

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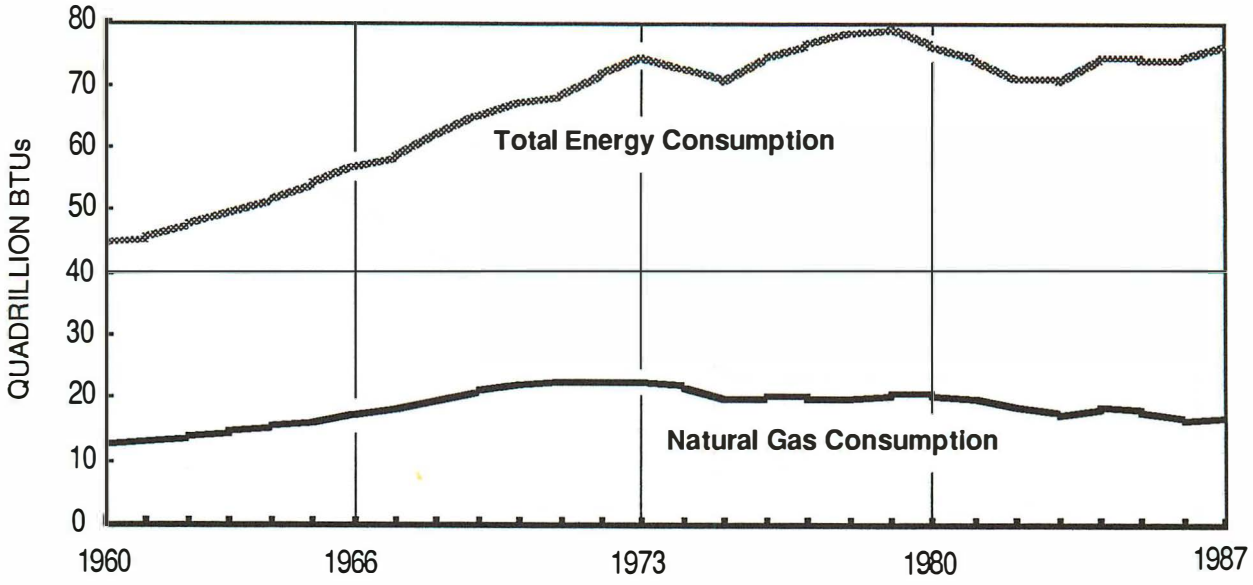
However, 1987 was a turnaround year for natural gas. Consumption increased 4 percent between 1986 and 1987. The factors



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Recent data on residential space-heating consumption confirm that there has been a weakening in the conservation trend that developed over the 1972-1982 period. This apparent softening in conservation since 1982 is consistent with the continued decline in natural gas prices. The fact that this price-induced conservation trend has not reversed dramatically as prices have declined may be obscured by the increased share of high efficiency heating units in the market, as well as home weatherization efforts undertaken during the past several years.

Conservation, defined as the decline in consumption per customer adjusted for weather, appears to have bottomed-out in 1982 at 23 percent below the pre-embargo level. For the period from 1983 to 1985, however, conservation has averaged about 22 percent below the pre-embargo level. This modest decline in conservation follows a 10-year period (1972-1982) of rapidly accelerating conservation associated with rapidly increasing real gas prices (see Figure 15).

Natural gas demand forecasts show growth in the near term through 1992 aided by export-led economic growth and by the emergence of potential new gas markets. These new markets

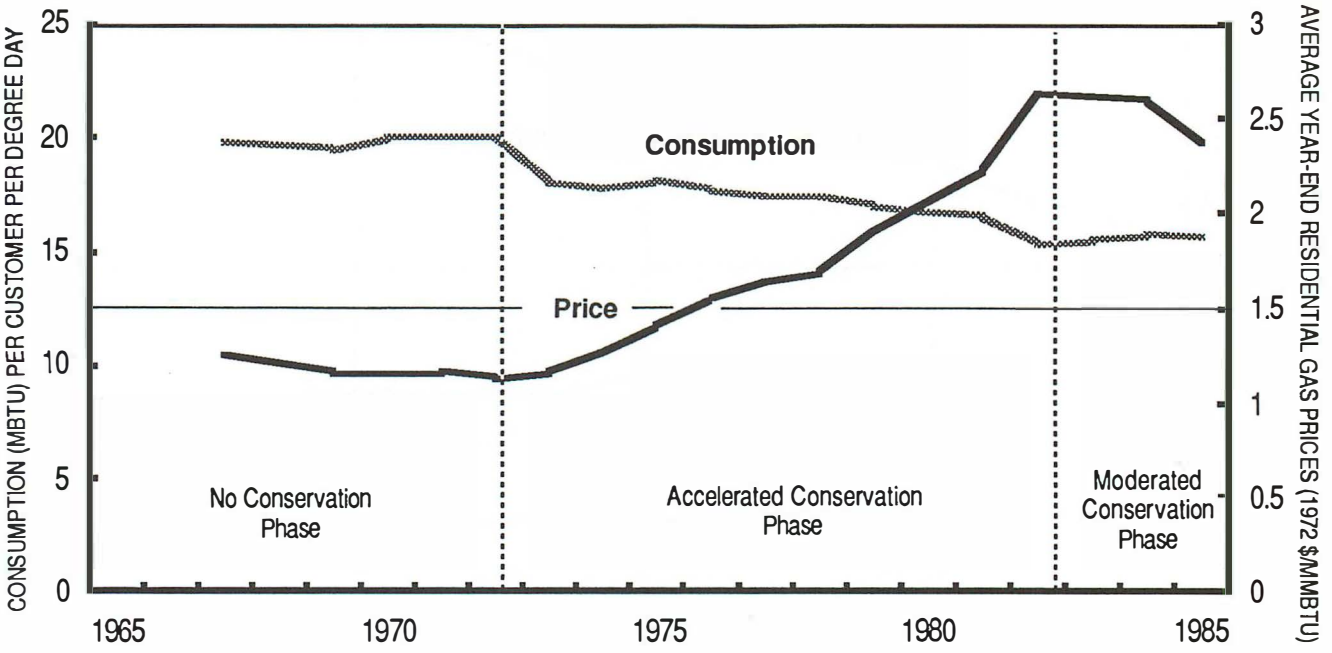


Figure 15. U.S. Residential Gas Space Heating Consumption vs. Price.

SOURCE: American Gas Association, Conservation in the Residential Gas Space Heating Market - 1986 Update, EA 1986-13, October 20, 1986.

include cogeneration, combined-cycle power plants, select use (co-firing retrofits), natural gas powered fleet vehicles, and gas cooling.

Seasonality

The demand for natural gas has traditionally been highly sensitive to weather patterns. As illustrated in Figure 16, total monthly gas utility sales consistently peak in the January-February period of the heating season and bottom-out during July and August. Recent consumption peaks (1986-1987 and 1987-1988) are about 16-23 percent lower than pre-embargo levels (1971-1972). The higher consumption in January 1988 versus January 1987 was highly affected by the 9 percent colder weather in January 1988 compared to January 1987, as shown in Table 1.

Of particular interest is the fact that while peak-month sales in 1987-1988 were 16 percent lower than the pre-embargo peak month in 1971-1972, total natural gas sales over this same period declined 24 percent, indicating continued demand strength during peak periods even at lower total consumption levels. This should not be surprising since peak period demand in some areas (especially the Northeast) was constrained in the earlier period, as now, by physical delivery limitations. In New England, for example, consumption per customer, normalized for weather in the peak quarter for 1986 versus the peak quarter for 1973, actually rose 12.9 percent, due to the large amount of heating-customer conversions to gas from non-heating, while all other regions declined.

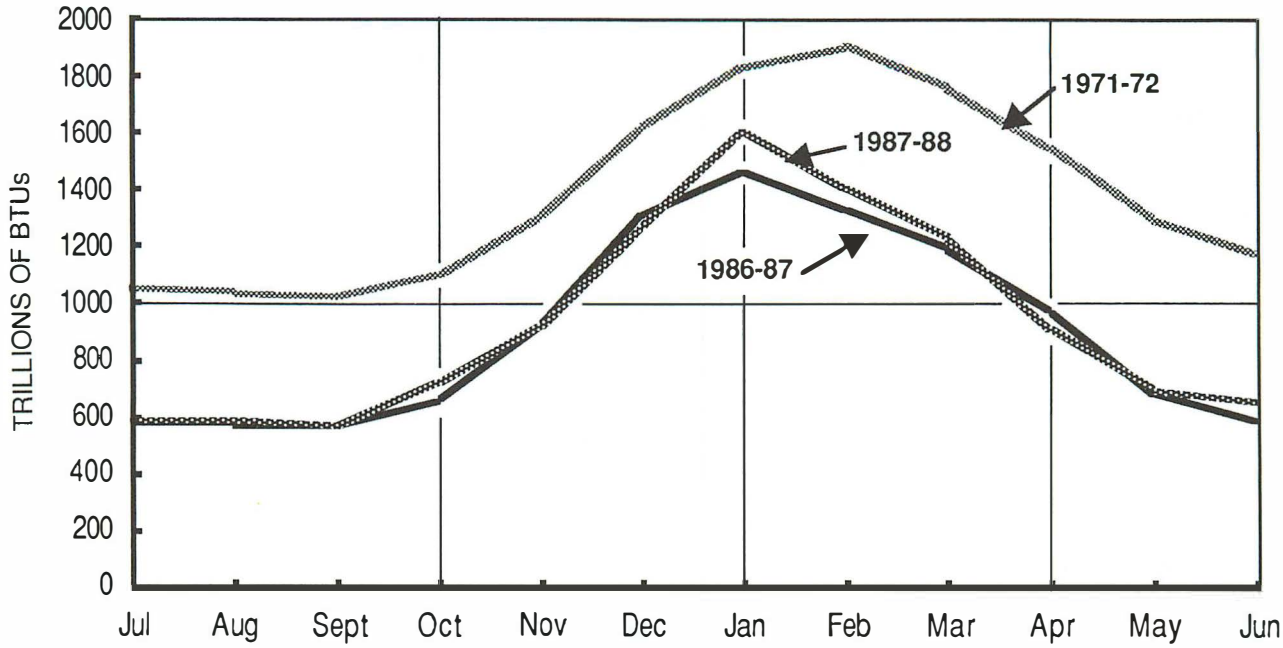


Figure 16. Total Monthly Gas Utility Sales.

SOURCE: American Gas Association, Gas Stats, June 1988.

TABLE 1

GAS CONSUMPTION PER PEAK HEATING DEGREE DAY MONTH

	Jan. 1972	Jan. 1987	Jan. 1988
Heating Degree Day (HDD)	915	943	1,031
Consumption*	1,833.1	1,462.6	1,607 .8
Consumption/HDD*	2.00	1.55	1.56

*Trillions of BTUs.

Source: American Gas Association, Gas Stats, June 1988.

Seasonality is also evident in prices at the wellhead in the spot market. As Figure 10 indicates, the January and February spot prices have consistently outpaced the July and August spot prices for the same calendar year since 1985. The price swings ranged from $0.10 per million BTUs in 1985 to $0.70 per million BTUs in 1986. These swings reflect the greater ability of today's more competitive market to transmit price signals between consumer and producer. The spot market also reflects the general weakness in gas prices since 1984 (as demand fell, resulting in excess delivery capability and the formation of the gas supply bubble), dropping over $1.50 per million BTUs. Figure 10 also indicates the seasonality in gas price trends reflected at the end-user level. Monthly seasonality notwithstanding, Figures 17 and 18 show the close correlation between annual average gas and oil prices since 1979 in both the electric power generation and industrial markets.

Regional Demand Growth

Gas consumption in the Northeast (PADDs IA and IB) increased 16 percent between 1977 and 1987, while aggregate U.S. gas consumption declined by 15 percent over the same period. The demographics for natural gas use in the Northeast are different from other regions of the United States. First, although the market share for gas in the Northeast has traditionally been low, when oil prices increased rapidly in the late 1970s there were a significant number of conversions from oil to gas. Second, the Northeast does not have easy access to coal production or trans-

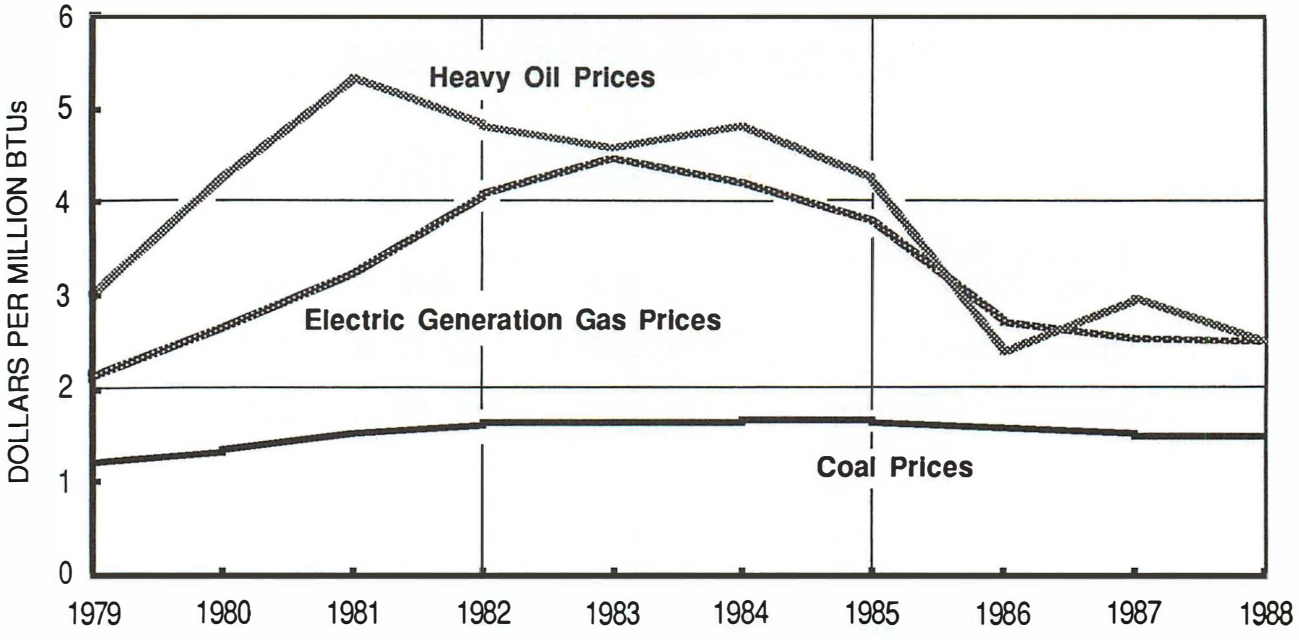


Figure 17. Average Annual Electric Power Generation Fuel Prices.

SOURCE: Electric generation gas prices to be revised using EIA data; heavy oil and coal prices from the U.S. Department of Energy, Energy Information Administration, Monthly Energy Review.

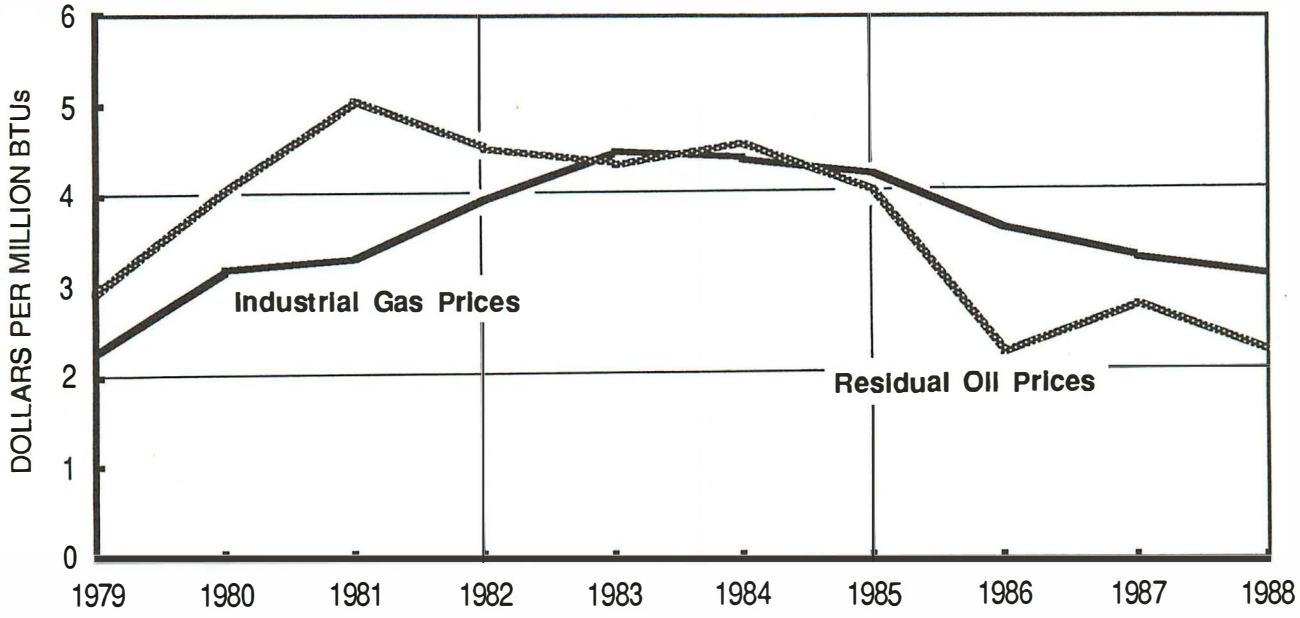


Figure 18. Average Annual Industrial Gas and Oil Prices.

SOURCE: Industrial gas prices to be revised using EIA data; residual fuel oil prices from U.S. Department of Energy, Energy Information Administration, Monthly Energy Review.

portation, and environmental concerns limit the use of coal as a primary fuel. Finally, the Northeast is experiencing a resurgence in population, housing starts, and business activity. There is also evidence that demand growth is accelerating. In April 1988, gas deliveries to all consumers in New England alone were up 12 percent over April 1987.

In addition, the Pacific (PADD V) and Florida (PADD ID) regions are exhibiting strong growth characteristics in specific sectors. Projects in the California EOR market suggest solid gas demand potential in this segment of the industrial sector. Environmental concerns also appear to be increasing, resulting in gas displacement of oil in electric power generation. Similarly, increased gas demand potential is anticipated in Florida's power generation market, due to the rapid pace of electricity demand growth and the scheduled retirements of old generating units.

Technology

While technology has advanced steadily in the supply area, there have also been major technological achievements in the gas utilization area. For example, the select use or co-firing of gas with coal is a means of reducing emissions from coal burning plants at low cost.

Combined-cycle gas turbines offer electric utilities a new technology to generate base-load and peak-load electricity at relatively low cost, efficiently and with short lead times. With

TABLE 2

PROJECTIONS OF 1992 NATURAL GAS CONSUMPTION
FOR THE LOWER-48 STATES
(BCF/Year)

	1987 Actual	1992 DRI	1992 A.G.A.
Residential	4,302	4,287	4,589
Commercial	2,392	2,513	2,551
Industrial	5,827	5,330	6,312
Electric Utility	2,814	3,109	3,891
Subtotal	15,335	15,239	17,344
Lease and Plant Fuel	1,033	820	901
Pipeline Fuel	517	487	436
Total	16,885	16,545	18,681
Refiner's Acquisition Cost of Crude Oil (1987 $/barrel)	$17.91	$21.62	$19.18

Sources: 1987 historical consumption, Energy Information Administration, Natural Gas Annual 1987; 1992 DRI Projection, Data Resources ECONTROL0288; 1992 A.G.A. Projection, American Gas Association, taken from the forecast presented in the report Total Energy Resource Analysis 1988-1, January 15, 1988.

TABLE 3

SUMMARY OF 1992 DEMAND PROJECTIONS
ANNUAL BASIS

Modified PADD	Low Demand (BCF/Yr.)	High Demand (BCF/Yr.)
PADD IA	395	603
PADD IB	2,052	2,647
PADD IC	791	742
PADD ID	533	470
PADD II	4,032	4,571
PADD IIIA	4,304	4,784
PADD IIIB	1,623	1,883
PADD IV	479	579
PADD V	2,337	2,403
	16,545	18,681

TABLE 4

SUMMARY OF 1992 DEMAND PROJECTIONS
AVERAGE JANUARY DAY

Modified PADD	Low Demand (MMCF/D)	High Demand (MMCF/D)
PADD IA	1,585	1,839
PADD IB	8,719	10,337
PADD IC	3,292	3,056
PADD ID	1,307	1,167
PADD II	20,466	22,584
PADD IIIA	13,684	5,270
PADD IIIB	5,783	6,731
PADD IV	2,072	2,448
PADD V	7,735	8,039
	64,644	71,471

the electricity reserve margins expected to be very tight in the 1990s, new gas technology such as combined-cycle gas turbines can help to solve this problem. Similarly, commercial gas cooling can supplement electric air-conditioning, thereby reducing peak electric requirements and building gas loads on off-peak periods.

Gas Demand Outlook

Natural gas consumption for 1987 in the Lower-48 States (16.9 TCF) was up an estimated 4 percent from 1986. Weather that was 10 percent colder than in 1986 helped increase residential and commercial demand by 11 percent. Industrial use of gas (including lease and plant fuel) was up by 20 percent. Gas demand for electric power generation was at the same level for the first quarters of 1987 and 1988. However, hot weather and drought throughout most of the nation during the summer of 1988 increased gas demand in this sector as hydropower was reduced and peaking requirements expanded. Natural gas consumption was about 7 percent higher for all of 1988 and may continue to grow in 1989 and the following years, aided by export-led economic growth and by the rapid development of new gas markets.

As with gas supply, a variety of forecasts were examined and two were selected as representative of the range. The gas demand forecasts used for this study were prepared by Data Resources, Inc. (DRI), and the American Gas Association (A.G.A.). The DRI case chosen was the 1988 reference case that made up the low end of the range of 16.5 TCF in 1992. At the upper end of the range was the A.G.A. Total Energy Resource Analysis 1988-1 Base Case that forecasts 18.7 TCF in 1992. Tables 2 and 3 show the estimated demands in 1992 on an annual basis, broken down by sector and by PADD. Table 4 shows the estimated demands in 1992 for the average January day, by PADD. A detailed breakdown of 1992 data by PADD and by sector for the average January day, 10 percent colder weather, and 20 percent colder weather using DRI and A.G.A. data is contained in Appendix G.

CHAPTER THREE

SUMMARY OF PIPELINE CAPACITIES, INTERCONNECTIONS, AND STORAGE

The natural gas transportation system is comprised of transmission, gathering, branchline, storage, peak-shaving, LNG, and pipeline-interconnecting facilities. As shown in Figure 19, this extensive transportation network stretches from border to border and coast to coast in the continental United States.

SIGNIFICANT CHANGES SINCE 1979

Since 1979, two major pipelines have been built to provide access to new gas supply regions. In 1981, the Trailblazer system was completed to move Rocky Mountain gas to the Midwest. In 1982, the Northern Border Pipeline was constructed to bring Canadian gas into the Midwest. And in 1984, Texoma and Seaway were converted from oil to gas transportation to allow shut-in Oklahoma gas to move to Gulf Coast markets. Since 1979, several major pipeline expansion projects totaling approximately 1,200 MMCF/D have been constructed to serve additional markets in California, the Northeast, and Florida. Some of these major market expansion projects include the 100 MMCF/D Florida Gas Transmission Company's Phase I Expansion, the 240 MMCF/D expansion of Pacific Gas Transmission's Western Leg, and the Northeast expansion projects for Tennessee, Transco, and Texas Eastern Transmission Company totaling 860 MMCF/D. With regard to storage capabilities, the nation has seen an increase of over 1,200 BCF in working gas storage capacity above the 5,700 BCF storage capabilities reported for 1977 in the 1979 NPC report. Otherwise, the capacity of the nation's pipeline network has remained relatively unchanged. To improve and maintain pipeline reliability and efficiency, and to minimize operating and maintenance expenses, many of the pipeline companies have initiated requalification programs to inspect, repair, and replace the aging portions of their systems. Assuming there is sufficient annual supply to start the peak season with all storage facilities full, the nation's existing pipeline network, with some regional exceptions, has sufficient pipeline capacity to meet current peak-day requirements.

NATURAL GAS SURVEY

Two surveys were sent to approximately 80 natural gas pipeline transmission and storage companies. The first survey was distributed primarily to the interstate transmission companies. It focused on major pipeline segment and interconnection capabilities, as well as storage and peak-shaving/LNG information. General data such as the average BTU content of their system gas and the relationship between average January day requirements and

peak January day requirements were also requested. The second survey was an abbreviated version of the first, concentrating on storage data. This survey was distributed to intrastate gas companies and natural gas storage companies. The intent of the surveys was to determine the overall capabilities of the nation's natural gas transmission and storage system. In an effort to ease the burden of responding, and to reduce the amount of insignificant data, only data on those pipeline segments and interconnections in excess of identified minimum capacities was requested. The survey responses included the vast majority of the interstate pipeline capacity in the United States. The two survey forms and a listing of respondent companies can be found in Appendix D.

The survey data was then aggregated and analyzed relative to the PADD boundaries. Emphasis was placed on inter-PADD transmission capacity and intra-PADD storage and pipeline interconnection capability. For the few companies that did not respond, information from FERC Section 260.8, Form 567 reports, and various A.G.A. publications was utilized to supplement the data received.

The PADD boundaries for this study differ from those presented in other NPC reports. The modified boundaries were arranged so that a more representative transmission capacity analysis could be performed under the stress scenarios. Boundary changes include the creation of PADD ID to make the studies of this region sensitive to potential future capacity restrictions into Florida. Also, Kansas and Oklahoma were shifted into PADD III. Then, PADD III, which contains the nation's more abundant supply areas, was divided into two parts along Texas Railroad Commission District boundaries. PADD IIIA included the East Texas and Texas Gulf Coast regions (Texas Railroad Commission District 1 through 6). PADD IIIB included the North Texas and West Texas areas (Texas Railroad Commission District 7B through 10). This PADD breakdown allowed the flow studies to distinguish pipeline transmission capabilities between the Southeast (onshore and offshore, Texas and Louisiana) and the Southwest (Oklahoma and the northern Texas area) and to determine possible capacity restrictions into neighboring PADDs.

PIPELINE CAPACITIES

The respondent pipeline companies were requested to provide maximum design-day capacities of their major transmission segments. The segments were to be limited to capabilities of 100 MMCF/D or greater. Segment capabilities were analyzed and aggregated to determine the maximum transmission capacity between PADDs. Figure 20 is a national map that shows the location of major gas pipelines, the modified PADD boundaries, and the capacities of major transmission segments identified in the survey responses. Figures 21 through 29 are more detailed maps that show the locations of major gas pipelines with capacities in excess of 0.1 BCF/D within each PADD. The present capacity of the nation's natural gas network to transport gas out of the major domestic supply regions (PADD III) under peak winter

MAJOR NATURAL GAS PIPELINES

JULY 31, 1988

FEDERAL ENERGY REGULATORY COMMISSION

Scale in miles

Based on maps and reports filed with the Federal Energy Regulatory Commission.

LEGEND

Pipelines

- Existing
- Certified Only or Under Construction
- 72 Number Refers to Ownership List
- LNG Receiving Points

Gas Fields

- Generalized Area of Natural Gas Supply

1 * Alabama-Tennessee Natural Gas Co.
2 * Algonquin Gas Transmission Co.
3 * Arka Energy Resources
4 Associated Natural Gas Co
5 Arkansas Oklahoma Gas Corp
6 Associated Natural Gas Co
8 South Carolina Pipeline Corp
9 Central Louisiana Electric Co., Inc
10 * Chevron Pipe Line Co.
11 Cincinnati Gas & Electric Co., The
14 * Williams Natural Gas Co.
15 * Colorado Interstate Gas Co
17 * Columbia Gulf Transmission Co
18 Consumers Natural Gas Corp
19 Consumers Power Co
21 East Ohio Gas Co., The
22 * Kern Transmission Natural Gas Co.
23 * Eastern Shore Natural Gas Co.
25 * El Paso Natural Gas Co.
26 * Equitrans, Inc.
27 * Florida Gas Transmission Co
31 High Plains Natural Gas Co
34 Midwestern Pipe Line Co.
35 * Mid Louisiana Gas Co
36 Illinois Power Co
37 Indiana Gas Co., Inc.
38 * Iowa-Illinois Gas & Electric Co.
39 Midwest Fuel Gas Distribution Corp.
41 * K N Energy, Inc.
42 Kansas Power & Light Co., The
45 * Lone Star Gas Company
46 * Louisville Gas & Electric Co.
47 * Michigan Consolidated Gas Co.
48 * Michigan Gas Storage Co
50 * ANR Pipeline Co.
51 * Michigan Gas Transmission Co.
53 * Mississippi River Transmission Corp.
54 Missouri Public Service Co.
55 * Williston Basin Interstate Pl. Co.
56 * Montana Power Co.
58 * Natural Gas Pipeline Co. of America
59 New Jersey Natural Gas Co.
61 Niagara Mohawk Power Corp
62 North Carolina Natural Gas Corp.
63 Northern Illinois Gas Co
64 Northern Indiana Public Service Co.
65 * Northern Natural Gas Co
66 * Northern Border Pipeline Co.
67 Northern Utilities, Inc., Wy
71 Oklahoma Natural Gas Co
73 Pacific Gas & Electric Co
74 * Pacific Gas Transmission Co.
75 Pacific Lighting Service Co.
76 * Panhandle Eastern Pipe Line Co.
77 * National Fuel Gas Supply Corp.
78 Peoples Natural Gas Co., The
79 Petroleum Exploration Inc.
80 Pioneer Natural Gas Co., Inc.
81 Pioneer Natural Gas Co
82 Public Service Co. of N.C., Inc.
83 Roanoke Gas Co.
84 San Diego Gas & Electric Co.
85 Sharondale Gas Co
86 South Carolina Electric & Gas Co
87 * South Georgia Natural Gas Co
88 South Jersey Gas Co
89 Southern Natural Gas Co., Inc.
90 Southern California Gas Co
92 * Southern Natural Gas Co.
93 Southern Union Gas Co.
94 * Penn Pipeline Co.
95 Southwestern Virginia Gas Co
96 Stanford Pacific Gas Line Inc.
97 * Tennessee Gas Pipeline Co.
98 * Texas Eastern Transmission Corp
99 * Texas Gas Transmission Corp.
100 * Transcontinental Gas Pipe Line Corp.
101 * Transmission Pipeline Co.
102 * Tuscarora Gas Co.
104 * United Gas Pipe Line Co
107 * Washington Gas Light Co
108 * Western Gas Interstate Co.
109 West Texas Utilities Co
110 * Zenith Nat. Gas Co
113 * Great Lakes Gas Transmission Co.
114 * Great Plains Natural Gas Co.
115 * Valero Interstate Transmission Co.
116 Utah Natural Gas Co.
117 * Vermont Gas Systems, Inc.
118 Western Gas Supply Co.
119 * Iroquois Pipeline Corp.
120 * CNG Transmission Corp.
121 * Granite State Gas Transmission, Inc.
124 * Saltire Pipe Line Co
125 * Black Marlin Pipeline Co
128 * Northwest Alaskan Pipeline Co.
127 * Questar Pipeline Co.
128 * St. Lawrence Gas Co., Inc.
129 * Valero Transmission Co
130 * Northern Border Inc. (Enk)
131 United Texas Trans. Co.
132 * Sea Robin Pipeline Co.
133 * Wyoming Interstate Co. Ltd
134 * Inter-City Minnesota Pipelines Ltd., Inc
135 * Consumers System LNG
136 * MIDC, Inc
137 * Columbia Gas Transmission Corp.
138 * Northwest Pipeline Corp.
140 * Trunkline Transmission Co
142 * High Island Offshore System
143 * Sengray Pipeline Co.
144 * Overthrust Pipeline Co.
145 * Trailblazer Pipeline Co.
146 * Ozark Gas Transmission System
150 * Phillips Gas Pipeline Co.

* Jurisdictional Companies Under Sections 3 and 7

Note: Some pipeline companies have not been updated since 1980 and pending pipelines have not been included.

U.S. Pipeline Imports From Canada & Mexico

1. Pacific Gas Trans. Co., 74, from Alberta & Southern Gas Co. Ltd
2. Montana Power Co., 56, from Canadian-Montana Pipe Line Inc
3. St. Lawrence Gas Co., 128, from Niagara Gas Trans. Ltd.
4. Transcontinental Gas Pipe Line Corp., 100, from Union Gas Ltd.
5. Midwestern Gas Trans. Co., 51, from Trans-Canada PipeLines Ltd.
6. Northwest Pipeline Corp., 138, from West Coast Trans. Co., Ltd.
7. Vermont Gas Systems, Inc., 117, from Trans-Canada PipeLines Ltd
8. Tennessee Gas Pipeline Co., 97, from Trans-Canada PipeLines Ltd.

U.S. Pipeline Imports From Canada & Mexico Cont'd

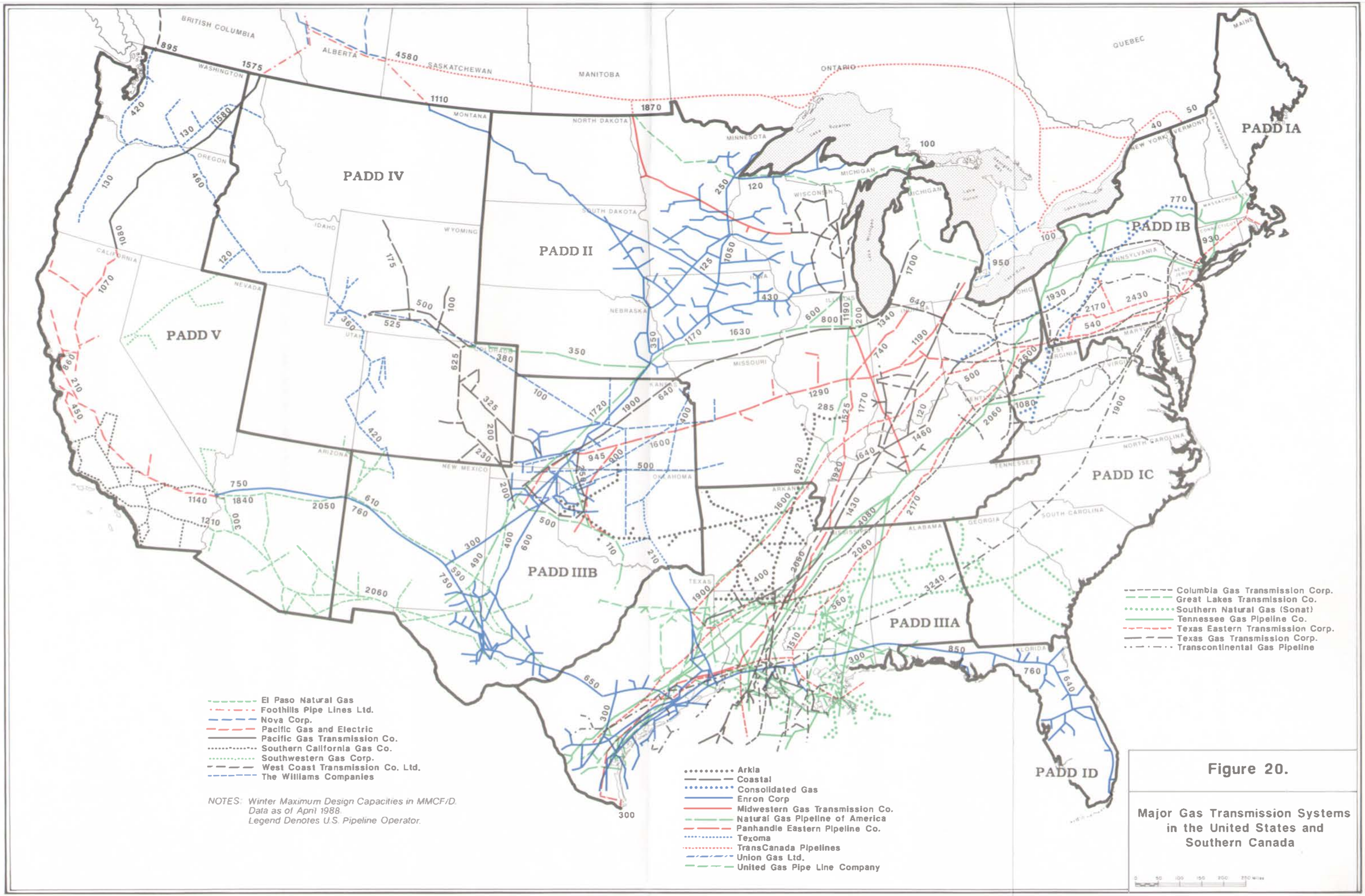
9. Border Gas, Inc. from Pemex Mexicana
10. Great Lakes Gas Transmission Co., 113, from TransCanada PipeLines Ltd
11. Inter-City Minnesota Pipelines Ltd., Inc., 134, from ICG Transmission Ltd
12. Northern Natural Gas Co., 65, from Consolidated Natural Gas Ltd
13. Northwest Alaskan Pipeline Co., 128, from Pan-Alberta Gas, Ltd.
14. Natural Gas Pipeline Co. of America, 58, from PanGas Ltd
15. ANR Pipeline Co., 50, Tennaco, 97, and Texas Eastern Trans. Corp., 98, from ProGas Ltd.
16. Bouchery Gas, Inc. from TransCanada PipeLines Ltd.
17. TEMCO from Esso Resources Canada

U.S. Pipeline Exports to Canada & Mexico

1. The Montana Power Co., 56, to Border Util. Ltd. & Milk River Gas Co., Ltd
2. Valero Trans. Co., 128, to Pemex Mexicana
3. El Paso Natural Gas Co., 23, to PE MEX
4. Transcontinental Gas Pipeline Co., 97, to Trans-Canada PipeLines Ltd.
5. Great Lakes Gas Transmission Co., 113, to TransCanada PipeLines Ltd.
6. Inter-City Minnesota Pipelines Ltd., Inc., 134, to ICG Trans. Ltd
7. Northern Natural Gas Co., 65, to Consolidated Natural Gas Ltd

Figure 19.

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426



NOTES: *Winter Maximum Design Capacities in MMCF/D.*
Data as of April 1988.
Legend Denotes U.S. Pipeline Operator.

Figure 20.

Major Gas Transmission Systems in the United States and Southern Canada

Figure 21. Major Natural Gas Pipelines—PADD IA.

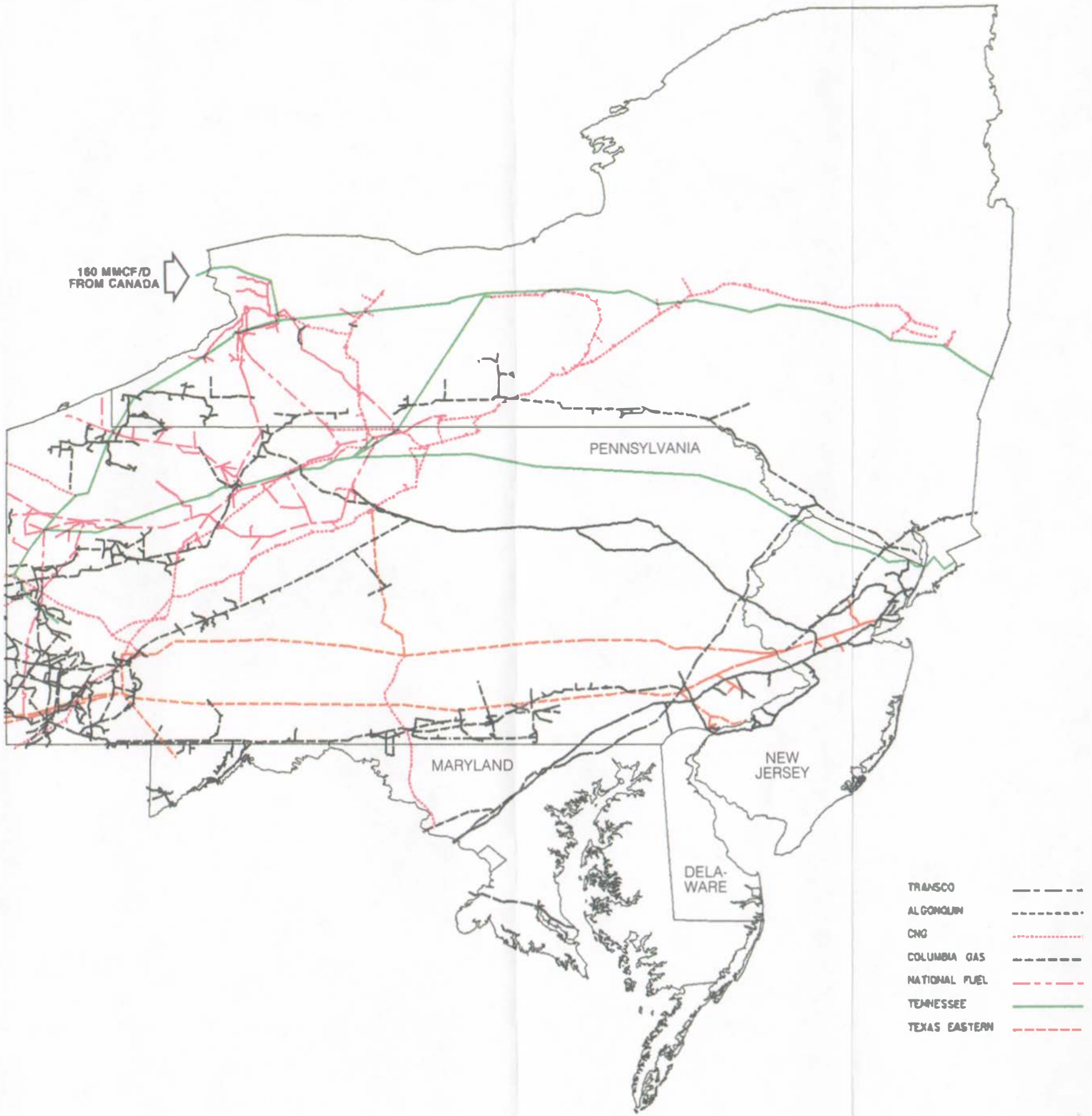


Figure 22. Major Natural Gas Pipelines—PADD IB.

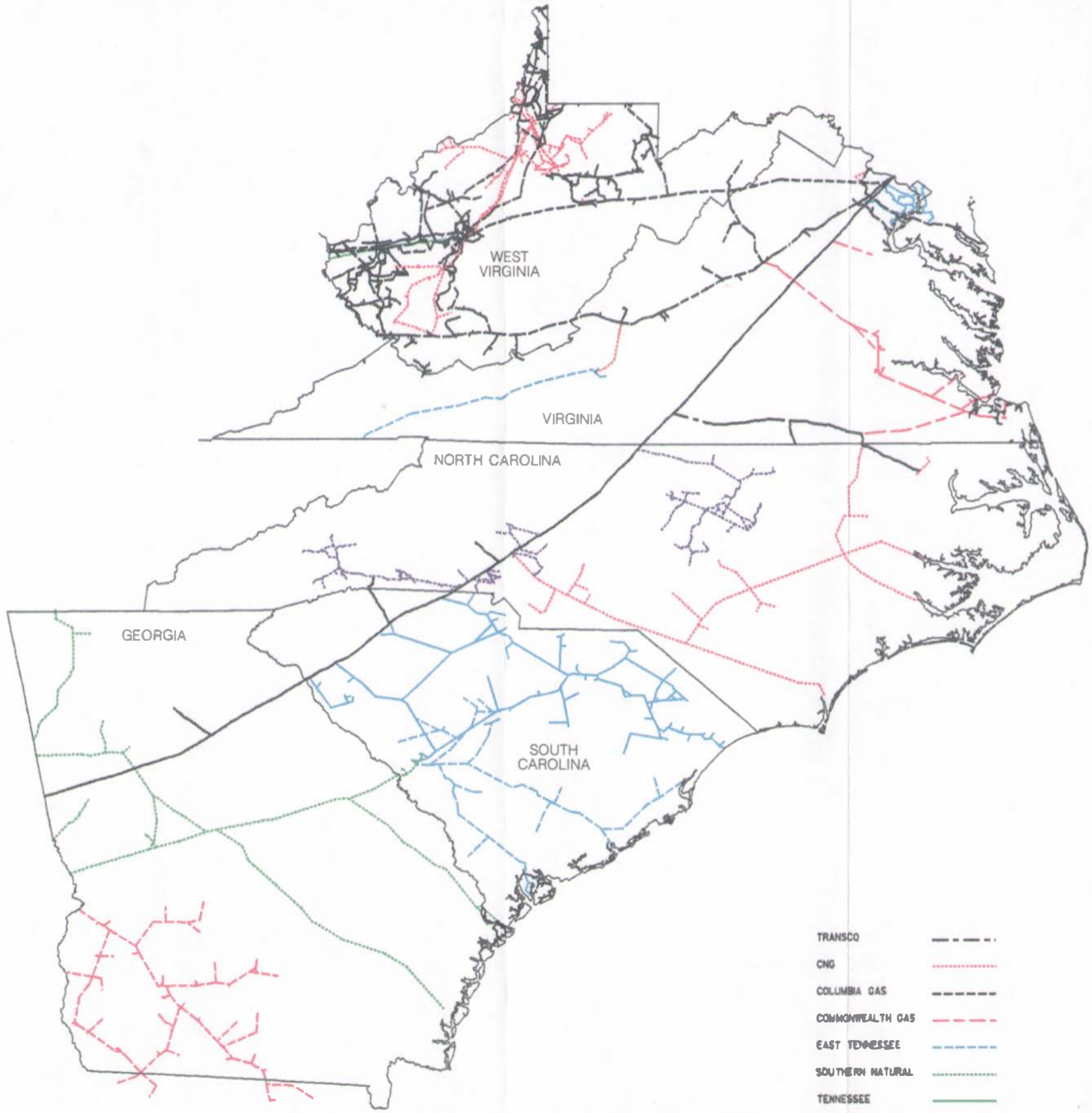


Figure 23. Major Natural Gas Pipelines—PADD IC.

Figure 24. Major Natural Gas Pipelines—PADD ID.

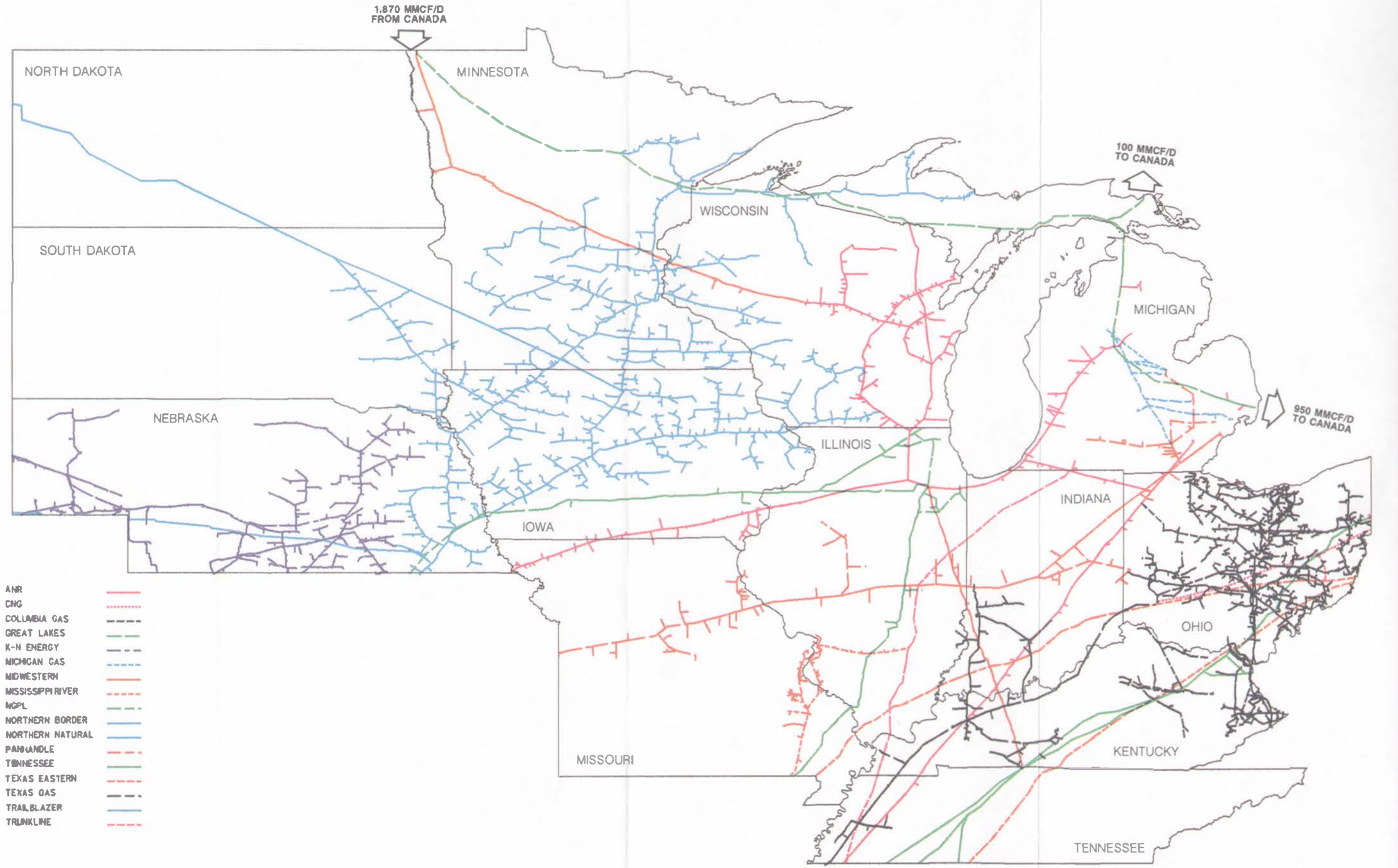


Figure 25. Major Natural Gas Pipelines—PADD II.

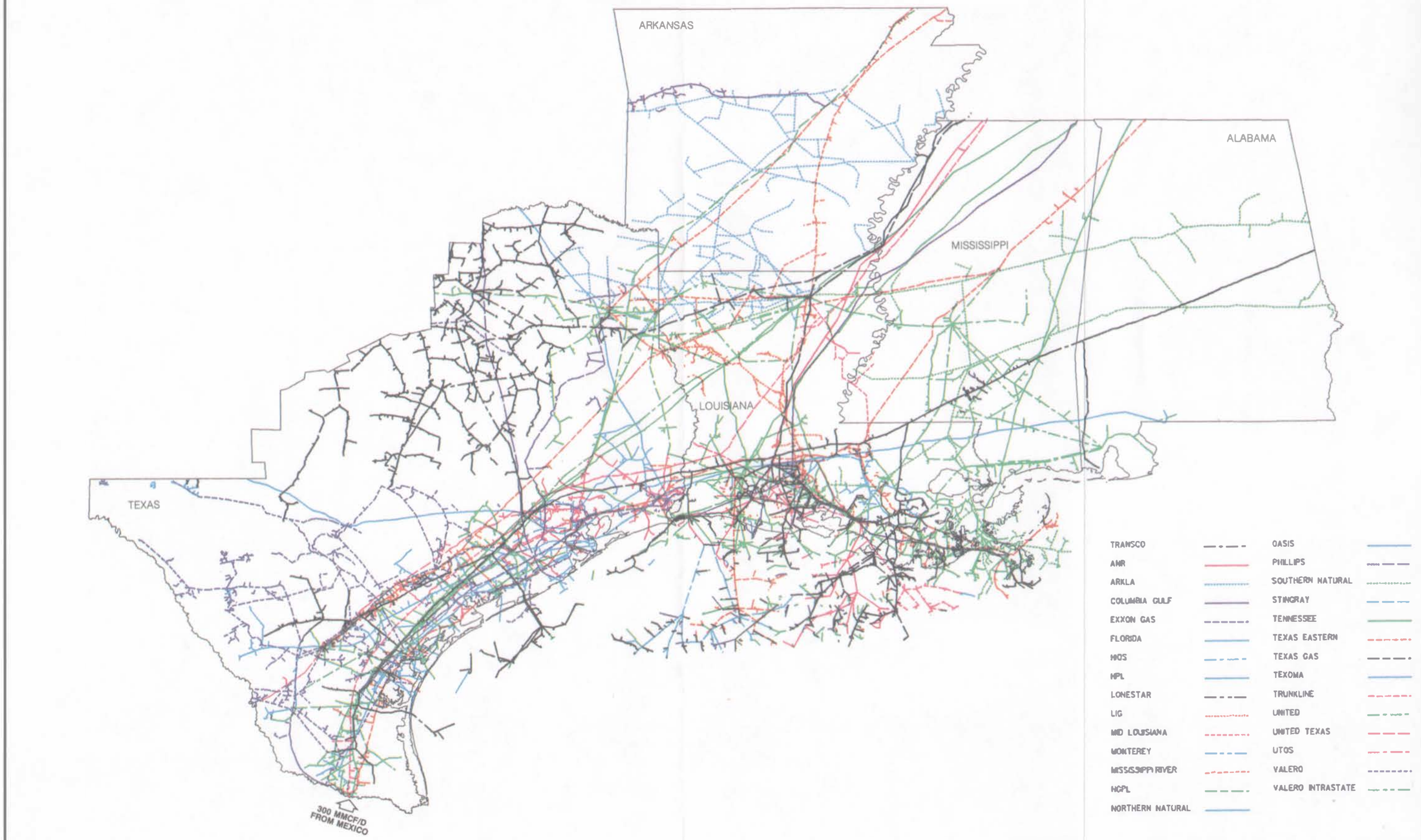


Figure 26. Major Natural Gas Pipelines—PADD IIIA.

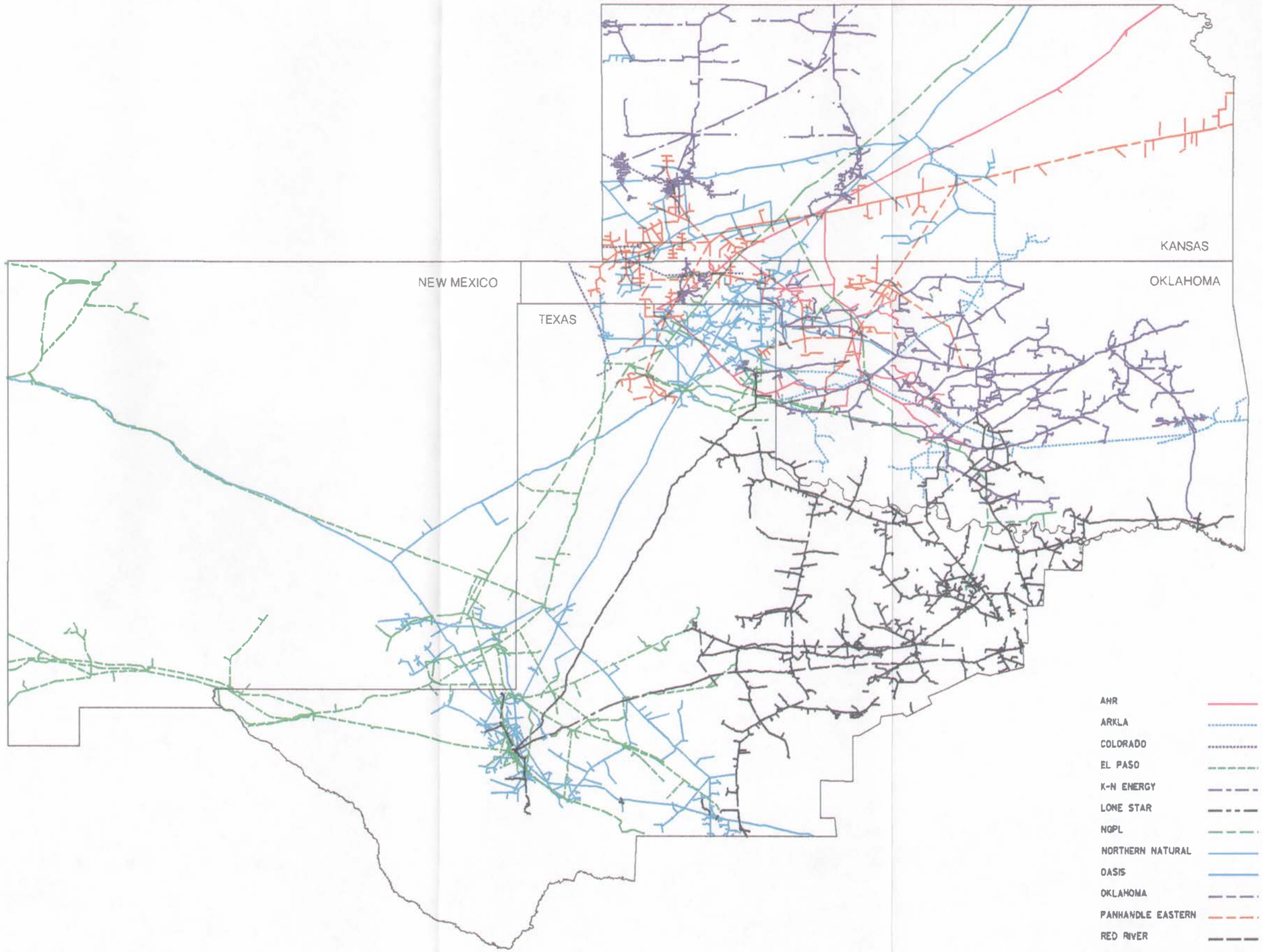


Figure 27. Major Natural Gas Pipelines—PADD IIIB.

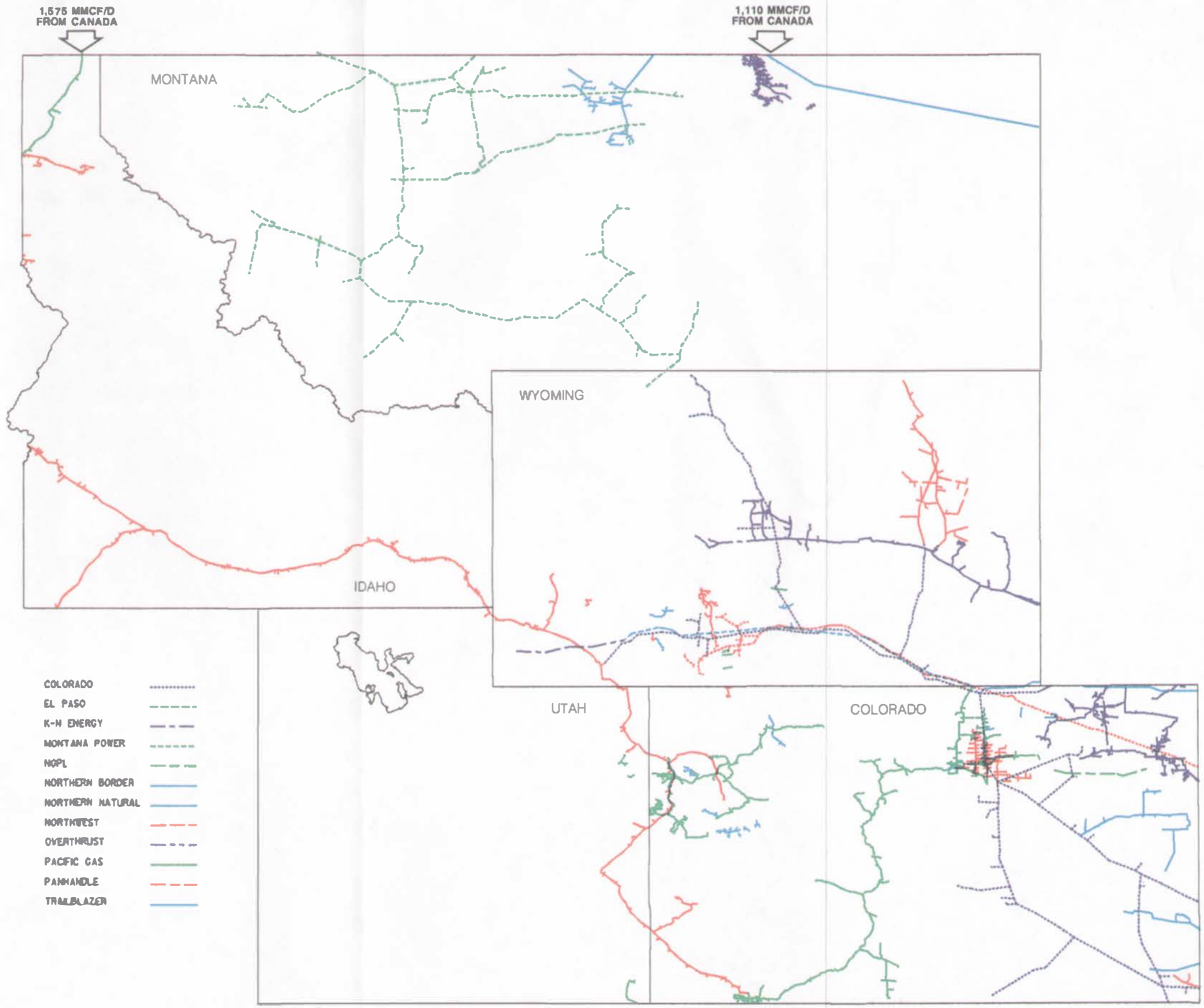


Figure 28. Major Natural Gas Pipelines—PADD IV.

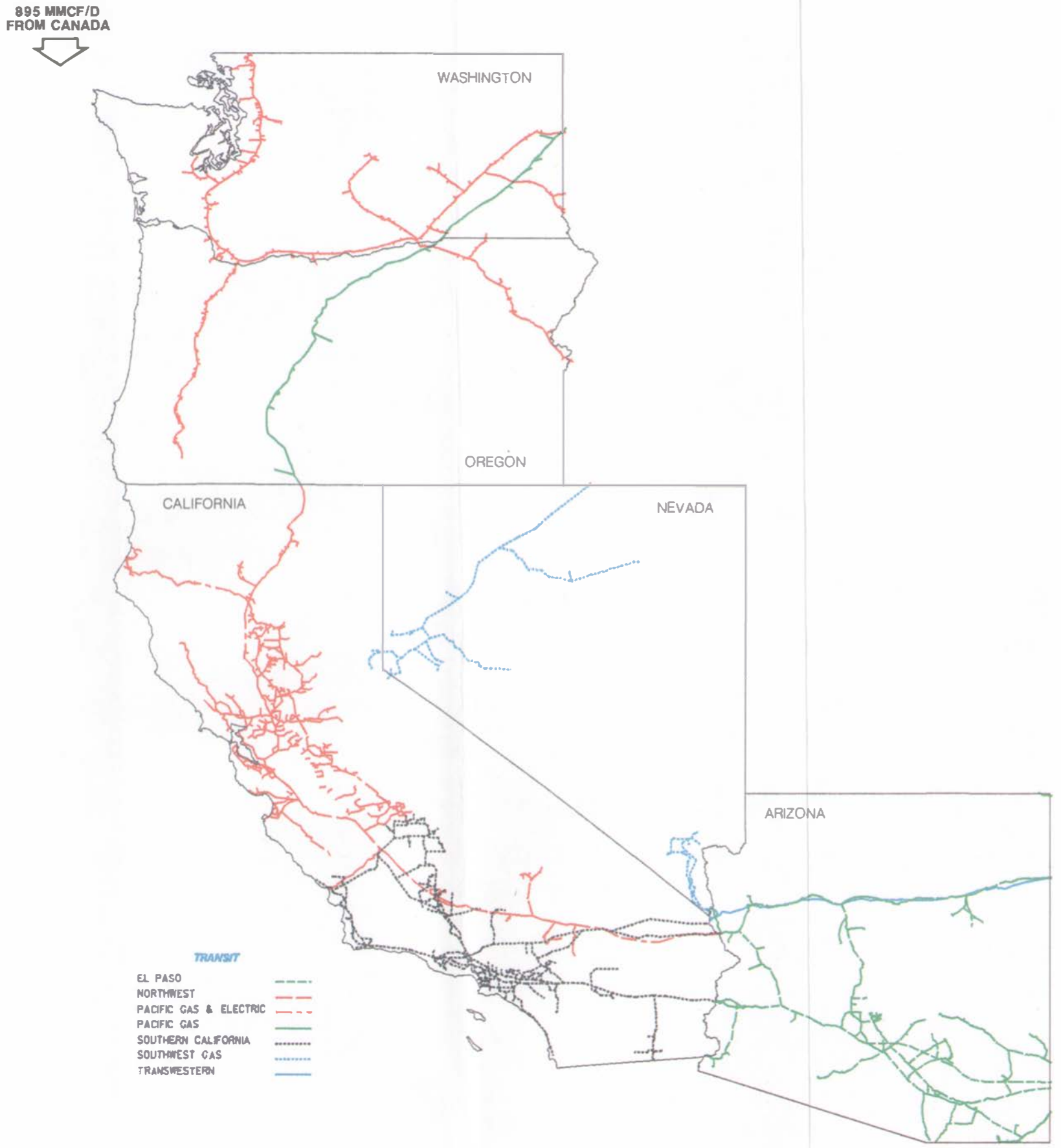


Figure 29. Major Natural Gas Pipelines—PADD V.

conditions is approximately 33.7 BCF/D. On a peak day, the network can also transport up to 4.6 BCF/D of net imports from Canada, 0.3 BCF/D of imports from Mexico, and approximately 6.1 BCF/D of regional and local production.

A summary of the aggregated maximum inter-PADD flow capabilities can be found in Table 5 and Figure 30. A more detailed listing of the estimated pipeline capacities, by company, at each PADD boundary, can be found in Appendix E.

Annual U.S. gas consumption has declined from the peak level of 22 TCF in 1972; however, peak-day consumption has remained relatively constant. This trend of a declining annual consumption with a constant peak day has been caused by two factors. First, a decline in industrial and electric power generation customers has contributed to the annual decline. Second, residential growth has held the peak-day requirements constant due to the weather sensitivity of the heating load. This load imbalance between annual average-day and peak-day results in excess pipeline capacity on a seasonal basis; a great deal of capacity is available during the summer months in most parts of the country, while peak-day capacity is limited to meeting existing requirements. Due to concerns about the decline in peak gas supply deliverabilities in the United States, a shift in the management of storage could occur with buyers storing cheaper spot gas during off-peak periods. Such a shift is aided by the addition of roughly 1.2 TCF of working storage capacity since 1977.

PIPELINE INTERCONNECTIONS

By the early 1950s, the majority of the natural gas pipelines in the United States had already established their supply and market territories. As traditional reserves and deliverability began to decline, pipeline companies began to acquire system supply from areas in which they did not have existing facilities. To avoid duplication of facilities that gave access to the same supply areas, a pipeline company would interconnect with another crossing pipeline and would negotiate a transportation/exchange agreement in order to obtain new reserves.

Additionally, interconnections were installed to provide pipeline companies with access to natural gas storage fields and markets otherwise not available to them, thus eliminating the need for costly mainline transmission extensions. Interconnections linking pipeline companies together made it possible for natural gas to be transported from one part of the nation to another. This provides the country with tremendous gas routing flexibility, via the national pipeline grid network, in the event of a stress condition.

General pipeline interconnection capacity data were requested in the survey along with location and normal operating pressure. Only those interconnections with a capacity of 25 MMCF/D or greater were requested. The following interconnection matrices, Figures 31 through 35, were formed using the data

TABLE 5

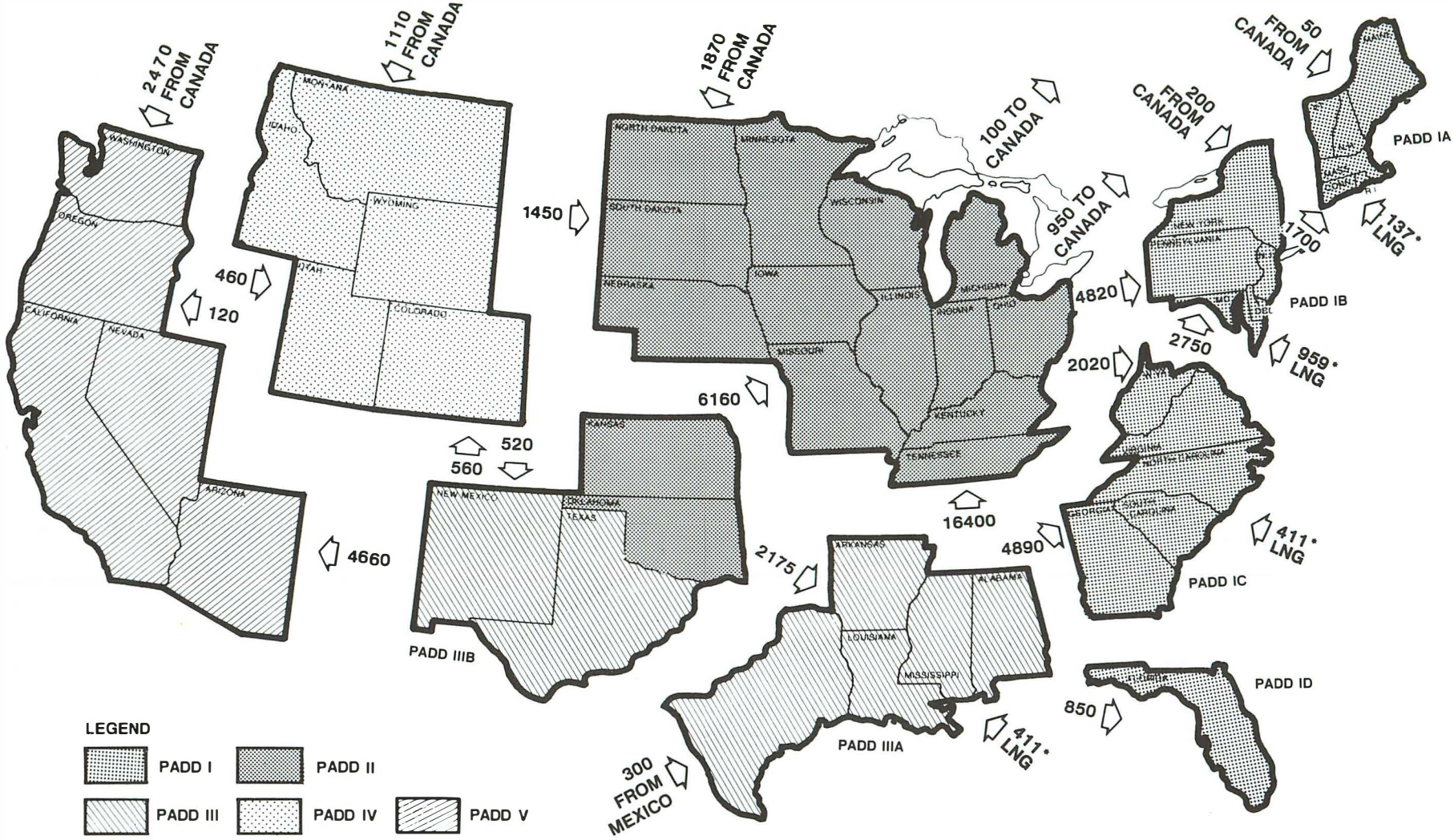
MAXIMUM TOTAL INTER-PADD FLOW CAPACITY
(MMCF/D)*

From PADD	To PADD IA	IB	IC	ID	II	IIIA	IIIB	IV	V	Canada
IA		-	-	-	-	-	-	-	-	-
IB	1,700		-	-	-	-	-	-	-	-
IC	-	2,750		-	-	-	-	-	-	-
ID	-	-	-		-	-	-	-	-	-
II	-	4,820	2,020	-		-	-	-	-	1,050
IIIA	-	-	4,890	1,010	16,400		-	-	-	-
IIIB	-	-	-	-	6,160	2,175		560§	4,660	-
IV	-	-	-	-	1,450	-	1,080§		120	-
V	-	-	-	-	-	-	-	460		-
Canada	50	200	-	-	1,870	-	-	1,110	2,470	
Mexico	-	-	-	-	-	300	-	-	-	

*All volumes in millions of cubic feet per day (MMCF/D) at 14.73 PSIA, 60°F, 1,000 BTU per cubic foot.

§Totals include 560 MMCF/D of bi-directional flow capabilities which cannot flow concurrently between PADD IIIB and PADD IV.

SOURCE: National Petroleum Council 1988 "Survey of U.S. Natural Gas Storage and Pipeline Capacities," and recent FERC Section 260.8, Form 567 reports.

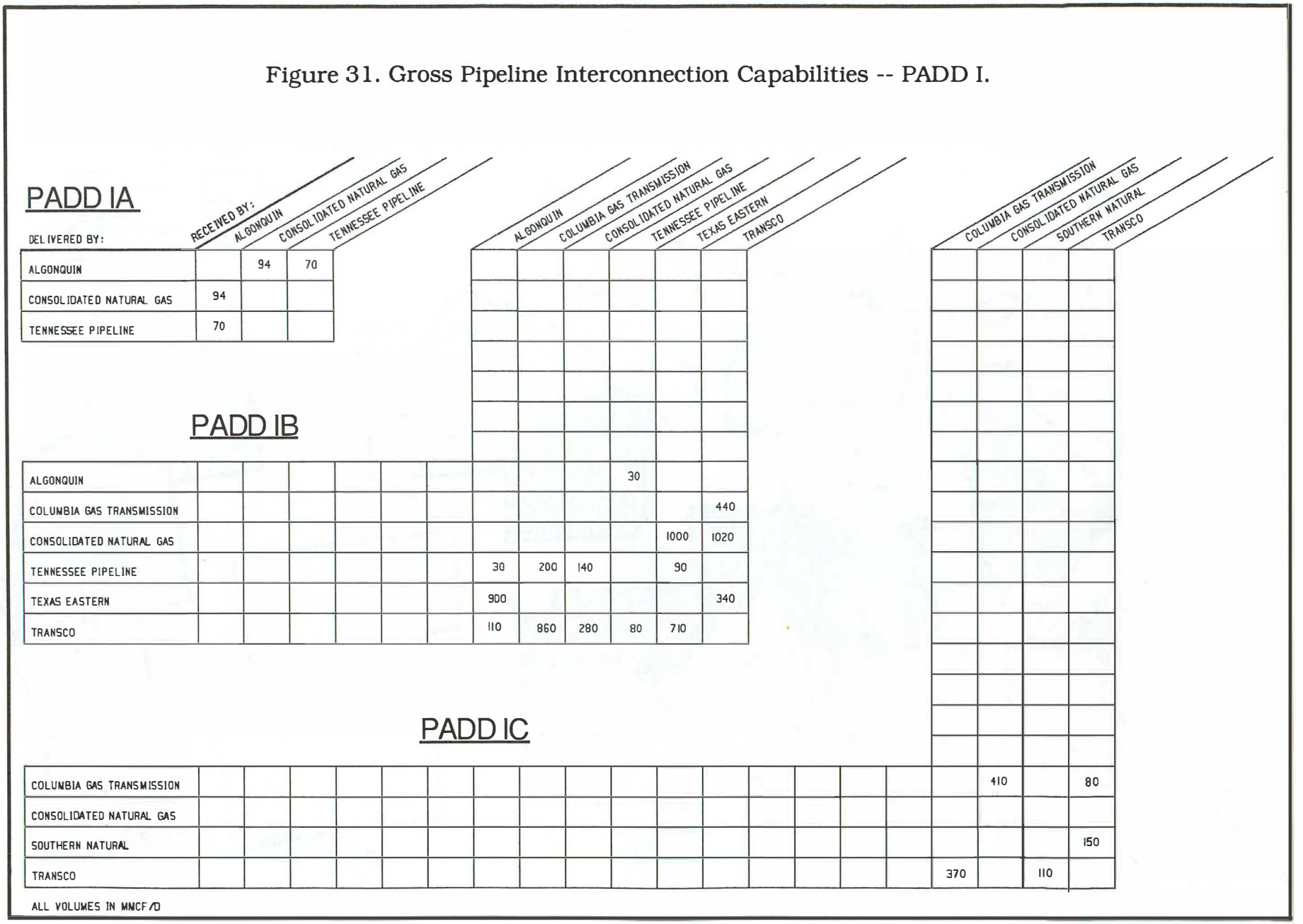


NOTE: PADD IA = New England = IX; PADD IB = Mid Atlantic = IY; PADD IC = South Atlantic = IZ (— Florida); PADD ID = Florida; PADD II = Midwest (— Kansas and Oklahoma); PADD IIIA = Gulf Coast; PADD IIIB = Southwest (+ Kansas and Oklahoma); PADD IV = Rocky Mountain; PADD V = Pacific.

** LNG facilities currently not in operation.*

Figure 30. National Petroleum Council 1988 Survey of Natural Gas Storage and Pipeline Capacities (All Volumes in MMCF/D).

Figure 31. Gross Pipeline Interconnection Capabilities -- PADD I.



PADD IA

DELIVERED BY: \ RECEIVED BY:	ALGONQUIN	CONSOLIDATED NATURAL GAS	TENNESSEE PIPELINE
ALGONQUIN		94	70
CONSOLIDATED NATURAL GAS	94		
TENNESSEE PIPELINE	70		

PADD IB

	ALGONQUIN	COLUMBIA GAS TRANSMISSION	CONSOLIDATED NATURAL GAS	TENNESSEE PIPELINE	TEXAS EASTERN	TRANSCO
ALGONQUIN				30		
COLUMBIA GAS TRANSMISSION						440
CONSOLIDATED NATURAL GAS					1000	1020
TENNESSEE PIPELINE	30	200	140		90	
TEXAS EASTERN	900					340
TRANSCO	110	860	280	80	710	

PADD IC

	COLUMBIA GAS TRANSMISSION	CONSOLIDATED NATURAL GAS	SOUTHERN NATURAL	TRANSCO
COLUMBIA GAS TRANSMISSION		410		80
CONSOLIDATED NATURAL GAS				
SOUTHERN NATURAL				150
TRANSCO	370		110	

ALL VOLUMES IN MMCF/D

Figure 32. Gross Pipeline Interconnection Capabilities -- PADD II.

DELIVERED BY: \ RECEIVED BY:	ANR PIPELINE	COLUMBIA GAS TRANSMISSION	COLUMBIA GULF TRANSMISSION	CONSOLIDATED NATURAL GAS	EAST TENNESSEE PIPELINE	GREAT LAKES GAS TRANSMISSION	KN ENERGY	MIDWESTERN	MINNEGASCO	MISS. RIVER TRANSMISSION	NATURAL GAS PIPELINE	NORTHERN BORDER	NORTHERN NATURAL	PANHANDLE EASTERN	TENNESSEE PIPELINE	TEXAS EASTERN	TEXAS GAS TRANSMISSION	TRAILBLAZER	TRUNKLINE	WILLIAMS NATURAL GAS	WILLISTON BASIN
ANR PIPELINE		145				1320		475			700		200	450		180	50		190			
COLUMBIA GAS TRANSMISSION																						
COLUMBIA GULF TRANSMISSION															90							
CONSOLIDATED NATURAL GAS																						
EAST TENNESSEE PIPELINE																190						
GREAT LAKES GAS TRANSMISSION	3365												450	40								
KN ENERGY																						
MIDWESTERN	500										580		200			20	130		100			
MINNEGASCO																						
MISS. RIVER TRANSMISSION																						
NATURAL GAS PIPELINE	410									200				220								
NORTHERN BORDER													1025									100
NORTHERN NATURAL	155						25	100	540		150											
PANHANDLE EASTERN	450		450								220						25		800	30		
TENNESSEE PIPELINE		90	90	60	320			600								100						
TEXAS EASTERN					190			20							100				75			
TEXAS GAS TRANSMISSION	50	290		300				100								310			50			
TRAILBLAZER											350		175									
TRUNKLINE	190							100		160				800		75						
WILLIAMS NATURAL GAS														30								
WILLISTON BASIN												50										

ALL VOLUMES IN MMCF/D

Figure 33. Gross Pipeline Interconnection Capabilities -- PADD IIIA.

DELIVERED BY: \ RECEIVED BY:	ANR PIPELINE	ARKLA	COLUMBIA GULF TRANSMISSION	FLORIDA GAS	HOUSTON PIPELINE	LOUISIANA INTRASTATE	MID CON TEXAS	MID LOUISIANA	MISS. RIVER TRANSMISSION	MONTEREY PIPELINE	NATURAL GAS PIPELINE CO.	OASIS	SOUTHERN NATURAL	TENNESSEE PIPELINE	TEXAS EASTERN	TEXAS GAS TRANSMISSION	TEXOMA	TRANSCO	TRUNKLINE	UNITED GAS PIPELINE	UNITED TEXAS
ANR PIPELINE			125	90				25		30	145		310		200	550		125	200	450	180
ARKLA	100								400							155				40	
COLUMBIA GULF TRANSMISSION				50		50					60		90	270	90	300		80		50	
FLORIDA GAS	90		110			70							50	90	160	100	100	160	90	360	
HOUSTON PIPELINE				150											250			300	50		100
LOUISIANA INTRASTATE			40	110						70				80		100				50	
MID CON TEXAS											250										
MID LOUISIANA						10												150	10		
MISS. RIVER TRANSMISSION																					
MONTEREY PIPELINE																					
NATURAL GAS PIPELINE CO.	145		200	40					200					50		50		140	180	140	850
OASIS					650																60
SOUTHERN NATURAL				190				80		30				240	430	40					
TENNESSEE PIPELINE	440		70	90				90		60	50		240		230	30		640	530	640	
TEXAS EASTERN	200			150						20						390		400		830	100
TEXAS GAS TRANSMISSION	550	160		120									110		340			240		440	
TEXOMA				100																	
TRANSCO	130		90	350	360			150		70	440		50	740	430	150			310	920	100
TRUNKLINE	200			90						120	120			430				270		530	
UNITED GAS PIPELINE	150	100	110	240		70		80	500	130	100		1020	630	430	420		430			340
UNITED TEXAS				75	130						280			80	50			100		530	

ALL VOLUMES IN MMCF/D

Figure 34. Gross Pipeline Interconnection Capabilities -- PADD IIIB.

DELIVERED BY: \ RECEIVED BY:	ANR PIPELINE	ARKLA	COLORADO INTERSTATE	EL PASO NATURAL GAS	KN ENERGY	KANSAS POWER & LIGHT CO.	LONE STAR	NATURAL GAS PIPELINE CO.	NORTHERN NATURAL	OASIS	OKLAHOMA NATURAL GAS	PALO DURO	PANHANDLE EASTERN	PHILIPS	RED RIVER	TRANSOK	TRANSWESTERN	UNITED TEXAS	VALERO	WILLIAMS NATURAL GAS
ANR PIPELINE		100	50					150	120								20			30
ARKLA														40						
COLORADO INTERSTATE	50			90	45			160	180				210				100			
EL PASO NATURAL GAS									80	350					100		940			
KN ENERGY																				
KANSAS POWER & LIGHT CO.									30				60							100
LONE STAR										450										
NATURAL GAS PIPELINE CO.	150			300						300		30	200		100		50			
NORTHERN NATURAL	120			330		50				350			150				690			
OASIS				350			450	290	350								250		430	
OKLAHOMA NATURAL GAS								180						25						
PALO DURO							80	50	30										140	
PANHANDLE EASTERN					180	60		90	150								60			50
PHILIPS	50																			
RED RIVER				100				100												
TRANSOK	110	40					50	50			200		160	20						
TRANSWESTERN	20			940				220	690	250			60					100	200	190
UNITED TEXAS																	100			
VALERO										430							200			
WILLIAMS NATURAL GAS	130					100							50				185			

ALL VOLUMES IN MMCF/D

Figure 35. Gross Pipeline Interconnection Capabilities -- PADDs IV and V.

PADD IV

DELIVERED BY: \ RECEIVED BY:	COLORADO INTERSTATE	EL PASO	KN ENERGY	MONTANA POWER	NORTHWEST PIPELINE	OVERTHRUST	QUESTAR	TRAILBLAZER	WILLIAMS NATURAL GAS	WILLISTON BASIN	WYOMING INTERSTATE
COLORADO INTERSTATE			80		60		50		45	20	75
EL PASO					315						
KN ENERGY											
MONTANA POWER										50	
NORTHWEST PIPELINE	200	315					330				
OVERTHRUST											210
QUESTAR					220						210
TRAILBLAZER	140										180
WILLIAMS NATURAL GAS	90										
WILLISTON BASIN	100		25	50							
WYOMING INTERSTATE	440							350			

PADD V

DELIVERED BY: \ RECEIVED BY:	EL PASO	NORTHWEST PIPELINE	PACIFIC GAS & ELECTRIC	PACIFIC GAS TRANSMISSION	SOUTHERN CALIFORNIA GAS	TRANSWESTERN
EL PASO					1750	
NORTHWEST PIPELINE			120			
PACIFIC GAS & ELECTRIC						
PACIFIC GAS TRANSMISSION	150	1080				
SOUTHERN CALIFORNIA GAS						
TRANSWESTERN					750	

ALL VOLUMES IN MMCF/D

obtained through the survey. The matrices represent the total capacity one company can deliver or receive from another within a given PADD. In instances where discrepancies between reporting companies occurred, the lesser capacity values were used. The information is based only on the survey data received. For those companies that did not respond or those that provided incomplete data, data from the receiving or interconnecting company was used, if possible. The interconnection matrices should be considered only a partial summary, the intent being to provide a general order of magnitude of interconnection capacities between companies within the same PADD. A more thorough listing of pipeline interconnections is available from a directory published by the A.G.A., entitled Transportation: Interconnection Manual (7th revision, 1988).

STORAGE, PEAK-SHAVING, LNG CAPACITIES

The respondent companies were requested to provide general storage information on base and working storage capacities as well as winter design day deliverability rates. Peak-shaving and LNG deliverability information was also requested. To supplement the survey for those companies that did not respond, information from the A.G.A. "Survey of Underground Storage in The United States and Canada--1988" was used. Although the base and working gas information requested is not used in analyzing the stress scenarios, the data is important to determine the nation's working gas availability. Storage volumes by PADD, state, and company are included in Appendix F. The major natural gas storage areas are identified in Figure 36.

Table 6 summarizes the storage capacities (base and working) and winter design day deliverability by PADD. Capacities in addition to the winter design day deliverability of 52,356 MMCF/D from storage, it is estimated that 7,778 MMCF/D of peak-shaving deliverability and 137 MMCF/D of LNG deliverability are currently available. The LNG volume of 137 MMCF/D is based on an annual average of 50 BCF per year available through Distrigas's facility in Everett, Massachusetts. This brings the nation's current peak-day deliverability total to approximately 60,300 MMCF/D from underground storage and other peaking facilities.

Given the right economic circumstances, LNG deliverability could be increased another 650 BCF per year, or 1,780 MMCF/D, if three other major LNG terminals are placed in operation. These major terminals are the facilities at Lake Charles, Louisiana; Cove Point, Maryland; and Elba Island, Georgia. These LNG terminals have not been in operation since 1983. Two of the terminals, Lake Charles and Elba Island, serve areas that do not appear likely to suffer from facility capacity constraints. However, the Cove Point terminal could serve the New England and Mid-Atlantic areas, where significant demand growth may be possible. While it is questionable whether energy price levels today would permit the development of new LNG supply projects from scratch, there exists significant liquefaction and shipping

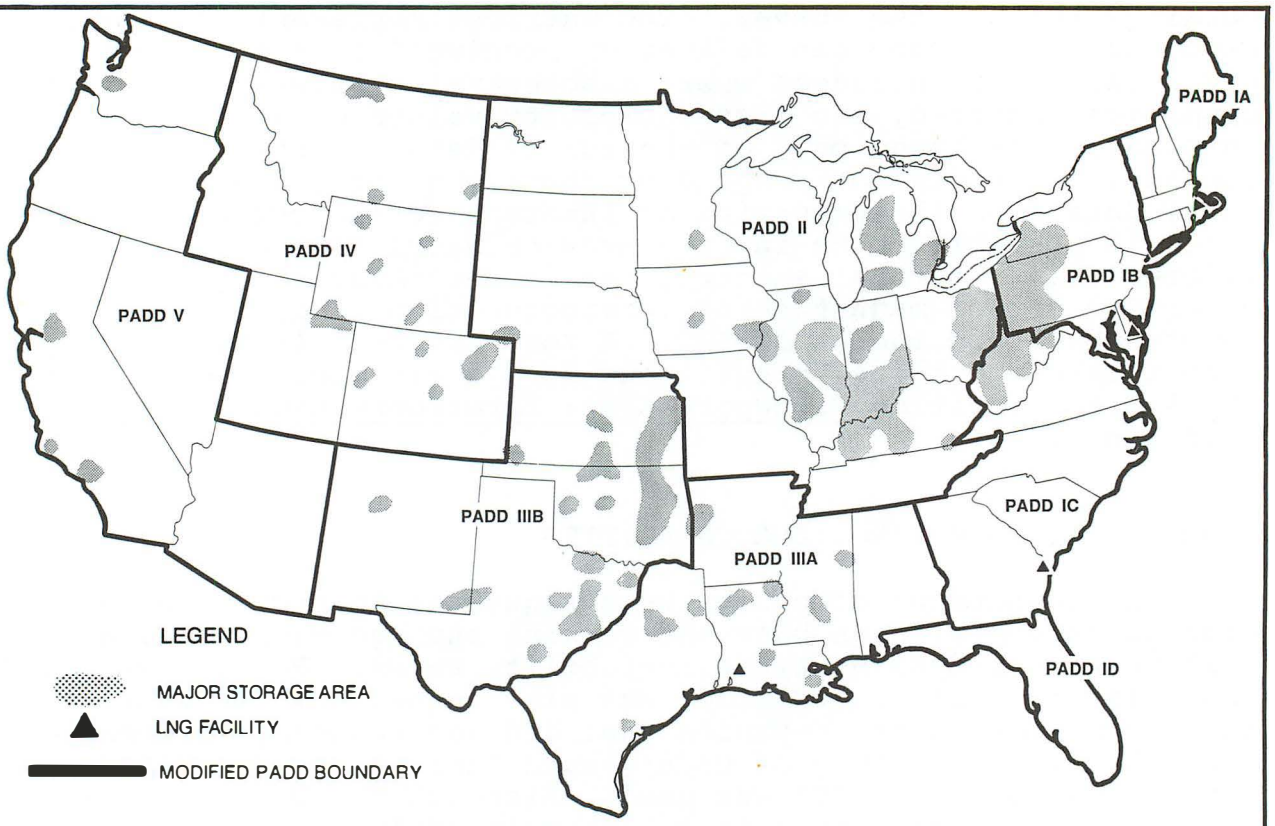


Figure 36. 1988 Survey of Natural Gas Storage Facilities.

TABLE 6

1988 SURVEY OF NATURAL GAS STORAGE FACILITIES

	Storage Deliverabilities				Peak Shaving	LNG
PADD	Base (BCF)	Working (BCF)	Total (BCF)	Winter Design Day Deliverability (MMCF/D)*	Peak Day Deliverability (MMCF/D)	Peak Day Deliverability (MMCF/D)
IA	-	-	-	-	573	137
IB	430	394	824	8,038	2,249	-
IC	300	172	472	2,736	1,390	-
ID	-	-	-	-	-	-
II	1,698	1,285	2,983	19,499	2,224	-
IIIA	408	509	917	7,778	383	-
IIIB	446	317	763	5,897	-	-
IV	240	392	632	1,693	109	-
V	264	208	472	6,715	850	-
Total	3,786	3,277	7,063	52,356	7,778	137

*Winter design day deliverability represents the maximum storage withdrawal capability and may not be indicative of the sustainable capacity.

capacity which is not used and the threshold economics for which might not be too distant from those provided by current gas market prices. Authorization for reactivating Lake Charles has already been sought, and there is interest in reactivating both the Cove Point and Elba Island terminals at a later date. For the 1992 Low Supply and High Supply projections, the Lake Charles LNG terminal was also assumed to be operational and capable of delivering 150 BCF per year or 411 MMCF/D. The location of LNG terminals are also shown in Figure 36.

CHAPTER FOUR

ANALYSIS OF THE NATIONAL PIPELINE NETWORK

METHODOLOGY

The ability of the national pipeline network to serve projected demand was analyzed under typical winter and a series of assumed stress conditions. In approaching the capacity analysis, inter-PADD gas movement and capacity were evaluated, as opposed to a pipeline-specific examination. The PADD-level approach permitted the analysis of interregional gas movement but not the examination of localized capacity problems within a PADD or capacity limitations on an individual pipeline.

The general analytical approach involved: (1) projecting PADD-level supply and demand for a winter month (January or March) in 1988 and 1992 under typical winter and assumed stress conditions, and (2) calculating inter-PADD gas transfers necessary to balance supply with demand, using a simplified network-traffic model of the national pipeline grid. Inter-PADD flows and capacity constraints were analyzed for the following scenarios for 1988 and 1992:

Typical Winter Conditions

- Average January day
- Peak January day
- Average March day.

Stress Conditions

- 10 percent colder than normal for 90 days (based on an average day in a December through February time period)
- 20 percent colder than normal for 30 days (based on an average January day)
- Canadian import reduction of 50 percent (based on an average January day)
- Oil embargo-LNG interruption (based on an average January day)
- 20 percent colder than normal March with reduced storage deliverability (based on an average March day).

Sensitivity analyses that examined the stress performance of the national gas network under a range of supply and demand projections, with two stress conditions occurring simultaneously, were performed. The sensitivity variations were:

- Alternative Low and High Demand projections in combination with Low and High Supply projections

- Canadian import reductions of 25 and 50 percent occurring during peak-day or extended cold-weather periods

- LNG interruption (oil embargo) occurring during peak-day or extended cold-weather periods.

The inter-PADD flow model performed a supply-demand balance for each PADD and attempted to meet demand with an overall, national, least-cost supply sequencing strategy. For purposes of this analysis, the optimum supply priority sequence was assumed to be domestic production first, followed by imports, base-load LNG, storage, and finally peak-shaving. Where capacity limited the movement of lowest priority supply to demand centers, the next higher priority gas was taken instead. Where supply or capacity limited the ability to serve demand, demand was curtailed in a priority-of-service manner as described later in this section.

Internally, the model was based on a network structure of supply, demand, and pipeline nodes. The pipeline system was represented as a series of links connected to the appropriate PADDs. Supply and demand nodes were connected to the PADDs by a series of imaginary links. An illustration of the network used by the model can be found in Appendix G.

A cost function was assigned to each link and was used to calculate a model "cost" as a function of link flow. A description of the cost functions assigned to the supply, demand, and pipeline links follows:

- Supply links were assigned a linear cost function, each with a coefficient that forced supply to be taken in the desired priority.

- Demand links were assigned a cost function that generated an increasing cost for fractional levels of demand service. This function forced demand to be served in a sequential manner, serving all of residential before commercial, commercial before industrial, and industrial before electric power generation. When there was demand curtailment, the function reached a minimum when the levels of curtailment, by sector, were equal. This forced supply to move to demand centers to equalize curtailment across PADDs, subject to available pipeline capacity.

- Pipeline links were also assigned a cost function that attempted to equalize fractional use of pipeline capacity in situations where multiple feasible combinations of pipeline utilization gave equal supply costs.

To solve the network flow problem, a preliminary version of a nonlinear optimizer, RSDNET, written by the University of Florida, Department of Industrial and Systems Engineering, was used. The model determined the link flows that produced the minimum "cost."

Evaluating the network's performance under the typical winter and assumed stress conditions required various simplifying assumptions, analytical approaches, and techniques to allocate supply and demand. Details on the methodology used to project and allocate supply and demand for 1988 and 1992 and the results of these analyses are found in Appendix G.

KEY ASSUMPTIONS

- Peak-day deliverability of domestic production was the average January deliverability less 10 percent to account for weather-related production difficulties, such as wellhead freeze-offs.

- Deliverability of domestic production for the 1988 extended cold weather scenarios is capable of a 5 percent increase in response to increased demand. By 1992, no such deliverability increase is assumed to be available.

- Daily deliverability for imports, as distinguished from annual volumes, was based on daily design capacity at each import point from Canada and from Mexico. Total daily design capacity from these points was 4,892 MMCF/D in January 1988, and rose to 4,950 MMCF/D in July 1988. November 1988 individual import capacities are shown in Figure 30 (in Chapter Three).

- Base-load LNG was assumed to be available at the LNG receiving terminals at Lake Charles, Louisiana in 1992, and Everett, Massachusetts in 1988 and 1992, for both supply scenarios. Daily deliverability from these facilities was assumed to be the annual import volume of 50 BCF for the Everett facility and 150 BCF for Lake Charles, divided by 365 days.

- Storage deliverability for the peak January day scenarios was based on NPC survey responses to winter design day storage deliverability and the A.G.A. "Survey of Underground Gas Storage in the United States and Canada--1988." Deliverability over a 30-day cold-weather period was assumed to be 60 percent of the

winter design day deliverability. Deliverability over a 90-day cold-weather period was assumed to be 50 percent of winter design day deliverability. The 60 and 50 percent figures were based on the operating experience in the industry. Storage deliverability for the March scenarios was assumed to be 20 percent of the winter design day deliverability.

- Limited information on peak-shaving deliverability was obtained from the NPC survey. General estimates of LNG peak-shaving deliverability were obtained from a variety of sources. In the analysis, peak-shaving was not used on average days and was assumed not to be available during extended cold-weather periods.

- Peak-day demand was based on the ratio of peak-to-average January sales reported by LDCs to the A.G.A., with the exception of PADD III and PADD ID. For these PADDs, the peak-to-average ratio for pipeline deliveries was used because it was believed to be more representative of actual peak-day conditions in those PADDs than figures reported for local distribution sales.

- Configuration and capacity of the national pipeline system as of November 1988 was used as the basis for both the 1988 and 1992 analyses. Proposed projects and pending construction were not included in order to test whether new capacity is needed.

- Peak-day pipeline capacity was the maximum daily design capacity. For the extended cold-weather scenarios, a 5 percent reduction of peak pipeline capacity was assumed.

LIMITATIONS OF THE ANALYSIS

Due to the PADD-level aggregation and other simplifications, the predicted inter-PADD gas movements can only be considered a gross indicator of potential capacity. A more detailed analysis of individual pipelines, their markets, and supply sources would be necessary to form a definitive conclusion regarding any specific capacity problem.

The PADD-level simplification, for example, allows all supplies within a given PADD to be available to serve any demand within the PADD, without regard for capacity constraints within the PADD. This becomes a problem in several situations. In PADD IB, for example, storage in western Pennsylvania appears to be available to satisfy East Coast demand. In reality, there is insufficient capacity to move this storage to market, as reflected by a series of proposals now pending to serve the Northeast market. Similarly, capacity constraints in the Anadarko Basin are

not predicted in every scenario due to the PADD-level aggregation used in the analysis.

Data limitations also restrict the analysis. For example, storage deliverability has an overwhelming influence on predicted pipeline capacity shortages. The performance of individual storage fields under extended cold weather may well vary considerably from the uniform percentage of peak deliverability assumed in the analysis. Also, peak-shaving supplies were not well surveyed, so other available industry information was used to analyze the network on peak days. The mixing of these data sources may have overestimated or underestimated the total peak-shaving deliverability. Also, peak-shaving facilities were assumed to be operated at their historical maximum capabilities for the peak-day scenarios. This assumption may not reflect current or planned future operation of these facilities, and the capacity constraints identified under the peak-day scenarios may be underestimated.

The annual demand projections used in the 1992 analyses were prepared by independent sources. Each source used different base assumptions, population growth estimates, technology advancement assumptions, costs of alternative fuels, and timing estimates for the growth in natural gas demand. These annual natural gas demand projections were then statistically adjusted to reflect estimated daily demand by sector for each PADD. The results of these adjustments may or may not reflect actual and projected demand within a PADD, especially if local aberrations to these approaches exist.

Using the PADD approach to aggregating demand and supply has masked a capacity constraint identified by the industry in California's EOR market. This incremental demand is substantial and is not limited to peak-day or extended cold-weather periods. As such, the stress studies conducted have not examined the problem of serving this year-round demand.

Despite these limitations, the model predictions did match the generally accepted notions of national capacity problems that have been identified by the industry. These regional capacity constraints are highlighted in the next section.

RESULTS OF THE ANALYSIS

Quantitative Results

The results of the natural gas pipeline network analysis under typical winter and assumed stress conditions are summarized in Figures 37 through 41. Detailed results under these and other scenarios can be found in Appendix H.

(NOTE: Text continues on Page 93.)

HIGHLIGHTS OF FIGURE 37

• The High Demand forecast used in the analysis projects an increase of about 11 percent in annual demand in the Lower-48 States by 1992. Significant regional growth of 10 percent or more is projected for the New England, Mid-Atlantic, Florida, Midwest, and Rocky Mountain regions.

• In New England (PADD IA), if the High Demand projections are realized by 1992, additional capacity may be required to meet both average and peak January day demand. Without the additional capacity, as much as 15 percent of the peak day demand projected by this forecast may not be served by natural gas.

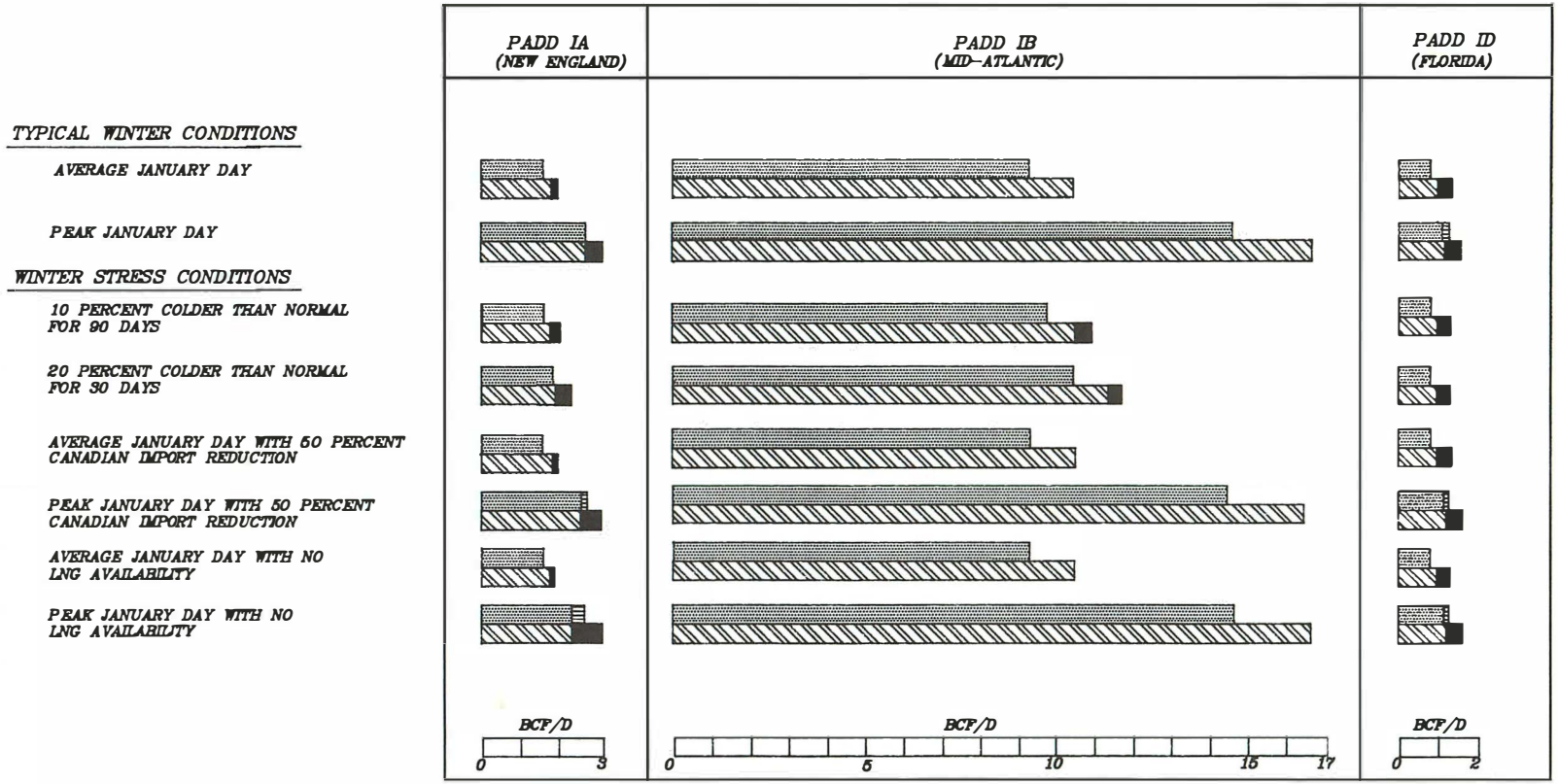
• The New England area uses peak-shaving, Canadian imports, and LNG supply sources to serve peak January day demand. The loss of LNG on a peak day could mean as much as an additional 5 percent of demand could not be served by natural gas. At current capacity levels, imports could provide about 2 percent of peak day requirements. Thus a 50 percent reduction in imports would mean approximately 1 percent of existing demand could not be served by natural gas.

• In the Mid-Atlantic region (PADD IB), there is generally adequate capacity to serve projected 1992 demand under typical winter and stress conditions. However, the colder-than-normal weather scenarios indicate the difficulties faced by the industry in maintaining supply to meet winter requirements during extended cold weather periods. Under the High Demand projections, 3 to 5 percent of demand may not be satisfied under these conditions. The impact of storage deliverability on serving 1992 demand is highlighted by the cross-hatched bars for these scenarios. The 800 MMCF/D difference in bar length is 10 percent of the winter design day deliverability of storage facilities located in the Mid-Atlantic region.

• In Florida (PADD ID), the system capacity into the state has historically been nearly fully utilized and currently, on peak January days, some demand has been switched to alternative fuels. The High Demand forecast indicates the potential for significant growth in this area, with annual demand possibly increasing by nearly 57 percent by 1992. Additional capacity may be needed to serve as much as 31 percent of the projected 1992 peak day demand.

• Florida continues to show the need for additional capacity under all the assumed stress conditions. However, LNG and Canadian imports are not important supply sources for this region.

Figure 37. Potential PADD Level Capacity Needs Under Typical Winter and Stress Conditions[1] Comparison of January 1988 and January 1992 High Demand and High Supply Projections.[2]



NOTES: (1) Adequate capacity and supply are available to serve projected demand in all other PADDs

(2) January 1992 demand projections derived from A.G.A. forecast. Annual Lower-48 production equal to 17 TCF.

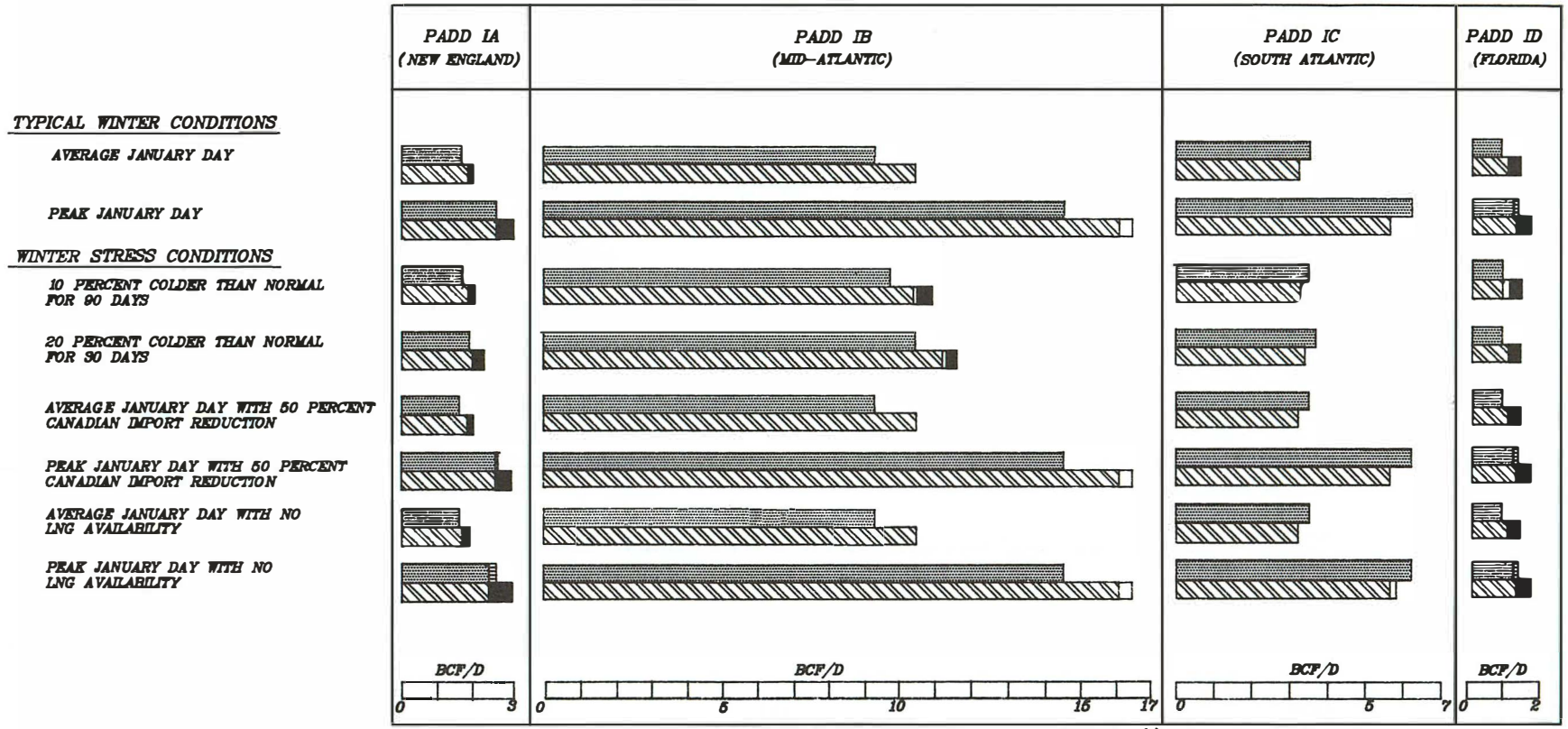
HIGHLIGHTS OF FIGURE 38

• Under the High Demand and Low Supply projections, the additional capacity requirements identified in Figure 37 would again occur for the New England, Mid-Atlantic, and Florida regions. In addition, some small supply shortfalls could occur in the Mid-Atlantic, South Atlantic, Florida, Midwest, and Gulf Coast regions under some typical and stress conditions. The Midwest and Gulf Coast regions would be impacted most by this projection of available supply.

• In the Midwest (PADD II), about 400 MMCF/D or 1 percent of the projected peak January demand may not be served by the projected supply of natural gas. The reduction in Canadian imports and the loss of LNG also impact the supply to the region, where up to an additional 1 percent of demand may not be satisfied on a 1992 peak day.

• In the Gulf Coast (PADD IIIA), about 1,000 MMCF/D or 6 percent of the peak January demand may not be served by the projected supply of natural gas. The loss of LNG or the reduction in Canadian imports results in up to an additional 2 percent of demand which could not be met on a peak January day in 1992. For extended cold weather conditions, up to 9 percent of the projected demand may not be served by natural gas.

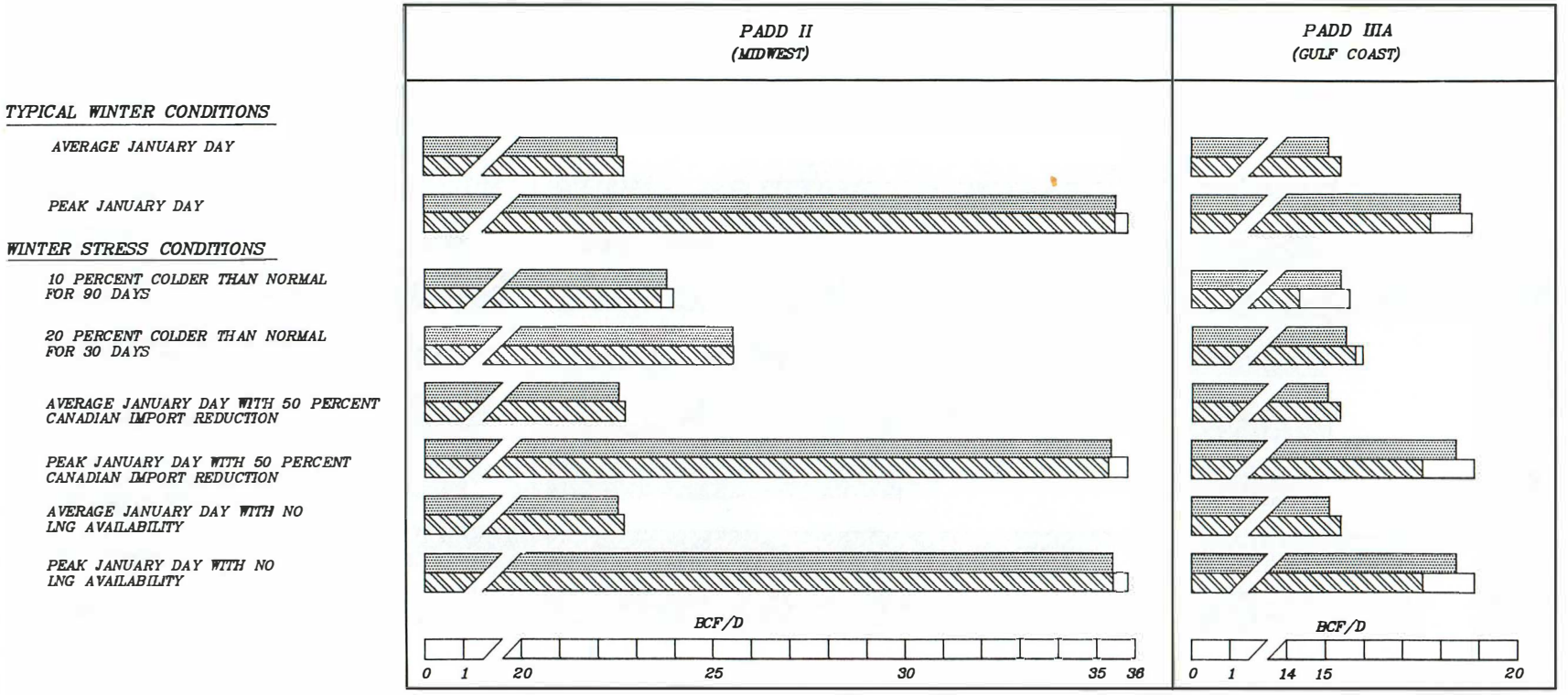
Figure 38. Potential PADD Level Capacity Needs and Additional Supply Requirements Under Typical Winter and Stress Conditions(1)
Comparison of January 1988 and January 1992 High Demand and Low Supply Projections.(2)



NOTES: (1) Adequate capacity and supply are available to serve projected demand in all other PADDs

(2) January 1992 demand projections derived from A.G.A. forecast. Annual Lower-48 production equal to 15 TCF.

Figure 38 (Continued)



LEGEND:

- 1988 DEMAND SATISFIED BY EXISTING FACILITIES
- ESTIMATED 1988 PEAK DAY DEMAND SWITCHED TO ALTERNATE FUELS
- 1992 PROJECTED DEMAND SATISFIED BY EXISTING FACILITIES
- 1992 PROJECTED DEMAND TO BE SERVED THROUGH EXISTING FACILITIES GIVEN ADEQUATE SUPPLY
- AMOUNT TO BE SERVED BY ADDITIONAL FACILITIES GIVEN ADEQUATE SUPPLY

NOTES:

(1) Adequate capacity and supply are available to serve projected demand in all other PADDs

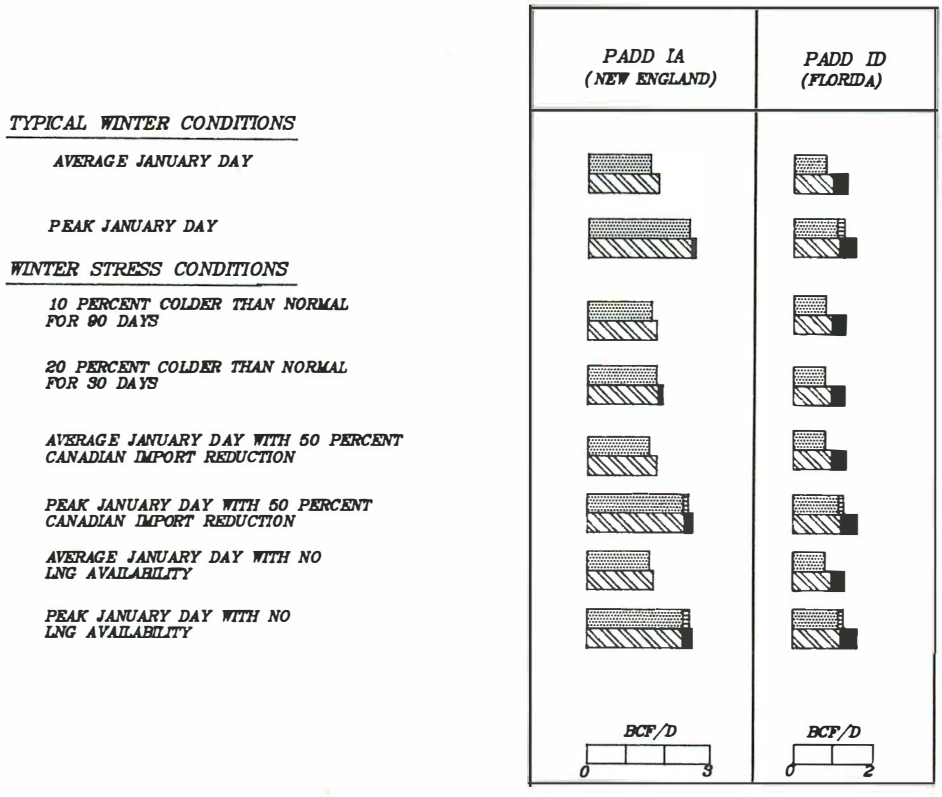
(2) January 1992 demand projections derived from A.G.A. forecast. Annual Lower-48 production equal to 15 TCF.

HIGHLIGHTS OF FIGURE 39

• The 1992 Low Demand forecast used in the analysis projects no significant change in the total annual demand for the Lower-48 States. However, demand increases for New England and the commercial and electric utility sectors in Florida are projected by 1992. The 6 percent and 77 percent increase for New England and Florida, respectively, are offset by projected decreases in industrial demand throughout the nation.

• In New England (PADD IA), if the Low Demand projections are realized by 1992, about 2 percent of peak-day demand may not be served by natural gas without additional capacity. Under the winter stress conditions, as much as 7 percent of projected demand may not be served by natural gas.

• In Florida (PADD ID), additional capacity is required for natural gas to meet projected 1992 demand under every scenario analyzed. Without additional capacity, about 24 percent of average January day and 49 percent of peak January day demand would not be met by natural gas.



LEGEND:

- 1988 DEMAND SATISFIED BY EXISTING FACILITIES
- ESTIMATED 1988 PEAK DAY DEMAND SWITCHED TO ALTERNATE FUELS
- 1992 PROJECTED DEMAND SATISFIED BY EXISTING FACILITIES
- AMOUNT TO BE SERVED BY ADDITIONAL FACILITIES GIVEN ADEQUATE SUPPLY

NOTES: (1) Adequate capacity and supply are available to serve projected demand in all other PADDs.

(2) January 1992 demand projections derived from DRI forecast. Annual Lower-48 production equal to 17 TCF.

Figure 39. Potential PADD Level Capacity Needs Under Typical Winter and Stress Conditions(1) and Comparison of January 1988 and January 1992 Low Demand and High Supply Projections.(2)

HIGHLIGHTS OF FIGURE 40

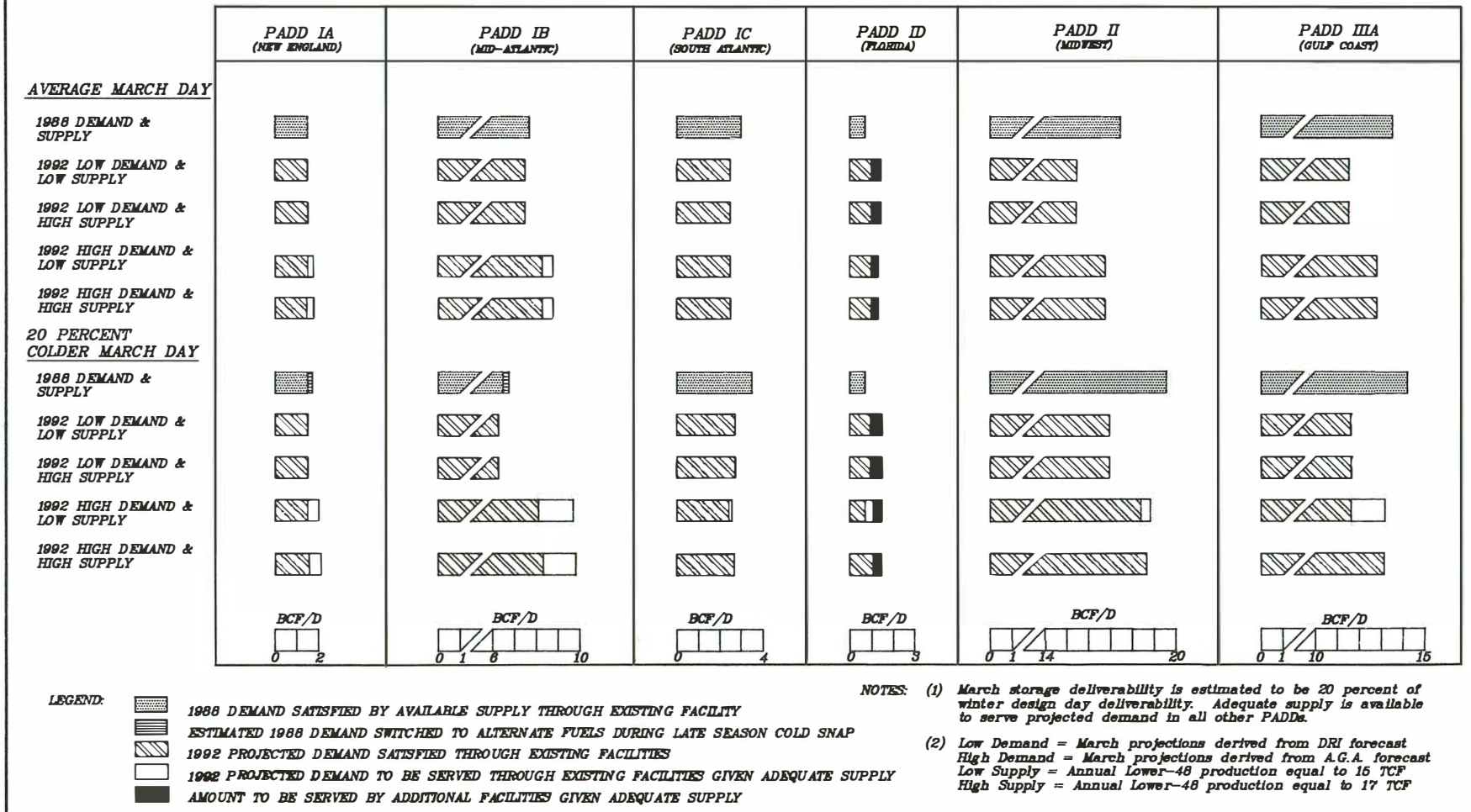
• If a late season cold snap had occurred in 1988, generally there would have been adequate capacity and supply available to meet estimated demand. However, due to the reduced storage deliverability expected during March, supply shortfalls of about 2 percent and 6 percent of the projected demand could have developed in the New England and Mid-Atlantic regions, respectively.

• If the High Demand projections are realized by 1992, supply shortfalls in the New England and Mid-Atlantic regions may occur under both average March and 20 percent colder than normal conditions.

• More widespread supply shortfalls in the New England, Mid-Atlantic, South Atlantic, Florida, Midwest, and Gulf Coast regions could occur in 1992 during a late season cold snap under the High Demand and Low Supply projections.

• In Florida, additional capacity may be required to serve up to 28 percent of the projected 1992 demand for an average and 20-percent-colder March day.

Figure 40. Potential PADD Level Capacity Needs and Additional Supply Requirements Under Typical March and Colder Than Normal Conditions with Reduced Storage Deliverability.(1)
Comparison of March 1988 and March 1992 Demand and Supply Projections.(2)



LEGEND:

- 1988 DEMAND SATISFIED BY AVAILABLE SUPPLY THROUGH EXISTING FACILITY
- ESTIMATED 1988 DEMAND SWITCHED TO ALTERNATE FUELS DURING LATE SEASON COLD SNAP
- 1992 PROJECTED DEMAND SATISFIED THROUGH EXISTING FACILITIES
- 1992 PROJECTED DEMAND TO BE SERVED THROUGH EXISTING FACILITIES GIVEN ADEQUATE SUPPLY
- AMOUNT TO BE SERVED BY ADDITIONAL FACILITIES GIVEN ADEQUATE SUPPLY

NOTES:

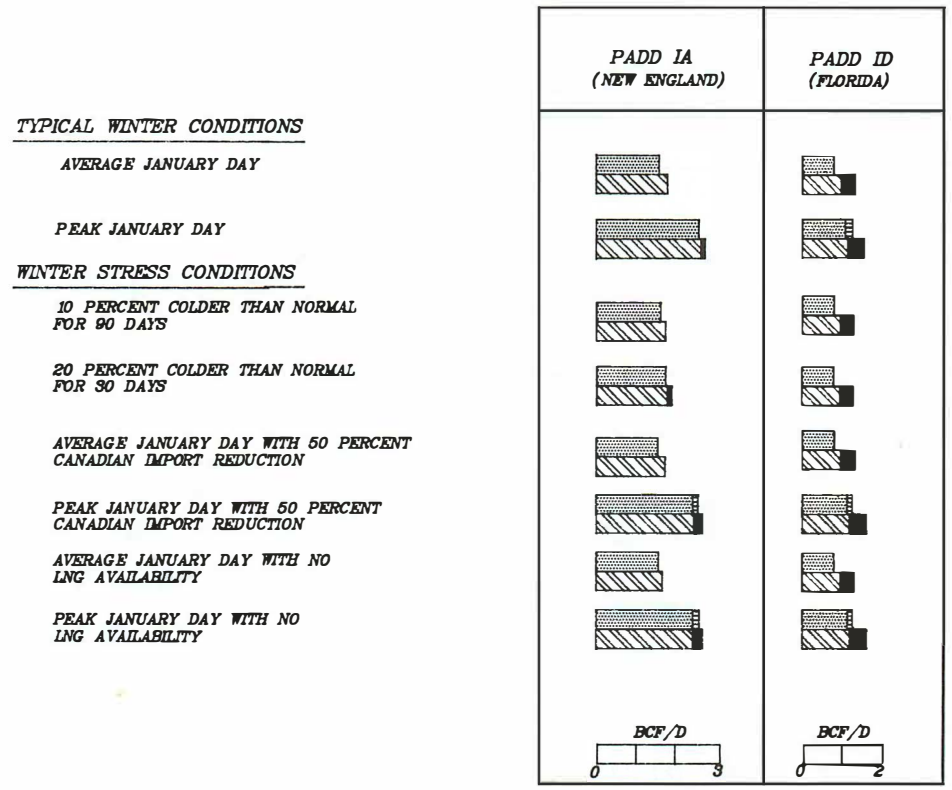
(1) March storage deliverability is estimated to be 20 percent of winter design day deliverability. Adequate supply is available to serve projected demand in all other PADDs.

(2) Low Demand = March projections derived from DRI forecast
High Demand = March projections derived from A.G.A. forecast
Low Supply = Annual Lower-48 production equal to 15 TCF
High Supply = Annual Lower-48 production equal to 17 TCF

HIGHLIGHTS OF FIGURE 41

• Under the Low Demand and Low Supply projections, adequate supply should be available nationwide to serve projected 1992 demand. However, additional capacity would be required for natural gas to serve all the 1992 demand projected for New England and Florida.

• The additional capacity requirements identified in Figure 39 would again be required for New England and Florida with these supply and demand projections.



LEGEND:

- 1988 DEMAND SATISFIED BY EXISTING FACILITIES
- ESTIMATED 1988 PEAK DAY DEMAND SWITCHED TO ALTERNATE FUELS
- 1992 PROJECTED DEMAND SATISFIED BY EXISTING FACILITIES
- AMOUNT TO BE SERVED BY ADDITIONAL FACILITIES GIVEN ADEQUATE SUPPLY

NOTES: (1) Adequate capacity and supply are available to serve projected demand in all other PADDs.

(2) January 1992 demand projections derived from DRI forecast. Annual Lower-48 production equal to 15 TCF.

Figure 41. Potential PADD Level Capacity Needs Under Typical Winter and Stress Conditions(1) and Comparison of January 1988 and January 1992 Low Demand and High Supply Projections.(2)

For the present and the 1992 time-frame, the gas pipeline network was generally very responsive in satisfying projected demands, even under stringent stress conditions. There were, however, two regions of the country where projected natural gas demand may not be served without expansions of the existing gas pipeline network. They are the Northeast (New England and Mid-Atlantic) area (PADDs IA and IB) and Florida (PADD ID).

The Northeast (New England and Mid-Atlantic) Area (PADDs IA and IB)

Current projections indicate that the northeastern United States will realize an increase in gas demand during the foreseeable planning future. The 1992 High Demand projections estimate an increase in average January day demand of approximately 300 MMCF/D and 1,200 MMCF/D in PADD IA and PADD IB respectively.

This study concludes that expansion of pipeline capacity is needed to satisfy projected requirements in this area. If expansions are not implemented, then under the assumed stress conditions studied by the NPC, as much as 580 MMCF/D of electric, industrial, and commercial gas demand could be unfulfilled.

Canadian imports and LNG availability are critical to serving current industrial and electric power generation demands in this region. These two sources of gas supply assume even greater criticality if the projected 1992 demands materialize.

Assuming sufficient available gas supplies, capacity to the northeastern United States could be increased by all or part of the following:

- Various planned projects before FERC
- An increase in Canadian gas imports
- An increase in storage peaking service development
- An increase in imported LNG supplies (i.e., the activation of the Cove Point LNG facility).

Florida

The Florida Peninsula is witnessing sustained economic growth coupled with above-average population growth. The state's need for electric generating capacity is also expected to increase markedly. At the same time, concern about air quality diminishes the prospect of coal for electric power generation. The financial and safety risks associated with nuclear power lessen the viability of the nuclear option. On an average-January-day basis, the 1992 High Demand projections show an increase of approximately 300 MMCF/D of natural gas demand in Florida.

Currently, capacity to the Florida Peninsula is limited. At this time, under the peak-day stress conditions studied by the

Council, up to 29 percent of the potential electric power generation demand is unfulfilled. In 1992, with the projected increases in gas demand, the situation is worse. For this reason, the industry has proposed several projects to expand capacity to the Florida Peninsula.

Qualitative Results

The modeling of the pipeline network has served a useful purpose in evaluating potential problems under stress conditions. However, in several instances, due to the limitations described earlier, certain issues that may have an impact upon the overall responsiveness of the pipeline network could not be identified. The rest of this section focuses on a qualitative discussion of the situations in California and Oklahoma, as well as storage.

California

The NPC could not find an acceptable way to take the demand projections developed for the Pacific (PADD V) region and break them down by state level to allow an examination of the situation in California. However, it recognized that California is another area registering population and industrial growth similar to the Northeast and Florida. A new natural gas market has developed in conjunction with oil production near Bakersfield. Because of the reservoir characteristics and high viscosity of the oil, steam must be injected into the reservoir to produce the oil, a process known as enhanced oil recovery. In the past, the steam was generated by firing the boilers with crude oil produced from the oil fields. Currently, crude oil and gas are competing fuels for EOR steam generation. Environmental concerns, however, will likely favor conversion from oil to natural gas. At the same time, significant cogeneration opportunities have also opened up.

This incremental demand is substantial and is not limited to peak-day or extended cold-weather periods. As such, the stress studies conducted by the Council mask the problem inherent in fulfilling this year-round demand. Further, the satisfaction of the natural gas demand is highly dependent on storage management (especially for late-season, high-demand spells), and full storage inventories at the beginning of the peak season may be necessary. Also, the markets are demanding solutions that are immune to the vagaries of state regulation. Therefore, the industry has proposed three major pipeline construction projects to meet the incremental market with gas from Louisiana, Texas, Oklahoma, the Overthrust Belt, and Canada.

Southwest Region (PADD IIIB)

The studies indicated that insufficient pipeline capacity exists in PADD IIIB. The outlet capacity for PADD IIIB was less than the total of the available supply and storage withdrawal capacity. These observations reflect the industry's actual experience in the area. The industry has felt for many years that there was a lack of pipeline capacity in the Oklahoma and Texas

area of PADD IIIB. Recently, an interstate pipeline company has filed an application with FERC to build facilities that would increase the outlet capacity from PADD IIIB, for the following reasons:

- High load factor of existing facilities
- Inability to provide new firm transportation commitments requested by shippers
- Continuing interruptions of existing transportation agreements
- Inability to run field storage at or near withdrawal capacity during winter.

Other interstate pipelines have cited similar problems with the lack of capacity in this area and are studying similar capacity expansion proposals. In addition, two oil pipelines have recently been converted to natural gas service to help alleviate the capacity constraint problems. All of this validates the conclusions reached in this study indicating that there are pipeline capacity constraints in PADD IIIB.

Other Supply-Area Constraints

The detailed results in Appendix H show that the outlet capacity from PADD IIIA is in some cases less than the total of the available supply and storage withdrawal capacity. These capacity constraints could worsen or extend to other PADDs if a dramatic and unexpected shift in production occurs from one supply basin to another. (For analytic purposes, 1992 production was projected by taking an arithmetic average of the historical production and reserves in various supply regions, thereby assuming no significant shifts). Such a shift would require additional take-away capacity in the Gulf Coast (PADD IIIA) area.

Storage Availability

The availability of storage volumes throughout the nation is crucial to serve present and projected 1992 demand across the country. As indicated in Chapter Three, present peak-day storage deliverability is estimated at over 52,000 MMCF/D. Without sound storage management practices, which call for full inventories at the beginning of the heating season, shortfalls in meeting demand may result both today and in the 1992 time-frame. Filling of storage depends on the availability of adequate gas supply, which is a function of future price expectations. A key issue is the allocation of the costs associated with seasonal storage.

Appendices

APPENDIX A

STUDY REQUEST LETTER AND DESCRIPTION OF THE NATIONAL PETROLEUM COUNCIL

The Secretary of Energy
Washington, DC 20585

February 20, 1987

Mr. Ralph E. Bailey
Chairman
National Petroleum Council
1625 K Street, N. W.
Washington, D. C. 20006

Dear Mr. Bailey:

The National Petroleum Council has prepared numerous studies in the past on the nation's petroleum inventory, storage, and transportation systems. The Council's last comprehensive study on this subject was completed in 1979. The principal objectives of that study were to analyze current inventories, estimate minimum operating inventory levels, determine the total storage capacity of the primary petroleum distribution system, and provide detailed information on the nation's transportation system for oil and natural gas. In 1984, the Council issued a report updating and expanding the inventories and storage capacity portions of the 1979 study.

These studies are the most current, comprehensive treatment of petroleum storage and transportation that are available for reference, with some data being nearly a decade old and the most recent from early 1983. Since the release of these studies, there have been major changes in the production and transportation of crude oil and natural gas, refinery operations, petroleum products distribution networks, and the markets they serve.

Accordingly, I am requesting the Council to undertake a comprehensive new study on petroleum inventory, storage, and transportation capacities updating the Council's earlier studies as necessary. Emphasis should be given to the reexamination of minimum operating inventory levels, the location of storage facilities and availability of inventories in relation to local demand, and the capabilities of distribution networks to move products from refining centers to their point of consumption particularly during periods of stress.

For the purpose of this study, I designate Dr. H. A. Merklein, Administrator, Energy Information Administration, to represent me and to provide the necessary coordination between the Department of Energy and the Council.

Yours truly,

John S. Herrington

John S. Herrington

DESCRIPTION OF THE NATIONAL PETROLEUM COUNCIL

In May 1946, the President stated that he had been impressed by the contribution made through government/industry cooperation to the success of the World War II petroleum program. He felt that this close relationship should be continued and suggested that the Secretary of the Interior establish an industry organization to provide advice on oil and gas matters. Pursuant to this request, Interior Secretary J. A. Krug established the National Petroleum Council (NPC) on June 18, 1946. In October 1977, the Department of Energy was established and the Council's functions were transferred to the new department.

The sole purpose of the NPC is to advise, inform, and make recommendations to the Secretary of Energy on any matter, requested by him, relating to petroleum or the petroleum industry. Matters that the Secretary would like to have considered by the Council are submitted as a request in the form of a letter outlining the nature and scope of the study. The Council reserves the right to decide whether it will consider any matter referred to it.

Examples of recent major studies undertaken by the NPC at the request of the Secretary include:

- Refinery Flexibility (1980)
- Unconventional Gas Sources (1980)
- Emergency Preparedness for Interruption of Petroleum Imports into the United States (1981)
- U.S. Arctic Oil & Gas (1981)
- Environmental Conservation -- The Oil & Gas Industries (1982)
- Third World Petroleum Development: A Statement of Principles (1982)
- Petroleum Inventories and Storage Capacity (1983, 1984)
- Enhanced Oil Recovery (1984)
- The Strategic Petroleum Reserve (1984)
- U.S. Petroleum Refining (1986)
- Factors Affecting U.S. Oil & Gas Outlook (1987)
- Integrating R&D Efforts (1988).

The NPC does not concern itself with trade practices, nor does it engage in any of the usual trade association activities. The Council is subject to the provisions of the Federal Advisory Committee Act of 1972.

Members of the National Petroleum Council are appointed by the Secretary of Energy and represent all segments of petroleum interests. The NPC is headed by a Chairman and a Vice Chairman, who are elected by the Council. The Council is supported entirely by voluntary contributions from its members.

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APPENDIX B

STUDY GROUP ROSTERS

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COMMITTEE ON
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APPENDIX C

REGULATORY HISTORY OF THE NATURAL GAS INDUSTRY

APPENDIX C[1]

REGULATORY HISTORY OF THE NATURAL GAS INDUSTRY

THE NATURAL GAS ACT OF 1938

The Natural Gas Act of 1938 (NGA) gave the Federal Power Commission (FPC), now the Federal Energy Regulatory Commission (FERC), the authority to regulate the interstate transportation and sales for resale of natural gas. The Act required the FPC to develop regulations to guarantee that rates charged by natural gas companies for either the sale or transportation of gas be "just and reasonable." The Act specifically excluded from the FPC's jurisdiction "the production or gathering of natural gas" and its "local distribution." Accordingly, the Act was initially interpreted by the FPC and the courts as precluding FPC jurisdiction over wellhead prices.

THE PHILLIPS DECISION

In a test of the question of jurisdiction over producers, the FPC ruled in 1951 that Phillips Petroleum, a natural gas producer not involved in the interstate transportation of gas, was not a natural gas company as defined by the NGA. Therefore, the FPC ruled that it had no jurisdiction over Phillips or any other independent producer or gathering company.[2]

The FPC's decision in the Phillips case was appealed to the Supreme Court in the case of Phillips Petroleum Company vs. Wisconsin. The court held that the NGA required regulation of the price of natural gas at the wellhead, but did not provide the FPC any guidance as to how it should regulate wellhead prices pursuant to the NGA.

The Supreme Court found that the exemption in the NGA for those engaged in "production or gathering of natural gas" did not apply to Phillips, since the interstate sales in question took place after the gathering and/or production functions and constituted a "sale for resale" within the meaning of the NGA. The

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[1]This appendix updates material that originally appeared in Factors Affecting U.S. Oil & Gas Outlook, National Petroleum Council, February 1987, pp. 55-59.

[2]Federal Power Commission, "In the Matter of Phillips Petroleum Co." Opinion 217, 10 FPC 246 (1951).

Supreme Court applied the production and gathering exemption only to the "physical process" of producing and gathering gas, and not the "sale for resale." In addition to forcing the FPC to begin a long series of decisions setting prices for interstate sales of gas at the wellhead, the decision for the first time created a "dual market" for natural gas -- with price-controlled gas flowing in interstate commerce, and market-priced gas sold within producing states (the intrastate market).

In the Panhandle Eastern Pipeline case in 1954, the FPC approved Panhandle's request to allow commodity (market-based) prices for the gas that it produced. The Commission pointed out the short-term irrationality of multiple prices for gas coming from different wells but going to the same consumers. From a long-term perspective, they concluded that an arbitrary, depressed price based on short-run cost would tend to accelerate consumption and fail to encourage future exploration. However, an appellate court overruled the FPC (the Supreme Court declined to review the case) and held that costs must remain the "point of departure" for federal rate regulation of pipelines (City of Detroit vs. FPC, 1955).

COMPANY-BY-COMPANY REGULATION

Initially, the FPC attempted to regulate the wellhead price of gas on an individual producer "cost-of-service" basis. Based on this standard, the FPC employed the cost-of-service methodology, traditionally used in utility rate regulation, for its wellhead price regulation. In general, the cost-of-service pricing methodology provides a rate of return based on net investment plus depreciation allowance and production costs, rather than the market value of the commodity or its replacement cost.

The sheer magnitude of this company-specific approach was both administratively unmanageable and impractical. By 1960, the FPC case backlog approximated 3,000 cases.[3] Until the CATCO[4] decision by the Supreme Court in 1959, the FPC made no attempt to regulate the price of newly sold gas. After that decision, the FPC imposed price restrictions on the sale of new gas to "hold the line" on prices until geographical area ceiling rates could be established.

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[3] U.S. Congress, Natural Gas Policy Act Amendments of 1983. Senate Report 98-205, 98th Cong., 1st Sess., 29 July 1983, 5.

[4] A partnership of Cities Service, Atlantic, Tidewater, and Continental.

AREA REGULATION

Consequently, in 1960, the FPC discarded company-by-company regulation, and in its place began to regulate producers by determining "just and reasonable" rates on an area basis. Under the area-rate system, uniform wellhead price ceilings were set for all gas produced within a specific geographical producing area. Ceilings were based on average production costs and investment expenditures made by producers in that area.

The FPC chose the Permian Basin, located in portions of Texas and New Mexico, for its first area-rate proceeding. Proceedings in the Permian case lasted five years, and the FPC's 1965 decision was not confirmed by the Supreme Court until 1968. Other area-rate proceedings took much longer. For example, the Southern Louisiana case began in 1961 and was not finally decided by the Supreme Court until 1974.

A distinguishing feature of the FPC's Permian order was the use of "vintaging," a two-tiered pricing system for "old" and "new" gas. The Commission believed that allowing higher incentive prices for new gas would encourage producers to engage in further exploration, while concurrently preventing windfall profits from the sale of old gas. While both ceiling prices were cost-based, "old" and "new" gas were priced substantially below the market value of the gas to the consumer, and market demand expanded rapidly. Interstate pipeline systems, aided by a guaranteed rate of return, were built and expanded to meet the demand, and consumption grew rapidly.

NATURAL GAS SHORTAGES

Because of the relatively low price of natural gas, consumption grew almost fourfold between 1950 and 1970. But the same low prices failed to elicit sufficient exploration drilling, and the nation found itself moving quickly toward a shortage situation. During the 1960s, prices remained relatively flat, while the costs of new exploration and production rose. The watershed year was 1968 -- the first year when production exceeded reserve additions. Shortly thereafter, the warning signs began to emerge. A moratorium was placed on new gas hookups, and limited interruptions in service began to appear. In late 1973, domestic natural gas production began to decline. By 1974, service curtailments for industrial customers in interstate gas markets were widespread. Curtailment, measured in terms of contracted supply obligations that went unfulfilled, reached 16 percent nationally and was measurably higher in particular areas. By 1976, production had declined by 12 percent from its 1973 peak.

At first, price differences between gas sold in the interstate and intrastate markets were minimal. Because the FPC would not allow more flexible contract terms, and because it insisted that wells once used to produce gas for interstate sale be perpetually dedicated to the interstate market, producers opted

to sell new gas to the intrastate market. Once shortages began to occur, intrastate prices rose in an attempt to bring supply and demand back into balance. However, rigid, cost-based pricing by the FPC prevented this market mechanism from working in the interstate system, and shortages spread throughout most of the nation.

At the same time, environmental regulations and the relatively low price of gas stimulated increased demand for gas by residential and industrial customers in the interstate markets, further exacerbating the shortages.

GAS CURTAILMENTS

In 1968, although the average price of natural gas sold in the intrastate market was below that of comparable gas sold in the interstate system, the prices for newly contracted intrastate gas were 18 percent higher than newly contracted interstate gas. This differential widened in the early 1970s and peaked in 1975 when the price of new contracts for unregulated intrastate gas was nearly two-and-one-half times the price of gas sold in the interstate market.[5]

When prices are not allowed to balance supply and demand, some other mechanism must be used to allocate the demand for the commodity. With rigid FPC prices and limited supply, the pipelines began to curtail industrial customers in 1970. Although small at first, these curtailments grew rapidly, reaching 3.7 trillion cubic feet (TCF) by 1977. Curtailments meant higher fuel costs, plant closings, layoffs of workers, and eventual disruption of public services in the areas most affected. Sharp regional disparities developed as different pipeline systems had differing supply situations (such as access to offshore reserves, which were, by definition, dedicated to the interstate market).[6] During the unusually severe winter of 1976-1977, interstate curtailments resulted in factory and school closings in several Midwestern, Northeastern, and Mid-Atlantic states.

The initial round of curtailments fell almost exclusively on "interruptible" customers, those industrial users whose contracts specified that their service could be temporarily interrupted during periods of peak demand. These customers were often electric utilities or large industrial users that maintained dual-fuel-burning capability in order to benefit from the "bargain

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[5] U.S. Congress, Natural Gas Policy Act Amendments of 1983. Senate Report 98-205, 98th Cong., 1st Sess., 29 July 1983, 6.

[6] Vietor, R. H. K., Energy Policy in America Since 1945 (Cambridge University Press, 1984) 275.

rates" for interruptible service. This arrangement of interruptible service also benefited the pipeline companies by allowing them flexibility in managing seasonal load variations. However, in the face of more gas shortages, where expansive curtailments were no longer either temporary or limited to interruptible customers, the FPC was forced to intervene to devise some criteria for rationing the available supplies.

After initially approaching the problem on a case-by-case basis, the FPC in 1973 issued Order 643, an eight-step curtailment plan that gave residential and small commercial customers the highest priority classifications for receiving uninterrupted supplies. The pipelines tried to blunt the impact of the FPC order on their large industrial customers by contending that the Commission had no authority to regulate direct industrial sales, which were not "sales for resale" and, therefore, not under the NGA pricing regulation. The pipelines' position was upheld in circuit court. However, the case was reversed by the Supreme Court in FPC vs. Louisiana Power & Light Company (1974), when it ruled that the FPC's curtailment jurisdiction was based on the transportation, rather than the pricing, provisions of the NGA.

Congressional response to the gas shortages in the interstate market led to the enactment in January 1977 of the Emergency Natural Gas Act and the subsequent enactment in November 1978 of the Natural Gas Policy Act.

MARKET AND OUTSIDE FORCES

The warning signs for the shortages became evident in 1968 when, for the first time, consumption in the interstate market exceeded new reserve additions and dedications. The oil embargo and subsequent OPEC price increase of 1973-1974 increased the relative price differential between imported oil and natural gas. Demand for gas rapidly increased at the same time that easily producible and low-cost domestic supplies were diminishing. In the absence of rapid price responses, the supply of and demand for interstate natural gas were thrown completely out of balance. Because of cumbersome regulatory procedures, the FPC was unable to respond quickly enough to these changes.

GOVERNMENT RESPONSES TO THE NATURAL GAS SHORTAGES AND CURTAILMENTS OF THE 1970s

During the 1970s, the FPC tried several methods to increase the flow of gas in the interstate market. In response to industry cash-flow concerns and their impact on exploration and production expenditures, in 1970 the FPC issued Order 410, which enabled producers to receive advance payments from interstate pipeline systems for committing gas supplies. These cash advances were included in the pipeline's rate base. The FPC also attempted to exempt small producers from federal regulation, but this action was overturned by the Supreme Court in 1974.

In spite of the substantial regulatory lag in the area-rate cases, no serious supply problems occurred during the 1960s, basically for two reasons. First, adequate gas supply existed to meet still-developing demand. Until 1968, annual reserve additions exceeded production, and although the finding rate and reserve-to-production ratio were declining, interstate proved reserves and deliverability were still high because of the net additions to reserves made over the previous 20 to 30 years. Second, producer revenues, though declining, were still sufficient to finance continued exploration and production activity, but the activity was declining.

In 1974, the FPC altered its rate-setting methodology by employing a single national ceiling price for the first time. This change was undertaken by the Commission in explicit recognition of the fact that the wellhead price regulations were holding the price of interstate gas artificially low, thereby adversely affecting supply and creating availability problems in the interstate market.

In June 1974, the FPC issued Opinion 699, establishing a uniform price of 42¢ per thousand cubic feet (MCF) for new natural gas. This price applied to all gas in the Lower-48 States, both onshore and offshore, from wells newly begun or reserves newly committed to the interstate market after December 31, 1972. Upon rehearing, almost two years later, the Commission revised the price to 53¢ and extended its application to flowing gas upon expiration of existing contracts. The FPC found perpetual vintage pricing an "anachronism" and decided to abolish it on a gradual basis as contracts expired. Opinion 699 also provided for biennial review to "determine if the rate was sufficient to bring forth the supply of gas." New gas would henceforth be priced at the new rates established by each review, so as not to create multiple vintages. Gas from wells drilled prior to 1973 continued to be regulated based on the historical cost of service.

On July 27, 1976, the FPC further addressed national rates in the first "biennial review," by issuing Opinion 770.[7] In deriving the rates under Opinion 770, the FPC: (1) modified the cost-based rate method to include a component for federal income taxes (previously employed methodologies assumed that producers incurred no tax liability); (2) established a three-tiered price system with the highest rate at $1.42 per MCF, escalating at 4¢ per year, for gas produced from wells commenced on or after January 1, 1975; (3) vintaged the gas from wells dedicated to interstate commerce during the 1973-1974 biennium (reversing the position previously put forward some two years earlier in Opinion 699); and (4) relied on non-cost criteria to determine whether

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[7]National Rates for Jurisdictional Sales of Natural Gas, Opinion 770 and 770-A, 56 F.P.C. 1975 (1976).

market factors (intrastate rates, alternative fuels, inflation, etc.) supported the cost-based rates.

While the new gas price in Opinion 770 was substantially above the previous rates set by the FPC, the Commission's reaction appeared to be too little too late. By early 1977, the newly elected administration became openly critical of the prevailing regulatory system. The Carter administration's proposed National Energy Plan held that "producer claims that historic cost-based regulation is no longer appropriate for a premium fuel in short supply are fundamentally correct."

SUPPLEMENTAL SOURCES

When demand for new gas began to outpace additions to domestic reserves, pipelines and suppliers looked to supplemental sources of gas to fill the demand gap. These included foreign sources, such as gas from Canada and Mexico, as well as liquefied natural gas (LNG) from North Africa, Indonesia, South America, Russia, Australia, Trinidad, and the Persian Gulf; and longer-term synthetic gas and coal gasification efforts.

Pipelines were able to absorb the high cost of supplemental sources by "rolling in" those costs with less expensive domestic gas. In general, LNG projects did not meet with much success because of both price and supply reliability problems. The original Border Gas Project from Mexico was scuttled because the price was too high relative to Canadian gas and other fuel costs, and the Alaskan Natural Gas Transportation System has not been built due to its huge capital requirement. Canadian gas remained a significant contributor, but the frequent export price adjustments caused serious consumer and policy concerns.

Of the synthetic gas projects, only the federally supported Great Plains Gasification Plant was constructed and commenced operation. When projected gas price increases envisioned at the time construction was initiated failed to materialize and the requested price guarantees and debt restructuring were denied, the operators terminated their participation in the project. The plant is currently owned and operated by the government.

THE POLITICAL DEBATE -- COMPETING INTERESTS AND REQUISITE COMPROMISE

The political debate over the degree and form of federal intervention in natural gas markets evolved in three stages. From 1969 to 1973, Congress considered partial deregulation and structural reform of FPC procedures. From 1974 to 1977, momentum developed toward complete deregulation, but never fully took hold. Proposals were made for full deregulation as early as 1949; a deregulation bill passed Congress in 1956, but was vetoed by President Eisenhower. Finally, as part of the Carter energy plan, a compromise program emerged for commodity price regulation

accompanied by gradual decontrol of new gas. Throughout the debate, the same issues predominated: distributive equity between producers and consumers, economic regionalism, the competitive versus monopolistic nature of energy markets, and the tensions between cost-based and commodity-based rate regulation.

Beginning in 1973, the energy crisis seemed to polarize the gas question between two fundamental alternatives: Congress could either deregulate the wellhead price of gas (or at least new gas) in the interstate market or else extend regulation to the intrastate markets, where market-based (commodity) pricing already prevailed. The growing gas demand and resulting depletion of interstate reserves militated for one or the other. The gas question also involved a basic disagreement between those who supported market-based prices, and those who contended that monopolistic conditions required prices to be controlled by the government. As a result, most bills introduced between 1974 and 1977 were either deregulation measures or counter-proposals for expanding the FPC's jurisdiction.

Throughout the area- and national-rate proceedings in the 1960s and 1970s, the FPC relied on estimates of historical average costs, on either an historical basis (for "old" gas) or a "current" basis (for "new" gas) to determine ceiling prices. The use of historical average-cost estimates put the ceiling prices out of step with actual costs. Because of the length of time required to develop a record, first through the hearing process and later through rulemaking procedures, the cost data were often out of date before the ceiling prices were ever decided upon. The averages were further distorted by the failure to include small-producer data, because of the administrative burden involved in collecting such data. The result of this approach was to render uneconomic the exploration and development of new gas supplies that cost more than the calculated "average." In addition, contracts with prices that were below the ceiling were enforced, while contracts with prices that were above the ceiling were reduced to the ceiling price level. Thus, while interstate ceiling prices increased substantially in the 1970s from the levels of the 1960s, they remained considerably below prices in the intrastate system, which were established and continually adjusted by market forces.

APPENDIX D

SURVEY FORMS AND LIST OF RESPONDENTS

NATIONAL PETROLEUM COUNCIL
1988 SURVEY OF

U.S. NATURAL GAS STORAGE AND PIPELINE CAPACITIES

Reporting Company: _____

Address: _____

_____

_____ Zip Code: _____

Person in reporting company to be contacted if questions arise:

_____

Phone: (____)_____

Please submit your response to this survey by April 15, 1988, to:

Mr. Benjamin A. Oliver, Jr.
National Petroleum Council
1625 K Street, N.W.
Washington, D.C. 20006

If you have questions regarding this survey, please call Mr. Oliver at the National Petroleum Council office, (202) 393-6100.

This questionnaire is being used to collect general information about pipeline system capacity. The information will be aggregated and used to analyze the capability of the U.S. pipeline system to respond in the event of significant changes in demand or supply availability.

This questionnaire consists of three parts. In **Part I** you are asked to provide a system map and/or schematic diagram for your company's pipeline system and capacity and segment identification information by major segment. **Part II** requests additional information on storage facilities. **Part III** requests general systemwide information.

General Instructions

- **PLEASE RESPOND BY APRIL 15, 1988.**
- Provide your company name on each page of your submission.
- Provide information on all of your company's pipelines, including those of affiliated companies.
- Facilities owned by joint interests and partnerships should be reported by the operator of those facilities.
- If additional blank forms are required, they may be obtained from the National Petroleum Council office, or they may be copied from these originals.
- Much of the data can be obtained from various FERC filings such as the FERC 567 - Section 260.8 report. We are not requesting a copy of such forms, but rather, a more simplified and consolidated version of this type of data.

Part I: Pipeline Segment Data

Pipeline System Map or Schematic Diagram

Using Attachment A as an example, provide a diagram of your pipeline system. You are asked to divide your system into major pipeline segments. Include the location of the beginning and end of the system, major gathering points, other pipeline connections, receipt and delivery points and connections with storage fields. For ease of identification, please assign a unique numeric/alphabetic code to each of the points (nodes) along the pipeline as shown in the example. Provide segment names on map. Indicate normal flow direction for each segment with an arrow.

Terminal nodes should define the beginning and ending points of major trunks/segments. The beginning node is typically a compressor station or receipt point. The ending node of a segment is typically the end of a main trunk such as delivery to market or storage, or the intersection of multiple trunks. A major trunk/segment is defined as having a capacity of 100 MMcf/day or greater.

You should also define intermediate nodes which are other significant nodes along the trunk/segment with a capacity to receive or deliver gas of 20 MMcf/day or greater. These intermediate nodes should include major interconnects with other pipelines and distribution companies, storage fields and peak shaving plants on your system.

Compressor stations, other than those used as beginning or ending nodes, need not be included. In market areas having a large number of delivery points in near proximity, a consolidation of points may be used.

This map or diagram should be attached to your response to the questionnaire.

Pipeline Segment Supporting Data

Using Attachment B as an example, provide information on Part I of the questionnaire in sequential order starting with the origin nodes through the system to the delivery points. Nodes along branches should also be numbered sequentially. Attachment B shows how the questionnaire ought to be completed based on the system diagram as shown in Attachment A.

Segment Name. Provide the segment name which is listed on the map or schematic diagram.

Node ID. Provide a unique numeric/alaphabetic code to identify the node.

Node Name. Identify name of the node, i.e., Bishop compressor station.

Type of Node. Use the following abbreviations for type of facility:

CS	Compressor Station
RDP	Receipt/Delivery Point
SF	Storage Field
OP	Other Plants, etc.

Location Information. Provide the county name and two character state abbreviation in which node is located. Provide latitude and longitude (to the nearest tenth of a minute if possible). If latitude and longitude are not available, provide section, township and range or appropriate survey coordinates instead.

Interconnecting Company. Provide the name.

Capacity Volumes. Provide the winter and summer maximum design capacity for this segment in MMcf/day. Node receipt capability should be designated with a (+) sign. Node delivery capability should be designated with a (-) sign.

Operating Pressure. Provide the maximum allowable operating pressure (MAOP) and the range of normal operating pressures for this segment in psig.

Part II. Natural Gas Storage Field Capacity

Node Name and Node ID. For any storage facility listed in Part I, repeat the corresponding node name and node ID provided in Part I.

Maximum Storage Capacity. Provide the maximum storage capacity for this facility in MMcf. Indicate how much of this is base gas and working gas as appropriate. Base gas is that portion of gas stored as permanent inventory to maintain deliverability rates during the withdrawal season. Working gas is the volume of gas in storage above the designed level of the base and available for withdrawal.

Winter Design Day Deliverability. Provide the information in MMcf/day.

Part III. General System Information

January Peak Day Market Factor. Provide for the month of January 1988, the ratio of peak day deliveries to average day deliveries.

Average BTU Content of Gas Deliveries. Provide an estimate of the average Btu content of gas delivered into your maket areas.

Firm Facility Additions. Provide a general description of any planned new pipeline facilities by location, pipe size, added capacity and status. Such projects should be firm (announced proposals) with anticipated start-of-construction and completion dates. If you have more than one project, please copy additional sheets and attach.

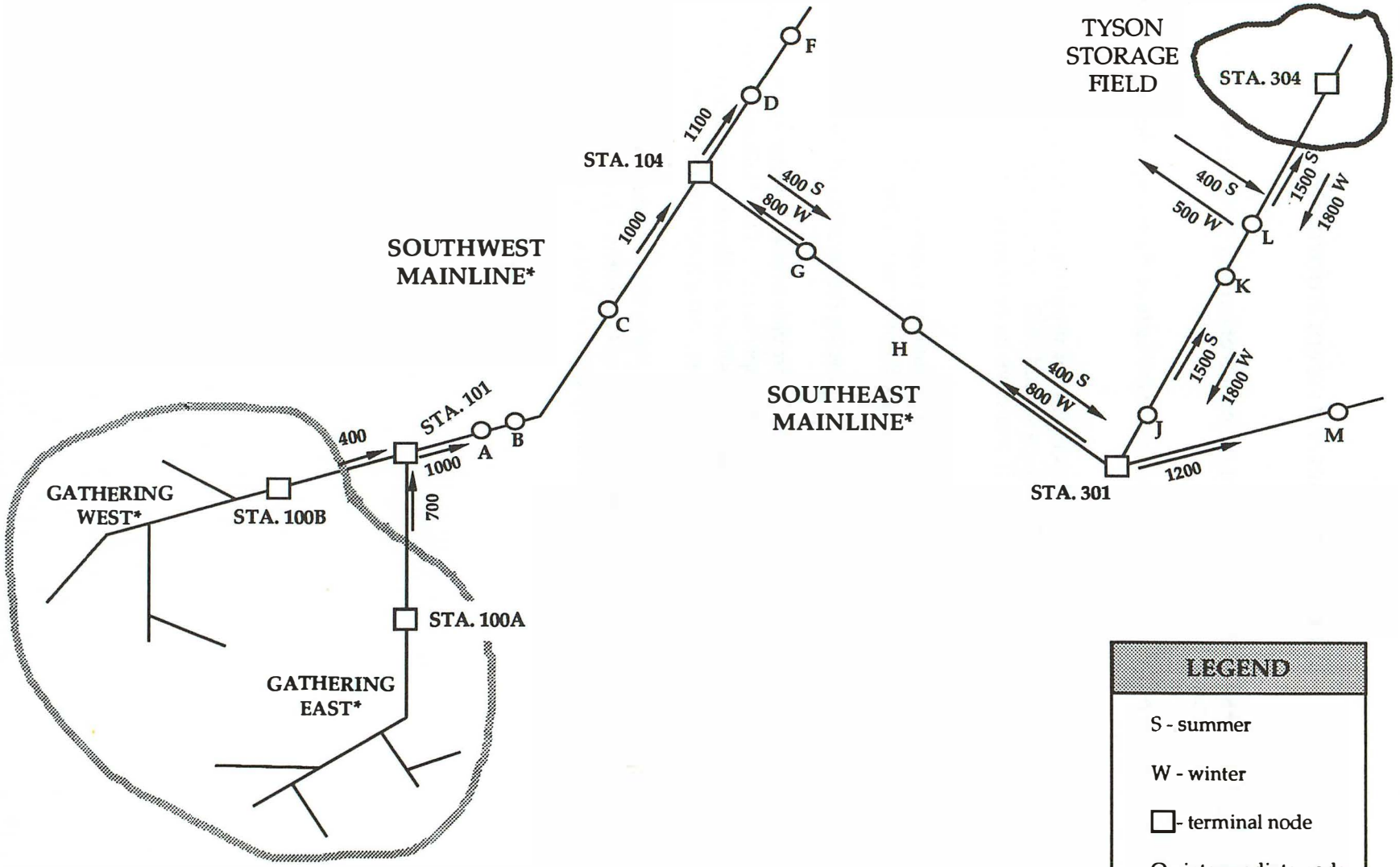
Please only report projects which either expand the capacity of your existing system by 20 MMcf/day or more or extend your existing system such that the capacity of the extension is greater than 100 MMcf/day.

Please attach another copy of your system diagram showing the location of these facility additions.

Anticipated Changes in Supply and Market Patterns. Provide a narrative discussion of any such changes which will alter your company's system flows and operations. The National Petroleum Council is interested in both short-term market concerns as well as situations developing which will have significant impacts on your system's operation in the next five years. Attach additional pages if necessary.

Remarks. Include in this section any notes which may assist the National Petroleum Council in understanding the data provided. In addition, list any significant concerns which you would like to share with the National Petroleum Council regarding this study or other issues affecting the natural gas industry.

Attachment A
EXAMPLE OF COMPANY X
SYSTEM CAPACITY DIAGRAM



* Segment names.
NOTE: Volumes shown are MMcf/d and represent maximum design capacity.

Company Name: Company X, Inc.

Attachment B:
Example of Company X Submission
Based on Attachment A Diagram

Part I. PIPELINE SEGMENT DATA

Segment Name	Node ID	Node Name	Type	Location					Interconnecting Company	Maximum Design Capacity Volumes (MMCF/D)		Operating Pressure (PSIG)	
				County	State	Coordinates							
						Section	Township or Latitude	Range or Longitude		Winter	Summer	MAOP	Normal Range
Gathering West (Station 100B - 101)	100B	Polk County #1	CS	Polk	TX	--	30° 51.8'	94° 30.8'	——	+400	+400	700	600 - 650
Same	101	Bishop Station	CS	Smyth	TX	–	30° 50.8'	94° 32.8'	——	-400	-400	900	825 - 875
Gathering East (Station 100A - 101)	100A	Rancho County #1	CS	Rancho	TX	--	30° 52.6'	94° 28.6'	——	+700	+700	850	650 - 700
Same	101	Bishop Station	CS	Smyth	TX	–	30° 50.8'	94° 32.8'	——	-700	-700	900	825 - 875
Southwest Mainline (Station 101-104)	101	Bishop Station	CS	Smyth	TX	–	30° 50.8'	94° 32.8'	——	+1000	+1000	900	825 - 875
Same	A	etc.	RDP	etc.	etc.	etc.	etc.	etc.	ABC Company	+/- 75	+/- 75	etc.	etc.
Same	B	etc.	RDP	etc.	etc.	etc.	etc.	etc.	etc.	+/- 125	+/- 125	etc.	etc.
Same	C	etc.	RDP	etc.	etc.	etc.	etc.	etc.	etc.	-100	- 100	etc.	etc.
Same	104	Fairfax Station	CS	Blaine	OK	etc.	etc.	etc.	——	- 1000	- 1000	850	800 - 840
Southeast Mainline (Station 104 - 301)	104	Fairfax Station	CS	Blaine	OK	etc.	etc.	etc.	——	-800	+400	975	900 - 960
Same	G	etc.	RDP	etc.	etc.	etc.	etc.	etc.	JKL Company	etc.	etc.	etc.	etc.
Same	H	etc.	RDP	etc.	etc.	etc.	etc.	etc.	etc.	etc.	etc.	etc.	etc.
Same	301	etc.	CS	etc.	etc.	etc.	etc.	etc.	——	etc.	etc.	etc.	etc.

Note: Segment names and node names are for illustration only.

Company Name:_____

Page___ of___ .

Part I. PIPELINE SEGMENT DATA

Segment Name	Node ID	Node Name	Type	Location					Interconnecting Company	Maximum Design Capacity Volumes (MMCF/D)		Operating Pressure (PSIG)	
				County	State	Coordinates				Winter	Summer	MAOP	Normal Range
						Section	Township or Latitude	Range or Longitude					

Company Name:_____

Page ____ of ____.

Part II. NATURAL GAS STORAGE CAPACITY

Node ID	Node Name	Maximum Capacity (MMCF)			Winter Design Day Deliverability (MMCF/D)
		Base	Working	Total	

Company Name:_____

Part III. General System Information

Please provide the following information:

1. January peak day market factor. $\left(\frac{\text{Jan Peak Day Del}}{\text{Jan Av Day Del}}\right)$ __.____

2. Average Btu content of gas deliveries. _____ BTU/MCF

3. Firm Facility Additions. (Attach additional sheets if necessary.)

Name of Project: _____

Miles: _____ Diameter: _____ (inches) Present Capacity: _____ (MMCF/D)

Anticipated Capacity: _____ (MMCF/D) Start Date: _____ Completion Date: _____

General Description: _____

4. Anticipated Changes in Supply and Market Patterns. (Attach additional sheets if necessary.)

5. Remarks. (Attach additional sheets if necessary.)

NATIONAL PETROLEUM COUNCIL
1988 SURVEY OF

U.S. NATURAL GAS STORAGE CAPACITIES

Reporting Company: _____

Address: _____

_____

_____ Zip Code: _____

Person in reporting company to be contacted if questions arise:

_____

Phone: (____)_____

Please submit your response to this survey by April 15, 1988, to:

Mr. Benjamin A. Oliver, Jr.
National Petroleum Council
1625 K Street, N.W.
Washington, D.C. 20006

If you have questions regarding this survey, please call Mr. Oliver at the National Petroleum Council office, (202) 393-6100.

This questionnaire is being used to collect general information about the U.S. natural gas system. The information will be aggregated and used to analyze the capability of this system to respond in the event of significant changes in demand or supply availability.

In this questionnaire, you are asked to provide information on your company's storage facilities.

General Instructions

- **PLEASE RESPOND BY APRIL 15, 1988.**
- Provide your company name on each page of your submission.
- Include affiliated companies in your response.
- Facilities owned by joint interests and partnerships should be reported by the operator of those facilities.
- If additional blank forms are required, they may be obtained from the National Petroleum Council office, or they may be copied from these originals.
- Attach on separate sheets any notes which may assist the National Petroleum Council in understanding the data provided. In addition, list any significant concerns which you would like to share with the National Petroleum Council regarding this study or other issues affecting the natural gas industry.

Storage Facility Data

All underground storage and peak shaving plants should be reported.

Name. Identify name of the facility, i.e., Tyson storage facility.

Type of Facility. Use the following abbreviations for type of facility:

SF	Storage Field
PS	Peak Shaving Plant

Location Information. Provide the county name and two character state abbreviation in which the facility is located. Provide latitude and longitude (to the nearest tenth of a minute if possible). If latitude and longitude are not available, provide section, township and range or appropriate survey coordinates instead.

Maximum Storage Capacity. Provide the maximum storage capacity for this facility in MMcf. Indicate how much of this is base gas and working gas as appropriate. Base gas is that portion of gas stored as permanent inventory to maintain deliverability rates during the withdrawal season. Working gas is the volume of gas in storage above the designed level of the base and available for withdrawal. This is for facilities operated by you.

Winter Design Day Deliverability. Provide the information in MMcf/day.

Company Name: _____

Page ___ of ___ .

STORAGE FACILITY DATA

Name	Type	Location					Maximum Capacity (MMCF)			Winter Design Day Deliverability (MMCF/day)
		County	State	Coordinates			Base	Working	Total	
				Section	Township or Latitude	Range or Longitude				

RESPONDENTS TO THE NPC 1988 SURVEY OF
U.S. NATURAL GAS STORAGE AND PIPELINE CAPACITIES

ANR Pipeline Co.

Arkla, Inc.

Burlington Northern, Inc.

- El Paso Natural Gas Company

Citgo Petroleum Corporation

Columbia Gas System

- Columbia Gulf Transmission Company
- Columbia Gas Transmission Corporation

Commonwealth Gas Pipeline

Consumers Power Company

Elizabethtown Natural Gas

Enron Corporation

- Florida Gas Transmission Company
- Houston Pipe Line (Texoma)
- Houston Pipe Line Company
- Northern Natural Gas Co.
- Oasis Pipeline - Intratex Gas Company - Operators
- Transwestern Pipeline Company
- Northern Border Pipeline Co.

Exxon Company, U.S.A.

- Exxon Gas System, Inc.
- Monterey Pipeline Company

Felmont Natural Gas Storage Company, Inc.

Honeoye Storage Corporation

KN Energy, Inc.

KPL Gas Service

Minnegasco, Inc.

Montana Power Company

Natural Gas Pipeline Co. of America

- Canyon Creek Compression Co.
- Mid-Con Texas Pipeline Co.
- Palo Duro Pipeline Co.
- Trailblazer Pipeline Co.
- United Texas Transmission Co.

Northern Illinois Gas Co.

Northern Indiana Public Service Company

Oneok, Inc.

Pacific Gas and Electric Company

- Pacific Gas Transmission Company

Panhandle Eastern Pipe Line Company

Peoples Gas

- Peoples Energy Corporation

Phillips Gas Pipeline Company

Phillips Natural Gas Company

Questar Pipeline Company

Red River Gas Pipeline Corp.

Sea Robin Pipe Line

Southern California Gas Company

- Pacific Enterprises

Southeastern Michigan Gas Co.

Southern Natural Gas

Stingray Pipeline Company

Tenneco Gas Transportation Company

- East Tennessee Natural Gas
- Louisiana Intra State Gas
- Midwestern Gas Transmission
- Tennessee Gas Pipeline (Tenneco Gas Pipeline)

Texas Eastern Gas Pipeline Company

Texas Gas Transmission Corp.

Transco (Transcontinental)

Transok, Inc.

Trunkline Gas Company

United Gas Pipe Line Co.

Valero Transmission Co.

Williams Companies, The

- Northwest Pipeline Corporation

Williams Natural Gas Company

Williston Basin Interstate Pipeline Company

Wintershall Corporation

- Mid Louisiana Gas Company

NOTE: Profiles of most of the natural gas transportation systems are available from the NPC. These profiles contain brief descriptions and maps. An Order Form for these profiles can be found at the back of this report.

APPENDIX E

GAS FLOWS BETWEEN PADDS BY COMPANY

TABLE E-1

MAXIMUM INTER-PADD FLOW CAPACITY*

From	To PADD IA	IB	IC	ID	II	IIIA	IIIB	IV	V	Canada	Total From
PADD IA		--	--	--	--	--	--	--	--	--	--
Total		0	0	0	0	0	0	0	0	0	0
PADD IB											
Algonquin	930		--	--	--	--	--	--	--	--	--
Tennessee	770		--	--	--	--	--	--	--	--	--
Total	1,700		0	0	0	0	0	0	0	0	1,700
PADD IC											
Columbia Gas	--	730		--	--	--	--	--	--	--	--
Consolidated§	--	120		--	--	--	--	--	--	--	--
Transco	--	1,900		--	--	--	--	--	--	--	--
Total	0	2,750		0	0	0	0	0	0	0	2,750
PADD ID	--	--	--		--	--	--	--	--	--	--
Total	0	0	0		0	0	0	0	0	0	0
PADD II											
Columbia Gas	--	--	940	--		--	--	--	--	--	--
Consolidated§	--	290	--			--	--	--	--	--	--
Great Lakes§	--	--	--	--		--	--	--	--	1,050	--
Tennessee	--	1,930	1,080	--		--	--	--	--	--	--
Texas Eastern	--	2,600	--	--		--	--	--	--	--	--
Total	0	4,820	2,020	0		0	0	0	0	1,050	7,890

TABLE E-1 (Continued)

	To PADD										Total
	IA	IB	IC	ID	II	IIIA	IIIB	IV	V	Canada	From
PADD IIIA											
ANRPL	--	--	--	--	1,430		--	--	--	--	--
Columbia Gulf	--	--	--	--	2,160		--	--	--	--	--
Florida Gas	--	--	--	850	--		--	--	--	--	--
Miss. River Trans.	--	--	--	--	620		--	--	--	--	--
Natural Gas P.L.	--	--	--	--	1,600		--	--	--	--	--
Southern Nat.§	--	--	1,650	--	--		--	--	--	--	--
Tennessee	--	--	--	--	4,080		--	--	--	--	--
Texas Eastern	--	--	--	--	2,530		--	--	--	--	--
Texas Gas	--	--	--	--	2,060		--	--	--	--	--
Transco	--	--	3,240	--	--		--	--	--	--	--
Trunkline	--	--	--	--	1,920		--	--	--	--	--
United Gas P.L.**	--	--	--	160	--		--	--	--	--	--
Total	0	0	4,890	1,010	16,400		0	0	0	0	22,300
PADD IIIB											
ANRPL	--	--	--	--	640	--		--	--	--	--
Colorado Interstate	--	--	--	--	--	--		560¶	--	--	--
El Paso	--	--	--	--	--	--		--	3,900	--	--
KN Energy	--	--	--	--	60	--		--	--	--	--
Lone Star	--	--	--	--	--	500		--	--	--	--
Natural Gas P.L.	--	--	--	--	1,720	--		--	--	--	--
Northern Natural	--	--	--	--	1,900	--		--	--	--	--
Oasis	--	--	--	--	--	650		--	--	--	--
Panhandle Eastern	--	--	--	--	1,600	--		--	--	--	--
Seagas	--	--	--	--	--	140		--	--	--	--
Texoma	--	--	--	--	--	210		--	--	--	--
Transwestern	--	--	--	--	--	--		--	760	--	--
Valero	--	--	--	--	--	675		--	--	--	--
Williams Nat. Gas	--	--	--	--	240	--		--	--	--	--
Total	0	0	0	0	6,160	2,175		560	4,660	0	13,595

TABLE E-1 (Continued)

	To PADD										Total
	IA	IB	IC	ID	II	IIIA	IIIB	IV	V	Canada	From
PADD IV											
Colorado Interstate	--	--	--	--	--	--	560¶		--	--	--
Northern Border§	--	--	--	--	970	--	--		--	--	--
Northwest P.L.	--	--	--	--	--	--	420		120	--	--
Trailblazer	--	--	--	--	380	--	--		--	--	--
Williams Nat. Gas	--	--	--	--	--	--	100		--	--	--
Williston Basin	--	--	--	--	100	--	--		--	--	--
Total	0	0	0	0	1,450	0	1,080		120	0	2,650
PADD V											
Northwest P.L.	--	--	--	--	--	--	--	460		--	460
Total	0	0	0	0	0	0	0	460		0	460
Canada	50	200	--	--	1,870	--	--	1,110	2,470	--	5,700
Mexico	--	--	--	--	--	300	--	--	--	--	300
Total	50	200	0	0	1,870	300	0	1,110	2,470	0	6,000
Total to each PADD	1,750	7,770	6,910	1,010	25,880	2,475	1,080	2,130	7,250	1,050	

*All volumes in millions of cubic feet per day (MMCF/D) @ 14.73 psi, 60°F, 1,000 BTU/SCF.

§Volumes from recent FERC Section 260.8, Form 567 Reports.

¶Facilities installed have two-way capability. The 560 MMCF/D volumes shown from PADD IIIB to PADD IV cannot, therefore, flow concurrently with 560 MMCF/D shown from PADD IV to PADD IIIB.

**Volumes from National Petroleum Council 1979 "Survey of Gas Pipeline Transportation."

SOURCES: National Petroleum Council 1988 "Survey of U.S. Natural Gas Storage and Pipeline Capacities" and recent FERC Section 260.8, Form 567 Reports.

APPENDIX F

STORAGE VOLUMES BY PADD, STATE, AND COMPANY

TABLE F-1

STORAGE VOLUMES BY PADD, STATE, AND COMPANY

Modified PADD	State & Company	Base (MMCF)	Working (MMCF)	Total (MMCF)	Winter Design Day Deliverability (3) (MMCF/D)	Fields or Areas
PADD IA		0	0	0	0	0
PADD IB	New York					
	Felmont Natural Gas	8,600	3,500	12,100	30	1
	Honeoye Stor. Corp.	3,900	4,800	8,700	40	1
	Columbia Gas	11,900	4,400	16,300	63	3
	Tennessee	8,700	3,600	12,300	75	1
	(1) Consol. Natural Gas	17,400	14,700	32,100	36	1
	(1) Nat. Fuel Gas Supply	29,300	17,700	47,000	341	11
	(1) Penn-York	16,100	6,200	22,300	103	3
		95,900	54,900	150,800	688	21
	Pennsylvania					
	Columbia Gas	21,100	10,600	31,700	382	4
	Tennessee Gas Pipeline	35,900	45,500	81,400	978	3
	Texas Eastern	51,900	50,800	102,700	506	2
	Transco		103,400	103,400	1,549	2
	(1) Consol. Natural Gas	109,700	61,900	191,600	2,515	9
	(1) Nat. Fuel Gas Supply	35,200	12,900	48,100	542	18
	(2) Other	33,100	38,900	72,000	577	16
		286,700	324,000	610,900	7,049	54
	Maryland					
	Texas Eastern	46,700	15,300	62,000	301	1
	Total PADD IB	429,500	394,200	823,700	8,038	76
PADD IC	West Virginia					
	Columbia Gas	169,100	77,000	273,100	1,701	20
	(1) Consol. Natural Gas	85,500	65,600	151,100	922	3
	(2) Other	18,700	29,500	48,200	113	12
	Total PADD IC	300,300	172,100	472,400	2,736	35

TABLE F-1 (Continued)

Modified PADD	State & Company	Base (MMCF)	Working (MMCF)	Total (MMCF)	Winter Design Day Deliverability (3) (MMCF/D)	Fields or Areas
PADD ID		0	0	0	0	0
PADD II	Michigan					
	ANR Pipeline	111,700	195,700	307,400	2,716	15
	ANR Storage	8,200	52,900	61,100	800	4
	Michigan Gas Storage	192,500	161,000	353,500	1,597	5
	S.E. Michigan Gas Co.	1,200	3,700	4,900	85	2
	Panhandle Eastern	15,600	14,200	29,800	360	1
	(1) Michigan Consol.	70,000	117,700	187,700	3,150	5
	(2) Other	5,000	1,400	6,400	67	4
		404,200	546,600	950,800	8,775	36
	Minnesota					
	Minnegasco	4,600	2,100	6,700	50	1
	Ohio					
	Columbia Gas	202,700	93,100	295,800	1,842	14
	(1) East Ohio Gas	101,500	48,400	149,900	0	4
	(2) Other	3,500	1,500	5,000	40	3
		307,700	143,000	450,700	1,882	21
	Tennessee					
	East Tennessee Pipeline	0	1,500	1,500	25	1
	Nebraska					
	KNE	27,300	66,000	93,300	148	2
	Kentucky					
	Elizabethtown	1,000	2,000	3,000	4	1
	Texas Gas Tran.	84,500	79,700	164,200	1,011	5
	(2) Other	18,100	20,500	38,600	577	13
		103,600	102,200	205,800	1,592	19
	Iowa					
	Natural Gas Pipeline	116,500	69,000	185,500	525	3
	Northern Natural	74,800	29,500	104,300	380	1
		191,300	98,500	289,800	905	4

TABLE F-1 (Continued)

Modified PADD	State & Company	Base (MMCF)	Working (MMCF)	Total (MMCF)	Winter Design Day Deliverability (3) (MMCF/D)	Fields or Areas
	Indiana					
	Nipsco	25,200	6,800	32,000	193	1
	Texas Gas Tran.	5,600	5,600	11,200	133	5
	(2) Other	44,800	21,000	65,800	519	20
		75,600	33,400	109,000	845	26
	Illinois					
	Mississippi River Tran.	2,900	700	3,600	20	1
	Natural Gas Pipeline	113,700	89,000	202,700	1,501	4
	No. Illinois Gas	281,200	123,400	404,600	2,205	8
	Panhandle Eastern	49,900	9,000	58,900	223	2
	Peoples Energy Corp.	96,900	44,700	141,600	730	1
	(2) Other	39,300	25,000	64,300	598	14
		583,900	291,800	875,700	5,277	30
	Total PADD II	1,698,200	1,285,100	2,983,300	19,499	140
PADD IIIA	Texas (East)					
	Houston Pipeline	30,000	80,000	110,000	800	1
	(1) Valero Trans.	3,000	6,000	9,000	0	1
	Natural Gas Pipeline	81,500	62,500	144,000	740	1
	(1) Lone Star	9,900	20,500	30,400	325	2
	(2) Other	6,200	6,100	12,300	2	3
		130,600	175,100	305,700	1,867	8
	Louisiana					
	Arkla Energy	11,000	10,200	21,200	150	2
	Mississippi River Tran.	51,100	31,200	82,300	450	1
	Tennessee Gas Pipeline	25,000	32,500	57,500	450	1
	Transco	0	87,000	87,000	902	2
	Trunkline	29,600	10,100	39,700	200	1
	United Gas Pipeline	66,200	63,100	129,300	1,100	1
	So. Natural	25,000	29,000	54,000	450	0
		207,900	263,100	471,000	3,702	8

TABLE F-1 (Continued)

Modified PADD	State & Company	Base (MMCF)	Working (MMCF)	Total (MMCF)	Winter Design Day Deliverability (3) (MMCF/D)	Fields or Areas
	Arkansas					
	(2) Other	25,300	12,400	37,700	112	5
	Mississippi					
	So. Natural	40,800	52,000	92,800	750	1
	Transco	0	3,000	3,000	1,118	-
	United Gas Pipeline	2,800	2,700	5,500	215	-
	(2) Other	300	1,100	1,400	14	-
		43,900	58,800	102,700	2,097	2
	Total PADD IIIA	407,700	509,400	917,100	7,778	23
PADD IIIB	Kansas					
	KN Energy	3,400	2,400	5,800	8	1
	KPL Gas Service	2,200	1,600	3,800	35	1
	Northern Natural	0	38,000	38,000	350	2
	Panhandle Eastern	35,100	15,000	50,600	350	1
	Williams Natural Gas	71,900	34,500	106,400	1,034	7
	Colorado Interstate	15,800	9,000	24,800	80	1
	(2) Other	97,500	33,200	130,700	970	3
		225,900	134,200	360,100	2,827	16
	Oklahoma					
	Arkla	19,400	17,700	37,100	440	2
	Natural Gas Pipeline	30,400	39,000	69,400	350	1
	OK Natural Gas	79,000	36,000	115,000	90	4
	Panhandle Eastern	11,400	5,600	17,000	75	1
	Transok	10,000	14,600	24,600	200	1
	Williams Natural Gas	29,800	15,100	44,900	100	1
	(2) Other	700	200	900	16	2
		180,700	128,200	308,900	1,971	12
	Texas (West)					
	(1) Lone Star	15,100	20,800	35,900	459	8
	(2) Other	9,000	20,500	29,500	390	4
		24,000	41,300	65,400	849	12

TABLE F-1 (Continued)

Modified PADD	State & Company	Base (MMCF)	Working (MMCF)	Total (MMCF)	Winter Design Day Deliverability (3) (MMCF/D)	Fields or Areas
	New Mexico					
	El Paso	15,000	13,500	28,500	250	1
	Total PADD IIIB	445,700	317,200	762,900	5,897	41
PADD IV	Utah					
	Questar	11,800	8,600	20,400	170	3
	Northwest Pipeline	37,400	20,000	57,400	150	1
		49,200	28,600	77,800	320	4
	Colorado					
	Colorado Interstate	30,500	25,800	56,300	485	3
	KN Energy	2,400	3,300	5,700	12	1
	(2) Other	13,700	11,400	25,100	277	5
		46,600	40,500	87,100	774	9
	Montana					
	Williston Basin	64,000	223,000	287,000	175	1
	Montana Power Co.	45,800	41,000	86,800	182	4
		109,800	264,000	373,800	357	5
	Wyoming					
	Questar	5,200	1,300	6,500	80	1
	Williston Basin	11,000	52,000	63,000	120	1
	(2) Other	18,000	5,600	23,600	42	3
		34,200	58,900	93,100	242	5
	Total PADD IV	239,800	392,000	631,800	1,693	23
PADD V	Washington					
	Northwest Pipeline	21,300	12,800	34,100	325	1

TABLE F-1 (Continued)

Modified PADD	State & Company	Base (MMCF)	Working (MMCF)	Total (MMCF)	Winter Design Day Deliverability (3) (MMCF/D)	Fields or Areas
	California					
	So. California Gas	176,000	116,100	292,100	4,575	6
	(1) Pacific Gas & Elec.	66,500	79,500	146,000	1,815	3
		242,500	195,600	438,100	6,390	9
	Total PADD V	263,800	208,400	472,200	6,715	10
	Lower-48 Total	3,785,000	3,278,400	7,063,400	52,356	348

(1) Data obtained from the A.G.A. "Survey of Underground Gas Storage in the United States and Canada 1988."

(2) Represents sum total of all non-surveyed companies' storage volumes as presented in the A.G.A. storage survey. (See footnote #1.)

(3) Winter design day deliverability represents the maximum storage withdrawal capability and may not be indicative of the sustainable capacity.

APPENDIX G

DOCUMENTATION OF SUPPLY AND DEMAND DATA AND PROJECTIONS USED IN THE SCENARIO ANALYSIS

APPENDIX G

DOCUMENTATION OF SUPPLY AND DEMAND DATA AND PROJECTIONS USED IN THE SCENARIO ANALYSIS

This appendix addresses the procedures used to prepare the supply and demand data used in the analysis of capacity flows. All of the primary supply and demand information, both historical and forecast, required some adjustment to obtain the daily flows necessary for the analysis. The historical data for January and March 1988 consumption were available on a monthly basis, while the projected 1992 supply and demand projections were available only on an annual basis. On the supply side, 1992 projections of Lower-48 supply were developed for January average-day and winter season average-day projections. On the demand side, several levels of detail were developed for January for both 1988 and 1992. These included demand on an average day, peak day, and under 10 percent and 20 percent colder conditions. For March 1988 and 1992, demand for a "late season cold snap" scenario was developed which was 20 percent colder weather than experienced or forecast for March. Figure G-1 shows a diagram of the network structure that was used in the analysis of these data.

NATURAL GAS SUPPLY PROJECTIONS FOR THE LOWER-48 ONSHORE SUPPLY AREAS

Two alternative 1992 supply projections of Lower-48 production were used in conjunction with the demand forecasts to evaluate the flow capacity of the pipeline network. Current regional forecasts of supply were not easily located. As a result, the approach taken was to define a range of projections of the Lower-48 supply consistent with recent forecasts and then develop regional projections from those national-level forecasts. The supply projections ranged from 15 trillion cubic feet (TCF) to 17 TCF for 1992, and these were the two Lower-48 production levels used in the analysis.

The level of detail required for the scenario analysis was average daily supply by Petroleum Administration for Defense District (PADD). Several steps were necessary to move from the annual, national-level forecast of Lower-48 production to a projection of average daily flow by PADD for (1) an average January day and (2) an average winter season (December through February) daily rate.

- Lower-48 production was shared to the PADD regions using the average of (1) the distribution of production by PADD over the period from January 1981 to September 1987 (Source: Energy Information Administration, Natural Gas Monthly) and (2) the distribution of reserves by PADD as of year-end 1986 (Source: Energy

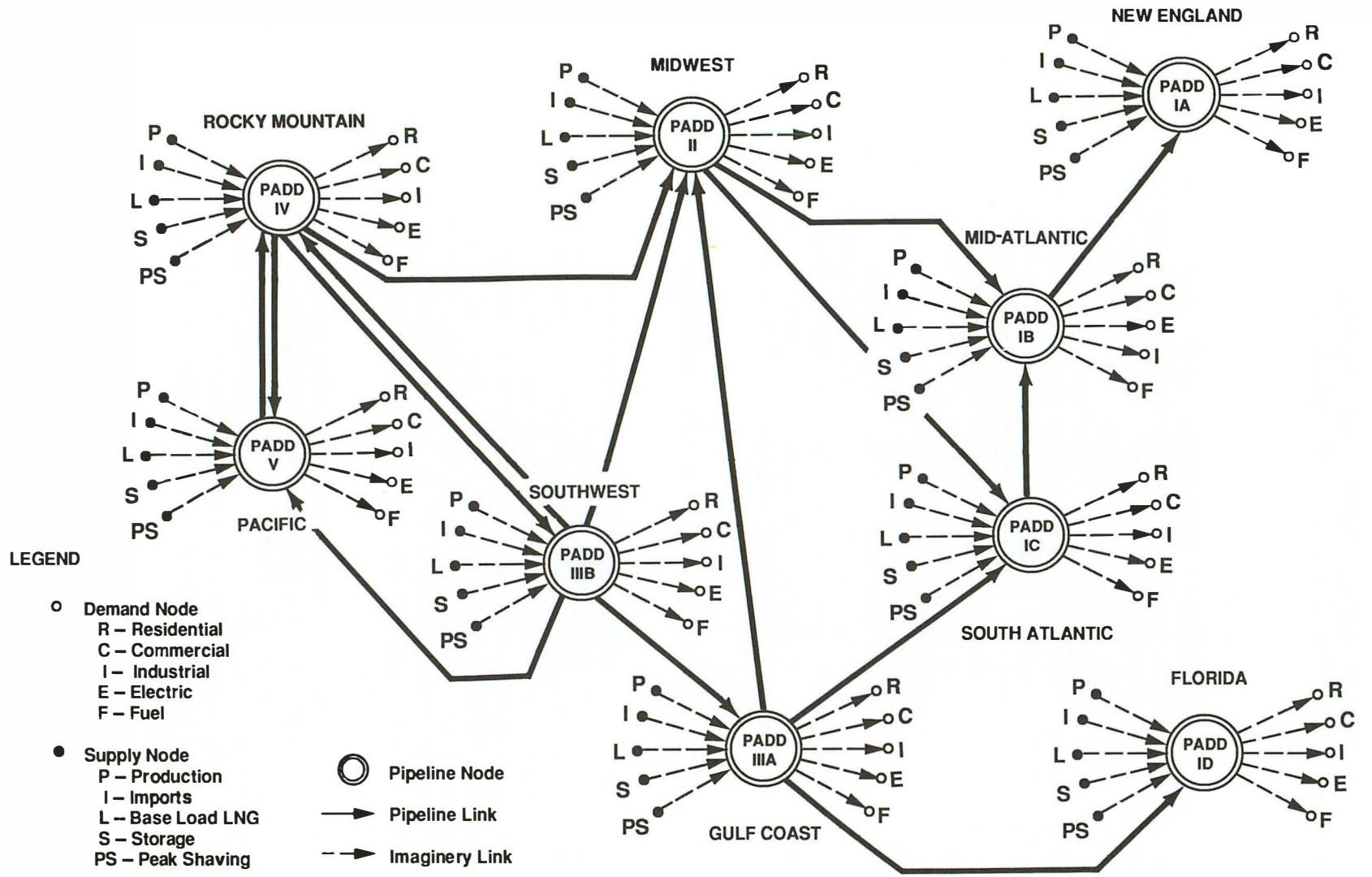


Figure G-1. Network Structure Diagram.

Information Administration, U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, 1986 Annual Report).

- An average January daily production estimate was prepared by applying the historical average ratio of January to annual production by PADD (averaged over the period from 1981 to 1987) to the forecast of annual production by PADD and dividing by 31. These estimates were used for all the scenarios except the 90-day or 20 percent colder than normal scenario.

- An average winter season daily production estimate for the period from December through February was prepared by applying the historical average ratio (1981 to 1987) of December through February to annual production to the forecast annual production levels and dividing by 90. These estimates were used for the 90-day severe weather scenario.

Table G-1 presents the Lower-48 supply region production forecasts for 1992 by PADD and the ratios used to derive the average daily production estimates.

PEAK DAY AND AVERAGE DAY CONSUMPTION AND DEMAND VALUES USED FOR THE SCENARIO ANALYSIS

The tests of pipeline capacity were undertaken using estimates of either an average daily or peak-day consumption estimate for a winter month (January or March). These estimates were disaggregated by PADD region by consumption sector. Consumption categories were residential, commercial, industrial, electric utility, lease and plant fuel, and pipeline fuel. Consumption and demand estimates were developed for the following demand conditions:

- Average-day demand under:
  - normal weather conditions
  - 10 percent colder than normal
  - 20 percent colder than normal
- Peak-day demand.

1988 Consumption Data

Historical consumption data for the months of January and March 1988 were used as a calibration test of the modeling system and to develop benchmark series for comparison with the 1992 baseline and stress scenarios. The end-use sector information was available on a monthly basis by state for all sectors of gas delivered to consumers, and needed only to be aggregated into

TABLE G-1

DERIVATION OF REGIONAL 1992 LOWER-48 SUPPLY FORECASTS
(Trillion Cubic Feet)

	PADD Share of Annual Production	Annual Production Level		Average of January to Annual Production	Average of December-March to Annual Production
		15 TCF	17 TCF		
PADD IA	0.00%	0.00	0.00		
PADD IB	1.11%	0.17	0.19	1.0906	1.2569
PADD IC	1.19%	0.18	0.20	1.0928	1.2696
PADD ID	0.07%	0.01	0.01	1.0937	1.2620
PADD II	2.50%	0.38	0.43	1.0872	1.2497
PADD IIIA	49.77%	7.47	8.46	1.0930	1.2634
PADD IIIB	35.49%	5.32	6.03	1.0935	1.3733
PADD IV	6.99%	1.05	1.19	1.0952	1.2309
PADD V	2.88%	0.43	0.49	1.0874	1.2564
Total	100.00%	15.00	17.00		

PADD regions. The January and March consumption data were not normalized for weather. Lease and plant fuel use and pipeline fuel use were available only at a national level for these months. Lease and plant fuel was allocated to each PADD based on production in the PADD. Pipeline fuel was allocated based on PADD-level consumption.

Information was not available to split Texas into PADD IIIA and PADD IIIB along Texas Railroad Commission Districts. A proportion by sector was estimated, using 1986 consumption estimates, from the Texas Railroad Commission and other sources. Demand requirements attributed to Texas were split by sector using the following proportions.

	West Texas	East Texas
Residential	26%	74%
Commercial	22%	78%
Industrial	22%	78%
Electric Utility	10%	90%

Demand allocated to West Texas was included in PADD IIIB and East Texas demand was included in PADD IIIA.

1992 Demand Forecasts

A number of annual regional forecasts for 1992 were evaluated for use in the study. They included the forecasts developed in early 1988 by the Energy Information Administration (EIA), Wharton Econometric Forecasting Associates, Data Resources Inc. (DRI), Gas Research Institute, and the American Gas Association (A.G.A.). The highest forecast (A.G.A.) and lowest forecast (DRI) evaluated were selected for use in the study. The two sets selected generally had the highest and lowest values for each of the regional and sectoral elements of the forecast.

None of the forecasts provided PADD regional projections. The DRI and A.G.A. projections used were available at the 9 Census division regional levels. The 1986 sectoral consumption by state was used to share the projections to a state level. The state shares were then reaggregated into PADD-level projections. Texas was split between PADD IIIA and PADD IIIB using the same factors that were used in preparing the 1988 consumption data. Table G-2 presents the annual forecasts by PADD and sector that were used as the basis for the scenario analysis.

Calculation of Daily Demand Projections Used in the Analysis

Each of the 1992 forecasts was converted to an average annual daily consumption projection by dividing the annual forecast numbers by 365. Average daily consumption for January and March 1988 was developed by dividing the monthly total by 31.

TABLE G-2

SUMMARY OF 1992 DEMAND PROJECTIONS BY PADD AND SECTOR

PAD DISTRICT Sector Subtotal TOTAL	Natural Gas Consumption (BCF/Year) 1987 Historical EIA	1992 Forecast DRI	1992 Forecast A.G.A.	Percentage Change from 1987 Historical (Percent/Year) 1992 Forecast DRI	1992 Forecast A.G.A.
PADD IA					
Residential	166	178	228	1.5%	6.6%
Commercial	91	99	64	1.6%	-6.8%
Industrial	63	59	103	-1.3%	10.3%
Electric Utility	53	57	207	1.4%	31.3%
Subtotal	372	393	602	1.1%	10.1%
Lease and Plant Fuel	0	0	0	0.0%	0.0%
Pipeline Fuel	2	2	1	-1.0%	-12.9%
TOTAL	374	395	603	1.1%	10.0%
PADD IB					
Residential	849	848	981	-0.0%	2.9%
Commercial	405	432	370	1.3%	-1.8%
Industrial	462	418	645	-2.0%	6.9%
Electric Utility	270	308	618	2.7%	18.0%
Subtotal	1,986	2,006	2,614	0.2%	5.7%
Lease and Plant Fuel	7	5	0	-6.1%	-79.2%
Pipeline Fuel	48	40	33	-3.4%	-7.4%
TOTAL	2,041	2,052	2,647	0.1%	5.3%
PADD IC					
Residential	248	234	227	-1.2%	-1.8%
Commercial	157	164	128	0.9%	-4.0%
Industrial	363	330	325	-1.9%	-2.2%
Electric Utility	4	23	19	41.9%	37.3%
Subtotal	773	750	699	-0.6%	-2.0%
Lease and Plant Fuel	10	7	19	-6.3%	14.0%
Pipeline Fuel	32	34	23	1.1%	-6.6%
TOTAL	815	791	742	-0.6%	-1.9%
PADD ID					
Residential	15	14	14	-0.9%	-1.5%
Commercial	37	41	32	2.1%	-2.8%
Industrial	61	56	55	-1.6%	-1.9%
Electric Utility	176	411	349	18.5%	14.7%
Subtotal	288	523	450	12.7%	9.4%
Lease and Plant Fuel	8	6	17	-4.8%	15.9%
Pipeline Fuel	4	4	3	-0.3%	-7.9%
TOTAL	300	533	470	12.2%	9.4%
PADD II					
Residential	1,721	1,718	1,815	-0.0%	1.1%
Commercial	937	939	970	0.0%	0.7%
Industrial	1,309	1,217	1,357	-1.4%	0.7%
Electric Utility	31	40	297	5.4%	57.1%
Subtotal	3,998	3,914	4,440	-0.4%	2.1%
Lease and Plant Fuel	28	27	21	-0.6%	-5.6%
Pipeline Fuel	98	91	111	-1.5%	2.5%
TOTAL	4,124	4,032	4,571	-0.4%	2.1%

Note: Totals may not equal the sum of components due to rounding.

TABLE G-2 (Continued)

PAD DISTRICT Sector Subtotal TOTAL	Natural Gas Consumption (BCF/Year) 1987 Historical EIA	 1992 Forecast DRI	 A.G.A.	Percentage Change from 1987 Historical (Percent/Year) 1992 Forecast DRI	 A.G.A.
PADD IIIA					
Residential	333	307	326	-1.6%	-0.4%
Commercial	215	225	340	0.9%	9.6%
Industrial	2,197	2,137	2,248	-0.6%	0.5%
Electric Utility	1,266	1,063	1,242	-3.4%	-0.4%
Subtotal	4,011	3,732	4,157	-1.4%	0.7%
Lease and Plant Fuel	549	431	508	-4.7%	-1.6%
Pipeline Fuel	152	141	119	-1.5%	-4.8%
TOTAL	4,712	4,304	4,784	-1.8%	0.3%
PADD IIIB					
Residential	216	202	219	-1.4%	0.3%
Commercial	140	157	205	2.3%	8.0%
Industrial	627	531	649	-3.3%	0.7%
Electric Utility	327	346	453	1.1%	6.7%
Subtotal	1,311	1,235	1,526	-1.2%	3.1%
Lease and Plant Fuel	332	266	257	-4.4%	-5.0%
Pipeline Fuel	111	122	101	1.9%	-1.9%
TOTAL	1,755	1,623	1,883	-1.6%	1.4%
PADD IV					
Residential	161	190	169	3.3%	1.0%
Commercial	106	123	132	3.0%	4.5%
Industrial	97	80	229	-3.8%	18.8%
Electric Utility	9	10	17	1.7%	13.0%
Subtotal	372	403	547	1.6%	8.0%
Lease and Plant Fuel	73	57	16	-4.7%	-25.8%
Pipeline Fuel	21	19	16	-1.6%	-5.3%
TOTAL	467	479	579	0.5%	4.4%
PADD V					
Residential	595	596	610	0.0%	0.5%
Commercial	303	334	309	2.0%	0.4%
Industrial	648	502	700	-5.0%	1.6%
Electric Utility	677	851	690	4.7%	0.4%
Subtotal	2,223	2,283	2,309	0.5%	0.8%
Lease and Plant Fuel	27	20	63	-6.1%	18.5%
Pipeline Fuel	48	34	31	-6.7%	-8.6%
TOTAL	2,297	2,337	2,403	0.3%	0.9%
LOWER-48 STATES					
RESIDENTIAL	4,302	4,287	4,589	-0.1%	1.3%
COMMERCIAL	2,392	2,513	2,551	1.0%	1.3%
INDUSTRIAL	5,827	5,330	6,312	-1.8%	1.6%
ELECTRIC UTILITY	2,814	3,109	3,891	2.0%	6.7%
SUBTOTAL	15,335	15,239	17,344	-0.1%	2.5%
LEASE AND PLANT FUEL	1,033	820	901	-4.5%	-2.7%
PIPELINE FUEL	517	487	436	-1.2%	-3.4%
TOTAL	16,885	16,545	18,681	-0.4%	2.0%

Note: Totals may not equal the sum of components due to rounding.

Factors were developed to be applied to the forecasts of annual average daily consumption to provide peak-day projections for January, average daily projections (assuming normal weather) for January and March, and weather sensitivities on the average daily January and March forecasts.

The procedure used to develop the average-day factors for January and March using the 1992 forecasts will be discussed first, followed by a discussion of the peak-day factors.

Factors for Calculating Average-Day Demand Requirements

The procedures for developing these factors differed among sectors, and so the sectors are treated separately.

Residential and Commercial

Regression analysis was used to examine the relationship between the weather in each PADD over the period from 1984 to 1987 and consumption of natural gas during this period. The monthly natural gas consumption data used in the regression analysis were developed from monthly billing (sales) data extracted from an EIA data base containing data published in the Natural Gas Monthly. Previous analysis had shown that, for these two sectors, the volumes of natural gas billed in a given month are comprised of a share of the gas consumed at the end of the preceding month and a share of the gas consumed at the beginning of the month of the billing. Thus, each month's consumption in the residential sector was calculated as the sum of 50 percent of the volume billed that month and 50 percent of the volume billed the next month. For the commercial sector, the corresponding percentages were 40 and 60 percent.

Temperature information recorded at weather stations around the country is used by the National Oceanic and Atmospheric Administration (NOAA) to calculate statewide degree-day averages, weighted by population estimates taken from the 1980 Census. The PADD monthly degree-day estimates used in the regression analysis were developed by EIA, by aggregating state level degree-day data and population weights provided by the NOAA into PADDs.

The results of the regression analysis indicated that the estimated equations were generally quite accurate, when used to estimate actual, historical consumption data using actual, historical weather data. The adjusted-R-square statistic for each residential and commercial sector equation exceeded 0.94 with the exception of the commercial sector in PADD V, for which the adjusted-R-square statistic was 0.785.

These equations were then used to create estimates of typical monthly natural gas consumption in the residential and commercial sectors, assuming normal weather conditions (as defined by the NOAA 30-year normal) within each PADD. Specifically, normal PADD-level heating degree values were substituted into the equations and the equations were then used to

estimate ratios of typical January to annual consumption and typical March to annual consumption.

To develop the weather sensitivity data, normal heating degrees values were increased by 10 and 20 percent and these values were placed into the equations to derive estimates of monthly consumption under more severe weather conditions. Again, ratios of typical January (or March) to annual consumption were then developed, assuming these more severe weather conditions.

The ratios were then applied to the average daily demand for 1988 and 1992 to derive the colder weather projections of demand.

Industrial and Electric Utility Demand

The simple regression analysis used for the residential and commercial sectors did not provide a statistically acceptable fit for the industrial and electric utility sectors. The seasonal nature of demand for natural gas in these sectors, where a significant portion of the users have the capability of burning other fuels as well, appears to be masked by changes in relative fuel prices and changes in economic activity.

As an alternative, the historical ratio of January or March consumption to the historical annual consumption averaged over the period from January 1984 through October 1986 was used to develop the January and March estimates. The demand requirements for these two sectors were not assumed to change over the weather stress scenarios. This was done principally due to the lack of any ready means of evaluating the demand response of these two sectors in colder weather.

Demand for Lease and Plant Fuel and Pipeline Fuel

For these categories, the daily consumption for the January and March 1992 average-day scenarios was assumed to be the same as for the year as a whole. They were held constant across all scenarios including the weather sensitivities. This simplification was considered acceptable because of the relatively small volumes involved.

Factors for Calculating Peak-Day Demand Requirements

Estimates of the ratio of peak January demand to average January demand as reported to A.G.A. were examined for approximately 99 large local distribution companies (LDCs). These 99 companies were considered to provide significant coverage of the large metropolitan areas in the country. The 1985 and 1986 peak day to January sales ratios were calculated and then weighted by the volumes of sales by LDCs and aggregated to PADD regions. For PADDs III and ID, however, peak-to-average ratios for pipeline deliveries were used because they were believed to be more representative of conditions in these areas than data reported for local distribution sales. The averages of these ratios (listed in Table G-3) were then applied to the total January average-day

demand requirements with the incremental demand apportioned between the residential and commercial sectors.

TABLE G-3

PEAK-DAY TO AVERAGE-DAY SALES RATIOS

PADD IA	1.58
PADD IB	1.59
PADD IC	1.85
PADD ID	1.29
PADD II	1.58
PADD IIIA	1.23
PADD IIIB	1.23
PADD IV	1.56
PADD V	1.41

Table G-4 lists all the adjustment factors used to develop the average-day, peak-day, and colder-than-normal demand estimates. The 1986 historical consumption data used to share the Census region projections to PADDs are also provided. Tables G-5 through G-7 provide the daily demand estimates used in the scenario analysis.

TABLE G-4

FACTORS USED TO DERIVE THE DEMAND ESTIMATES

PAD DISTRICT Sector Subtotal TOTAL	1986 Consumption Used for Sharing Demand to PADDs (BCF/ Year)	Average January Day as a Percentage of Average Annual Day			Peak January Day as a Percentage of Average January Day Normal Weather		Average March Day as a Percentage of Annual Day
		Normal Weather	10% Colder Weather	20% Colder Weather	DRI	A.G.A.	20% Colder Weather
PADD IA							
Residential	161	191.96%	208.66%	225.35%	165.55%	171.04%	173.96%
Commercial	82	171.99%	185.14%	198.28%	165.55%	171.04%	157.82%
Industrial	48	101.93%	101.93%	101.93%	100.00%	100.00%	114.73%
Electric Utility	16	8.37%	8.37%	8.37%	100.00%	100.00%	31.47%
Subtotal	307						
Lease and Plant Fuel	0	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Pipeline Fuel	2	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
TOTAL	309				158.00%	158.00%	
PADD IB							
Residential	846	193.44%	209.73%	226.02%	177.69%	186.91%	170.60%
Commercial	407	179.56%	193.48%	207.40%	177.69%	186.91%	160.05%
Industrial	432	137.44%	137.44%	137.44%	100.00%	100.00%	129.00%
Electric Utility	175	47.25%	47.25%	47.25%	100.00%	100.00%	71.33%
Subtotal	1,860						
Lease and Plant Fuel	6	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Pipeline Fuel	42	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
TOTAL	1,907				159.00%	159.00%	
PADD IC							
Residential	226	211.05%	229.07%	247.08%	229.36%	233.77%	164.27%
Commercial	143	179.94%	193.00%	206.06%	229.36%	233.77%	146.05%
Industrial	347	110.43%	110.43%	110.43%	100.00%	100.00%	114.98%
Electric Utility	9	27.72%	27.72%	27.72%	100.00%	100.00%	24.07%
Subtotal	726						
Lease and Plant Fuel	7	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Pipeline Fuel	34	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
TOTAL	767				185.00%	185.00%	
PADD ID							
Residential	14	193.33%	206.40%	219.48%	271.84%	281.21%	118.73%
Commercial	36	127.58%	131.63%	135.68%	271.84%	281.21%	104.50%
Industrial	59	137.19%	137.19%	137.19%	100.00%	100.00%	106.93%
Electric Utility	170	75.35%	75.35%	75.35%	100.00%	100.00%	89.64%
Subtotal	278						
Lease and Plant Fuel	6	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Pipeline Fuel	4	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
TOTAL	289				129.00%	129.00%	
PADD II							
Residential	1,805	208.03%	226.42%	244.81%	179.22%	183.35%	171.68%
Commercial	910	201.94%	219.30%	236.67%	179.22%	183.35%	167.60%
Industrial	1,321	151.09%	151.09%	151.09%	100.00%	100.00%	124.78%
Electric Utility	27	109.46%	109.46%	109.46%	100.00%	100.00%	89.06%
Subtotal	4,063						
Lease and Plant Fuel	27	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Pipeline Fuel	98	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
TOTAL	4,188				158.00%	158.00%	

Note: Totals may not equal the sum of components due to rounding.

TABLE G-4 (Continued)

PAD DISTRICT Sector Subtotal TOTAL	1986 Consumption Used for Sharing Demand to PADDs (BCF/ Year)	Average January Day as a Percentage of Average Annual Day			Peak January Day as a Percentage of Average January Day Normal Weather		Average March Day as a Percentage of Annual Day
		Normal Weather	10% Colder Weather	20% Colder Weather	DRI	A.G.A.	20% Colder Weather
PADD IIIA							
Residential	311	212.82%	229.70%	246.57%	209.30%	198.94%	143.89%
Commercial	210	176.48%	188.00%	199.53%	209.30%	198.94%	129.39%
Industrial	2,150	115.67%	115.67%	115.67%	100.00%	100.00%	100.00%
Electric Utility	1,341	84.64%	84.64%	84.64%	100.00%	100.00%	78.99%
Subtotal	**4,011**						
Lease and Plant Fuel	452	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Pipeline Fuel	141	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
TOTAL	**4,604**				**123.00%**	**123.00%**	
PADD IIIB							
Residential	212	213.19%	231.35%	249.51%	170.03%	169.60%	160.51%
Commercial	145	167.90%	178.91%	189.92%	170.03%	169.60%	135.95%
Industrial	554	131.79%	131.79%	131.79%	100.00%	100.00%	105.04%
Electric Utility	343	95.57%	95.57%	95.57%	100.00%	100.00%	80.00%
Subtotal	**1,254**						
Lease and Plant Fuel	274	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Pipeline Fuel	110	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
TOTAL	**1,638**				**123.00%**	**123.00%**	
PADD IV							
Residential	176	183.65%	200.03%	216.40%	175.15%	192.37%	166.82%
Commercial	95	175.33%	190.11%	204.89%	175.15%	192.37%	160.13%
Industrial	105	130.94%	130.94%	130.94%	100.00%	100.00%	106.32%
Electric Utility	5	115.49%	115.49%	115.49%	100.00%	100.00%	96.33%
Subtotal	**381**						
Lease and Plant Fuel	55	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Pipeline Fuel	18	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
TOTAL	**454**				**156.00%**	**156.00%**	
PADD V							
Residential	551	163.49%	175.58%	187.67%	179.78%	183.62%	151.02%
Commercial	267	142.62%	150.85%	159.08%	179.78%	183.62%	134.13%
Industrial	502	113.61%	113.61%	113.61%	100.00%	100.00%	99.83%
Electric Utility	482	87.96%	87.96%	87.96%	100.00%	100.00%	77.27%
Subtotal	**1,802**						
Lease and Plant Fuel	23	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Pipeline Fuel	31	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
TOTAL	**1,856**				**141.00%**	**141.00%**	
LOWER-48 STATES							
RESIDENTIAL	4,301						
COMMERCIAL	2,296						
INDUSTRIAL	5,519						
ELECTRIC UTILITY	2,568						
SUBTOTAL	14,683						
LEASE AND PLANT FUEL	850						
PIPELINE FUEL	479						
TOTAL	16,012						

Note: Totals may not equal the sum of components due to rounding.

TABLE G-5

SUMMARY OF 1988 DEMAND REQUIREMENTS BY SECTOR AND PADD USED IN THE SCENARIO ANALYSIS

PAD DISTRICT / Sector / Subtotal / TOTAL	1988 Natural Gas Consumption (MMCF/Day)				
	January				March
	Average Day			Peak Day	Average Day
	Actual Weather	10% Colder Weather	20% Colder Weather	Inferred from Actual	20% Colder Weather
PADD IA					
Residential	918	998	1,078	1,531	897
Commercial	431	464	497	719	431
Industrial	158	158	158	158	171
Electric Utility	5	5	5	5	11
Subtotal	**1,512**	**1,624**	**1,737**	**2,412**	**1,510**
Lease and Plant Fuel	0	0	0	0	0
Pipeline Fuel	41	41	41	41	37
TOTAL	**1,553**	**1,665**	**1,778**	**2,453**	**1,547**
PADD IB					
Residential	5,008	5,430	5,851	8,757	4,588
Commercial	2,197	2,367	2,539	3,842	2,138
Industrial	1,443	1,443	1,443	1,443	1,354
Electric Utility	230	230	230	230	435
Subtotal	**8,878**	**9,470**	**10,063**	**14,271**	**8,515**
Lease and Plant Fuel	26	26	26	26	25
Pipeline Fuel	238	238	238	238	210
TOTAL	**9,142**	**9,734**	**10,327**	**14,535**	**8,750**
PADD IC					
Residential	1,550	1,682	1,815	3,372	1,352
Commercial	846	907	969	1,841	723
Industrial	805	805	805	805	1,075
Electric Utility	2	2	2	2	4
Subtotal	**3,203**	**3,396**	**3,590**	**6,019**	**3,154**
Lease and Plant Fuel	25	25	25	25	24
Pipeline Fuel	86	86	86	86	80
TOTAL	**3,314**	**3,507**	**3,701**	**6,130**	**3,258**
PADD ID					
Residential	71	76	81	159	73
Commercial	130	134	138	292	132
Industrial	286	286	286	286	267
Electric Utility	350	350	350	350	372
Subtotal	**837**	**845**	**854**	**1,087**	**843**
Lease and Plant Fuel	3	3	3	3	3
Pipeline Fuel	22	22	22	22	23
TOTAL	**862**	**870**	**879**	**1,112**	**869**
PADD II					
Residential	11,440	12,451	13,463	20,223	9,453
Commercial	5,462	5,931	6,401	9,655	4,714
Industrial	4,760	4,760	4,760	4,760	4,513
Electric Utility	58	58	58	58	94
Subtotal	**21,720**	**23,200**	**24,682**	**34,696**	**18,774**
Lease and Plant Fuel	70	70	70	70	68
Pipeline Fuel	583	583	583	583	463
TOTAL	**22,373**	**23,853**	**25,335**	**35,349**	**19,305**

Note: Totals may not equal the sum of components due to rounding.

TABLE G-5 (Continued)

1988
Natural Gas Consumption
(MMCF/Day)

PAD DISTRICT Sector Subtotal TOTAL	January Average Day Actual Weather	January Average Day 10% Colder Weather	January Average Day 20% Colder Weather	January Peak Day Inferred from Actual	March Average Day 20% Colder Weather
PADD IIIA					
Residential	2,207	2,382	2,557	4,406	1,603
Commercial	1,256	1,338	1,420	2,507	1,039
Industrial	6,582	6,582	6,582	6,582	6,603
Electric Utility	2,906	2,906	2,906	2,906	2,826
Subtotal	**12,951**	**13,208**	**13,465**	**16,401**	**12,071**
Lease and Plant Fuel	1,702	1,702	1,702	1,702	1,644
Pipeline Fuel	347	347	347	347	325
TOTAL	**15,000**	**15,257**	**15,514**	**18,450**	**14,040**
PADD IIIB					
Residential	1,569	1,703	1,836	2,472	1,134
Commercial	859	915	972	1,353	646
Industrial	1,928	1,928	1,928	1,928	1,962
Electric Utility	761	761	761	761	764
Subtotal	**5,117**	**5,307**	**5,497**	**6,514**	**4,505**
Lease and Plant Fuel	822	822	822	822	794
Pipeline Fuel	137	137	137	137	118
TOTAL	**6,076**	**6,266**	**6,456**	**7,473**	**5,417**
PADD IV					
Residential	993	1,082	1,170	1,761	830
Commercial	655	710	765	1,161	556
Industrial	367	367	367	367	310
Electric Utility	84	84	84	84	14
Subtotal	**2,099**	**2,242**	**2,386**	**3,373**	**1,709**
Lease and Plant Fuel	120	120	120	120	116
Pipeline Fuel	56	56	56	56	42
TOTAL	**2,275**	**2,418**	**2,562**	**3,549**	**1,867**
PADD V					
Residential	3,562	3,825	4,089	5,790	2,149
Commercial	1,478	1,563	1,649	2,403	1,251
Industrial	1,446	1,446	1,446	1,446	1,774
Electric Utility	935	935	935	935	1,931
Subtotal	**7,421**	**7,769**	**8,118**	**10,573**	**7,104**
Lease and Plant Fuel	70	70	70	70	67
Pipeline Fuel	199	199	199	199	186
TOTAL	**7,690**	**8,038**	**8,387**	**10,842**	**7,357**
LOWER-48 STATES					
RESIDENTIAL	27,318	29,628	31,939	48,471	22,078
COMMERCIAL	13,314	14,331	15,349	23,772	11,630
INDUSTRIAL	17,775	17,775	17,775	17,775	18,029
ELECTRIC UTILITY	5,331	5,331	5,331	5,331	6,451
SUBTOTAL	**63,738**	**67,065**	70,394	**95,349**	**58,189**
LEASE AND PLANT FUEL	2,837	2,837	2,837	2,837	2,741
PIPELINE FUEL	1,710	1,710	1,710	1,710	1,484
****TOTAL****	**68,285**	71,612	**74,942**	**99,897**	**62,414**

Note: Totals may not equal the sum of components due to rounding.

TABLE G-6

SUMMARY OF DEMAND REQUIREMENTS BY SECTOR AND PADD USED IN THE SCENARIO ANALYSIS DERIVED FROM THE 1992 A.G.A. FORECAST

1992
Natural Gas Consumption
(MMCF/Day)

PAD DISTRICT Sector Subtotal TOTAL	Annual	January				March
	Average Day	Average Day			Peak Day	Average Day
	Normal Weather	Normal Weather	10% Colder Weather	20% Colder Weather	Normal Weather	20% Colder Weather
PADD IA						
Residential	625	1,200	1,304	1,409	2,052	1,087
Commercial	176	302	325	348	516	277
Industrial	282	287	287	287	287	323
Electric Utility	567	47	47	47	47	178
Subtotal	1,649	1,836	1,963	2,091	2,902	1,865
Lease and Plant Fuel	0	0	0	0	0	0
Pipeline Fuel	3	3	3	3	3	3
TOTAL	1,652	1,839	1,966	2,094	2,905	1,868
PADD IB						
Residential	2,687	5,198	5,636	6,073	9,715	4,584
Commercial	1,014	1,820	1,962	2,103	3,402	1,623
Industrial	1,768	2,430	2,430	2,430	2,430	2,281
Electric Utility	1,693	800	800	800	800	1,208
Subtotal	7,162	10,248	10,828	11,406	16,346	9,696
Lease and Plant Fuel	0	0	0	0	0	0
Pipeline Fuel	89	89	89	89	89	89
TOTAL	7,252	10,337	10,917	11,495	16,435	9,785
PADD IC						
Residential	621	1,311	1,423	1,534	3,065	1,020
Commercial	351	631	677	723	1,475	512
Industrial	891	984	984	984	984	1,025
Electric Utility	53	15	15	15	15	13
Subtotal	1,916	2,941	3,099	3,256	5,538	2,570
Lease and Plant Fuel	53	53	53	53	53	53
Pipeline Fuel	62	62	62	62	62	62
TOTAL	2,032	3,056	3,214	3,371	5,653	2,685
PADD ID						
Residential	38	74	79	84	209	45
Commercial	88	112	115	119	316	92
Industrial	152	208	208	208	208	162
Electric Utility	956	720	720	720	720	857
Subtotal	1,234	1,114	1,122	1,131	1,451	1,156
Lease and Plant Fuel	46	46	46	46	46	46
Pipeline Fuel	7	7	7	7	7	7
TOTAL	1,287	1,167	1,175	1,184	1,505	1,209

Note: Totals may not equal the sum of components due to rounding.

TABLE G-6 (Continued)

1992
Natural Gas Consumption
(MMCF/Day)

PAD DISTRICT Sector Subtotal TOTAL	Annual	January				March
	Average Day	Average Day			Peak Day	Average Day
	Normal Weather	Normal Weather	10% Colder Weather	20% Colder Weather	Normal Weather	20% Colder Weather
PADD II						
Residential	4,974	10,347	11,262	12,176	18,972	8,539
Commercial	2,658	5,367	5,828	6,290	9,841	4,454
Industrial	3,718	5,617	5,617	5,617	5,617	4,639
Electric Utility	814	891	891	891	891	725
Subtotal	**12,163**	**22,222**	**23,598**	**24,974**	**35,320**	**18,357**
Lease and Plant Fuel	58	58	58	58	58	58
Pipeline Fuel	304	304	304	304	304	304
TOTAL	**12,524**	**22,584**	**23,960**	**25,336**	**35,682**	**18,719**
PADD IIIA						
Residential	895	1,904	2,055	2,206	3,788	1,287
Commercial	933	1,646	1,754	1,861	3,274	1,207
Industrial	6,158	7,123	7,123	7,123	7,123	6,158
Electric Utility	3,403	2,880	2,880	2,880	2,880	2,688
Subtotal	**11,389**	**13,553**	**13,812**	**14,070**	**17,065**	**11,340**
Lease and Plant Fuel	1,391	1,391	1,391	1,391	1,391	1,391
Pipeline Fuel	326	326	326	326	326	326
TOTAL	**13,106**	**15,270**	**15,529**	**15,787**	**18,782**	**13,057**
PADD IIIB						
Residential	600	1,279	1,388	1,497	2,169	963
Commercial	563	945	1,007	1,069	1,603	765
Industrial	1,777	2,342	2,342	2,342	2,342	1,867
Electric Utility	1,240	1,185	1,185	1,185	1,185	992
Subtotal	**4,180**	**5,751**	**5,922**	**6,093**	**7,299**	**4,587**
Lease and Plant Fuel	704	704	704	704	704	704
Pipeline Fuel	276	276	276	276	276	276
TOTAL	**5,160**	**6,731**	**6,902**	**7,073**	**8,279**	**5,567**
PADD IV						
Residential	463	850	925	1,001	1,635	772
Commercial	362	634	687	741	1,220	579
Industrial	628	822	822	822	822	668
Electric Utility	46	53	53	53	53	44
Subtotal	**1,498**	**2,359**	**2,487**	**2,617**	**3,729**	**2,063**
Lease and Plant Fuel	45	45	45	45	45	45
Pipeline Fuel	44	44	44	44	44	44
TOTAL	**1,586**	**2,448**	**2,576**	**2,706**	**3,818**	**2,152**
PADD V						
Residential	1,671	2,732	2,934	3,136	5,017	2,524
Commercial	848	1,209	1,279	1,348	2,220	1,137
Industrial	1,918	2,179	2,179	2,179	2,179	1,914
Electric Utility	1,889	1,662	1,662	1,662	1,662	1,460
Subtotal	**6,326**	**7,782**	**8,054**	**8,325**	**11,078**	**7,035**
Lease and Plant Fuel	173	173	173	173	173	173
Pipeline Fuel	84	84	84	84	84	84
TOTAL	**6,582**	**8,039**	**8,311**	**8,582**	**11,335**	**7,292**

Note: Totals may not equal the sum of components due to rounding.

TABLE G-6 (Continued)

1992
Natural Gas Consumption
(MMCF/Day)

PAD DISTRICT Sector Subtotal TOTAL	Annual	January			March
	Average Day	Average Day		Peak Day	Average Day
	Normal Weather	Normal Weather	10% Colder Weather	20% Colder Weather	Normal Weather	20% Colder Weather
LOWER-48 STATES						
RESIDENTIAL	12,573	24,895	27,006	29,116	46,621	20,821
COMMERCIAL	6,990	12,666	13,634	14,602	23,866	10,646
INDUSTRIAL	17,292	21,992	21,992	21,992	21,992	19,037
ELECTRIC UTILITY	10,661	8,253	8,253	8,253	8,253	8,165
SUBTOTAL	47,516	67,806	70,885	73,963	100,732	58,669
LEASE AND PLANT FUEL	2,469	2,469	2,469	2,469	2,469	2,469
PIPELINE FUEL	1,196	1,196	1,196	1,196	1,196	1,196
TOTAL	51,180	71,471	74,550	77,628	104,398	62,334

Note: Totals may not equal the sum of components due to rounding.

TABLE G-7

SUMMARY OF DEMAND REQUIREMENTS BY SECTOR AND PADD USED IN THE SCENARIO ANALYSIS DERIVED FROM THE 1992 DRI FORECAST

1992
Natural Gas Consumption
(MMCF/Day)

PAD DISTRICT Sector Subtotal TOTAL	Annual	January				March
	Average Day	Average Day			Peak Day	Average Day
	Normal Weather	Normal Weather	10% Colder Weather	20% Colder Weather	Normal Weather	20% Colder Weather
PADD IA						
Residential	489	938	1,020	1,101	1,553	850
Commercial	270	465	501	536	770	427
Industrial	161	164	164	164	164	185
Electric Utility	155	13	13	13	13	49
Subtotal	**1,076**	**1,580**	**1,698**	**1,814**	**2,500**	**1,511**
Lease and Plant Fuel	0	0	0	0	0	0
Pipeline Fuel	5	5	5	5	5	5
TOTAL	**1,081**	**1,585**	**1,703**	**1,819**	**2,504**	**1,515**
PADD IB						
Residential	2,324	4,496	4,875	5,253	7,989	3,965
Commercial	1,183	2,125	2,289	2,454	3,776	1,894
Industrial	1,146	1,575	1,575	1,575	1,575	1,478
Electric Utility	843	398	398	398	398	601
Subtotal	**5,496**	**8,594**	**9,137**	**9,680**	**13,738**	**7,938**
Lease and Plant Fuel	14	14	14	14	14	14
Pipeline Fuel	111	111	111	111	111	111
TOTAL	**5,621**	**8,719**	**9,262**	**9,805**	**13,863**	**8,063**
PADD IC						
Residential	641	1,357	1,467	1,583	3,111	1,052
Commercial	449	808	866	925	1,852	655
Industrial	903	997	997	997	997	1,038
Electric Utility	63	17	17	17	17	15
Subtotal	**2,055**	**3,179**	**3,347**	**3,522**	**5,977**	**2,760**
Lease and Plant Fuel	20	20	20	20	20	20
Pipeline Fuel	93	93	93	93	93	93
TOTAL	**2,168**	**3,292**	**3,460**	**3,635**	**6,090**	**2,873**
PADD ID						
Residential	39	76	81	86	207	47
Commercial	112	143	148	152	390	117
Industrial	154	211	211	211	211	165
Electric Utility	1,127	849	849	849	849	1,010
Subtotal	**1,433**	**1,279**	**1,289**	**1,298**	**1,657**	**1,339**
Lease and Plant Fuel	17	17	17	17	17	17
Pipeline Fuel	11	11	11	11	11	11
TOTAL	**1,461**	**1,307**	**1,317**	**1,326**	**1,686**	**1,367**

Note: Totals may not equal the sum of components due to rounding.

TABLE G-7 (Continued)

1992
Natural Gas Consumption
(MMCF/Day)

PAD DISTRICT Sector Subtotal TOTAL	Annual	January				March
	Average Day	Average Day			Peak Day	Average Day
	Normal Weather	Normal Weather	10% Colder Weather	20% Colder Weather	Normal Weather	20% Colder Weather
PADD II						
Residential	4,706	9,789	10,655	11,520	17,544	8,079
Commercial	2,572	5,194	5,641	6,088	9,309	4,311
Industrial	3,335	5,039	5,039	5,039	5,039	4,161
Electric Utility	110	121	121	121	121	98
Subtotal	**10,723**	**20,143**	**21,456**	**22,768**	**32,013**	**16,649**
Lease and Plant Fuel	74	74	74	74	74	74
Pipeline Fuel	249	249	249	249	249	249
TOTAL	**11,047**	**20,466**	**21,779**	**23,091**	**32,336**	**16,972**
PADD IIIA						
Residential	842	1,793	1,935	2,077	3,752	1,212
Commercial	616	1,087	1,158	1,229	2,275	797
Industrial	5,854	6,771	6,771	6,771	6,771	5,854
Electric Utility	2,912	2,465	2,465	2,465	2,465	2,300
Subtotal	**10,224**	**12,116**	**12,329**	**12,542**	**15,263**	**10,163**
Lease and Plant Fuel	1,182	1,182	1,182	1,182	1,182	1,182
Pipeline Fuel	386	386	386	386	386	386
TOTAL	**11,792**	**13,684**	**13,897**	**14,110**	**16,831**	**11,731**
PADD IIIB						
Residential	553	1,178	1,279	1,379	2,003	887
Commercial	429	721	768	816	1,226	584
Industrial	1,455	1,918	1,918	1,918	1,918	1,528
Electric Utility	947	905	905	905	905	758
Subtotal	**3,385**	**4,722**	**4,870**	**5,018**	**6,052**	**3,757**
Lease and Plant Fuel	728	728	728	728	728	728
Pipeline Fuel	333	333	333	333	333	333
TOTAL	**4,446**	**5,783**	**5,931**	**6,079**	**7,113**	**4,818**
PADD IV						
Residential	520	954	1,039	1,124	1,671	867
Commercial	337	591	641	691	1,035	540
Industrial	219	287	287	287	287	233
Electric Utility	27	31	31	31	31	26
Subtotal	**1,103**	**1,863**	**1,998**	**2,133**	**3,024**	**1,666**
Lease and Plant Fuel	157	157	157	157	157	157
Pipeline Fuel	53	53	53	53	53	53
TOTAL	**1,313**	**2,072**	**2,208**	**2,343**	**3,233**	**1,876**
PADD V						
Residential	1,632	2,668	2,865	3,063	4,797	2,464
Commercial	916	1,307	1,382	1,457	2,350	1,229
Industrial	1,375	1,562	1,562	1,562	1,562	1,373
Electric Utility	2,332	2,051	2,051	2,051	2,051	1,802
Subtotal	**6,255**	**7,588**	**7,860**	**8,133**	**10,760**	**6,868**
Lease and Plant Fuel	54	54	54	54	54	54
Pipeline Fuel	93	93	93	93	93	93
TOTAL	**6,401**	**7,735**	**8,007**	**8,280**	**10,906**	**7,015**

Note: Totals may not equal the sum of components due to rounding.

TABLE G-7 (Continued)

1992
Natural Gas Consumption
(MMCF/Day)

PAD DISTRICT Sector Subtotal TOTAL	Annual	January				March
	Average Day	Average Day			Peak Day	Average Day
	Normal Weather	Normal Weather	10% Colder Weather	20% Colder Weather	Normal Weather	20% Colder Weather
LOWER-48 STATES						
RESIDENTIAL	11,745	23,249	25,216	27,186	42,627	19,423
COMMERCIAL	6,885	12,441	13,394	14,348	22,983	10,554
INDUSTRIAL	14,602	18,524	18,524	18,524	18,524	16,015
ELECTRIC UTILITY	8,517	6,850	6,850	6,850	6,850	6,659
SUBTOTAL	41,750	61,064	63,984	66,908	90,984	52,651
LEASE AND PLANT FUEL	2,246	2,246	2,246	2,246	2,246	2,246
PIPELINE FUEL	1,334	1,334	1,334	1,334	1,334	1,334
TOTAL	45,330	64,644	67,564	70,488	94,564	56,231

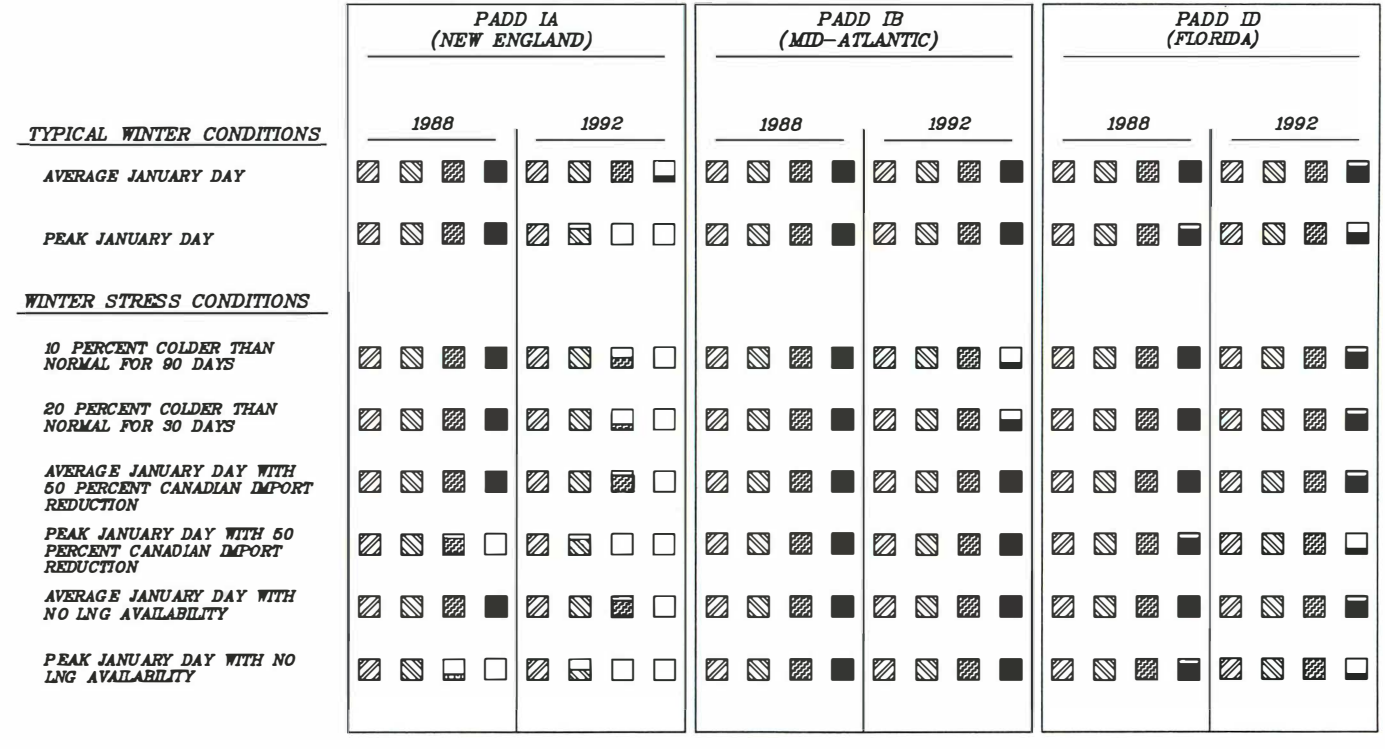
Note: Totals may not equal the sum of components due to rounding.

APPENDIX H

MODELING RESULTS

- **Graphical Summaries of Stress Scenarios**
- **Interpretation of Modeling Output**
- **Modeling Output**

Figure H-1. Potential PADD Level Capacity Needs Under Typical Winter and Stress Conditions[1] Comparison of January 1988 and January 1992 High Demand and High Supply Projections.[2]



LEGEND: [3]

- RESIDENTIAL SECTOR
- COMMERCIAL SECTOR
- INDUSTRIAL SECTOR
- ELECTRIC SECTOR

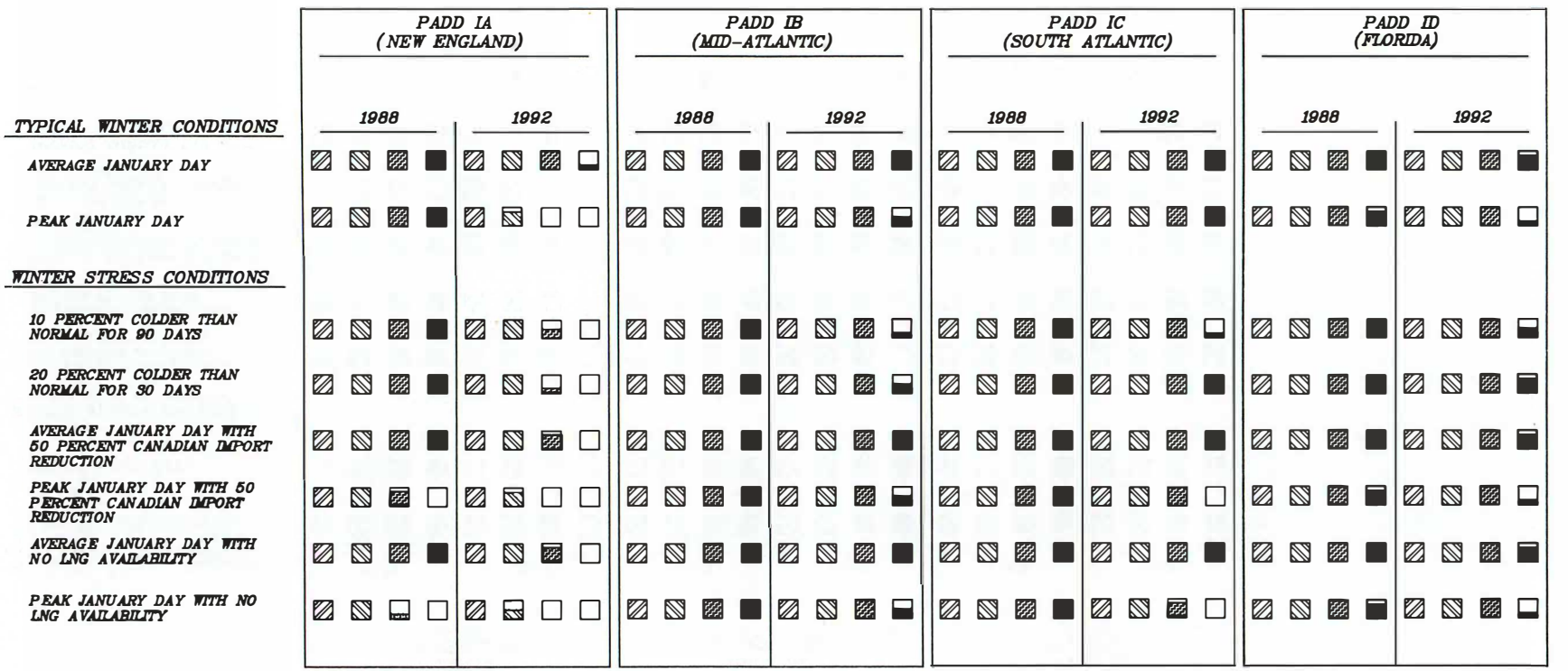
NOTES:

(1) Adequate capacity and supply are available to serve projected demand in all other PADD's.

(2) January demand projections derived from A.G.A. forcast. Annual lower-48 production equals 17 TCF.

(3) Unshaded area shows the amount of demand served with new facilities.

Figure H-2. Potential PADD Level Capacity Needs and Additional Supply Requirements Under Typical Winter and Stress Conditions[1]
Comparison of January 1988 and January 1992 High Demand and Low Supply Projections.[2]



LEGEND:[3]

- RESIDENTIAL SECTOR
- COMMERCIAL SECTOR
- INDUSTRIAL SECTOR
- ELECTRIC SECTOR

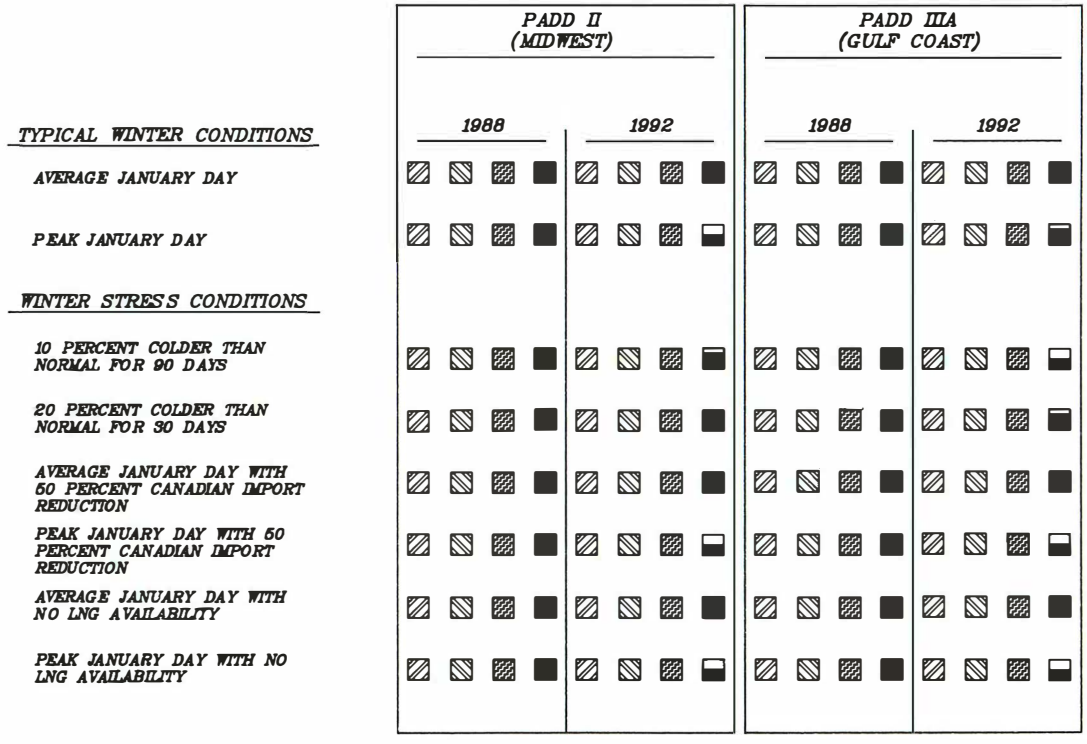
NOTES:

(1) Adequate capacity and supply are available to serve projected demand in all other PADD's.

(2) January 1992 demand projections derived from A.G.A. forecast. Annual lower-48 production equals 15 TCF.

(3) Unshaded area shows the amount of demand served with new facilities.

Figure H-2 (Continued)



LEGEND: (3)

- RESIDENTIAL SECTOR
- COMMERCIAL SECTOR
- INDUSTRIAL SECTOR
- ELECTRIC SECTOR

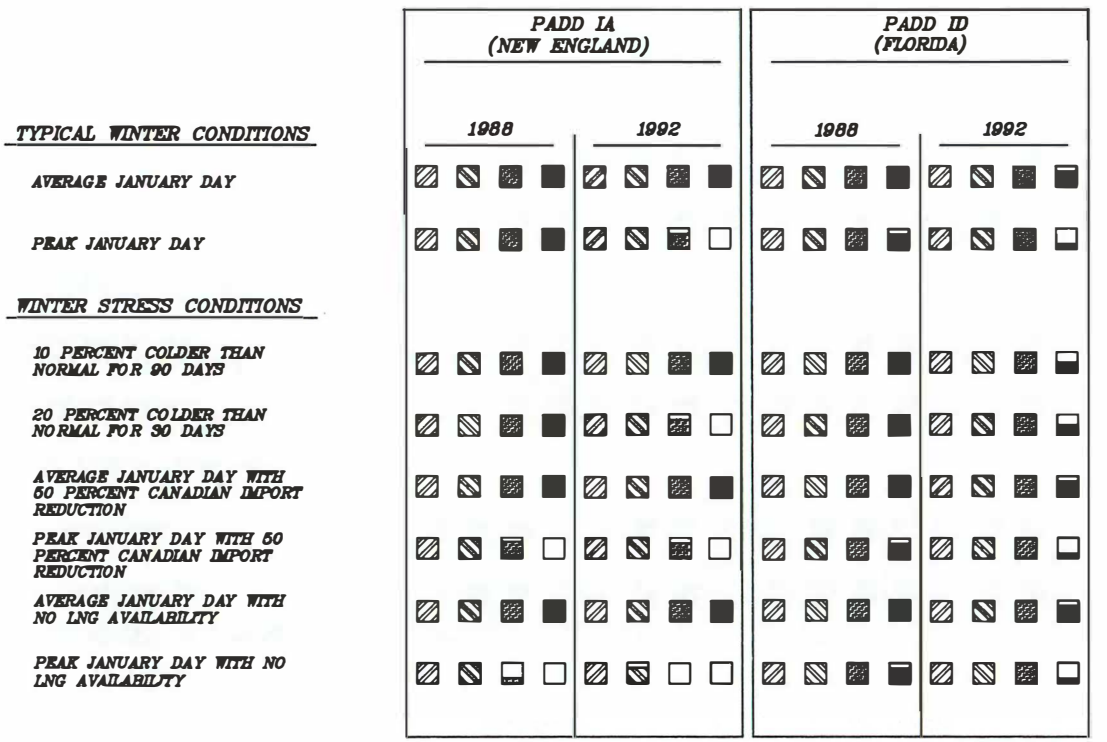
NOTES:

(1) Adequate capacity and supply are available to serve projected demand in all other PADDs.

(2) January 1992 demand projections derived from A.G.A. forecast. Annual lower-48 production equals 15 TCF.

(3) Unshaded area shows the amount of demand served with new facilities.

Figure H-3. Potential PADD Level Capacity Needs Under Typical Winter and Stress Conditions[1] Comparison of January 1988 and January 1992 Low Demand and High Supply Projections.[2]



LEGEND: [3]

- RESIDENTIAL SECTOR
- COMMERCIAL SECTOR
- INDUSTRIAL SECTOR
- ELECTRIC SECTOR

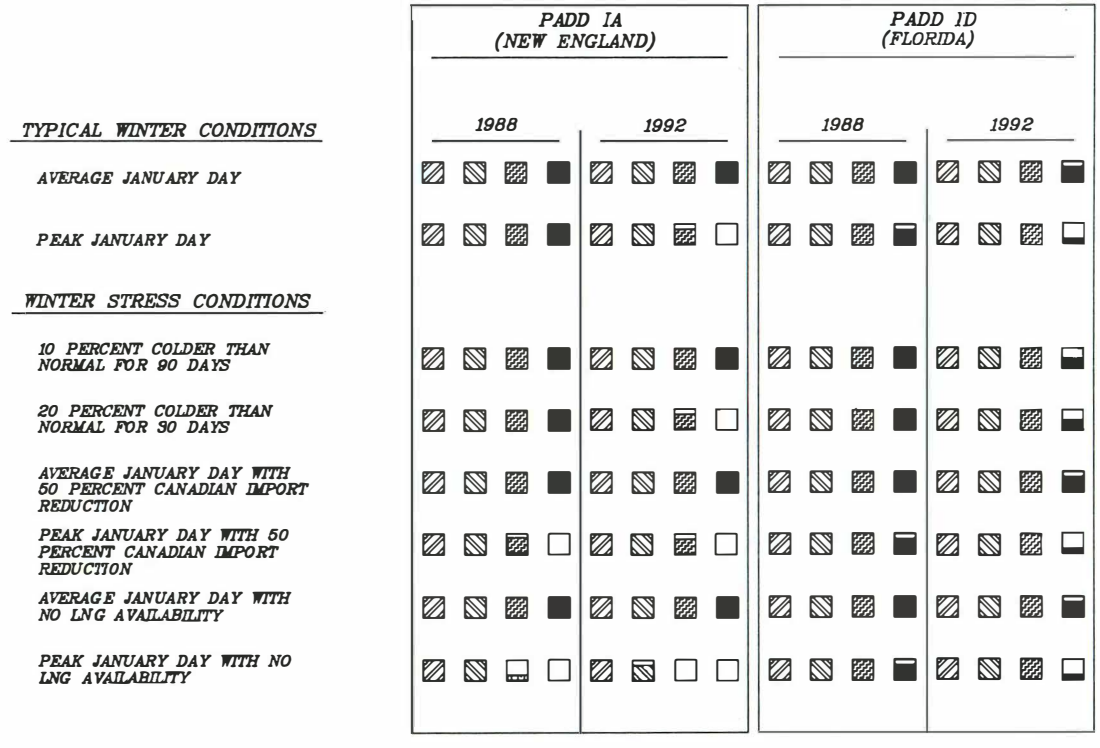
NOTES:

(1) Adequate capacity and supply are available to serve projected demand in all other PADD's.

(2) January 1992 demand projections derived from DRI forecast. Annual lower-48 production equals 17 TCF.

(3) Unshaded area shows the amount of demand served with new facilities.

Figure H-4. Potential PADD Level Capacity Needs Under Typical Winter and Stress Conditions [1] Comparison of January 1988 and January 1992 Low Demand and High Supply Projections. [2]



LEGEND: [3]

- RESIDENTIAL SECTOR
- COMMERCIAL SECTOR
- INDUSTRIAL SECTOR
- ELECTRIC SECTOR

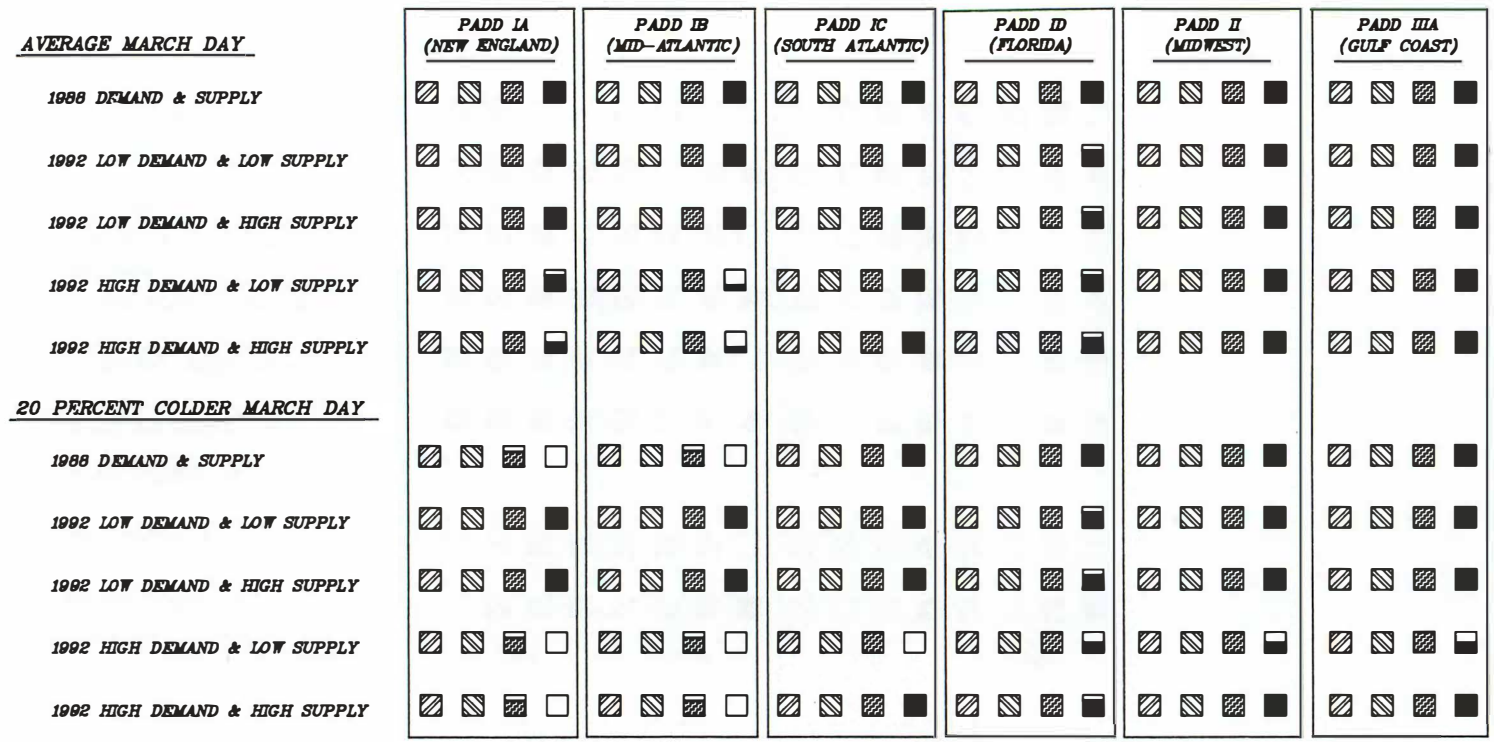
NOTES:

(1) Adequate capacity and supply are available to serve projected demand in all other PADD's.

(2) January 1992 demand projections derived from DRI forecast. Annual lower-48 production equals 15 TCF.

(3) Unshaded area shows the amount of demand served with new facilities.

Figure H-5. Potential PADD Level Capacity Needs and Additional Supply Requirements Under Typical March and Colder than Normal Conditions with Reduced Storage and Deliverability.[1] Comparison of March 1988 and March 1992 Demand and Supply Projections.[2]



LEGEND: [3]

- RESIDENTIAL SECTOR
- COMMERCIAL SECTOR
- INDUSTRIAL SECTOR
- ELECTRIC SECTOR

NOTES:

(1) March storage deliverability is estimated to be 20 percent of winter design day deliverability. Adequate supply is available to serve projected demand in all other PADDs.

(2) Low Demand = March projections derived from DRI forecast
High Demand = March projections derived from A.G.A. forecast
Low Supply = Annual Lower-48 production equal to 15 TCF
High Supply = Annual Lower-48 production equal to 17 TCF

(3) Unshaded area shows the potential short-term supply shortfall which may occur during a late season cold snap. For PADD ID, unshaded area generally shows the amount of demand served with new facilities.

TABLE H-1

INTERPRETATION OF MODELING OUTPUT
(Volumes in MMCF/D)

Section	Heading	Definition
Demand	Used	Volume served
	Available	Total projected demand
	Ratio	If equal to 1.0, demand fully served If less than 1.0, new facilities required
Supply	Used	Volume produced
	Available	Maximum volume available
	Ratio	If equal to 1.0, local supply fully produced If less than 1.0, local supply not fully produced
Pipeline Flow In/Out	Used	Flow required to meet requirements
	Available	Maximum capacity available
	Ratio	If equal to 1.0, pipeline capacity fully utilized

National Petroleum Council - Inter-PADD Flow Analysis

CASE 1 - JAN AVG DAY 1988

16:21 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	918	918	1.00	5008	5008	1.00	1550	1550	1.00	71	71	1.00	11440	11440	1.00	2207	2207	1.00	1569	1569	1.00	993	993	1.00	3562	3562	1.00	27317	27318	1.00
Commercial	431	431	1.00	2197	2197	1.00	846	846	1.00	130	130	1.00	5462	5462	1.00	1256	1256	1.00	859	859	1.00	655	655	1.00	1478	1478	1.00	13313	13314	1.00
Industrial	158	158	1.00	1443	1443	1.00	805	805	1.00	286	286	1.00	4760	4760	1.00	6582	6582	1.00	1928	1928	1.00	367	367	1.00	1446	1446	1.00	17775	17775	1.00
Electric	5	5	1.00	230	230	1.00	2	2	1.00	350	350	1.00	58	58	1.00	2906	2906	1.00	761	761	1.00	84	84	1.00	935	935	1.00	5331	5331	1.00
Fuel	41	41	1.00	264	264	1.00	111	111	1.00	25	25	1.00	653	653	1.00	2049	2049	1.00	959	959	1.00	176	176	1.00	269	269	1.00	4546	4547	1.00
Total Demand	1553	1553	1.00	9141	9142	1.00	3313	3314	1.00	862	862	1.00	22372	22373	1.00	14999	15000	1.00	6075	6076	1.00	2274	2275	1.00	7689	7690	1.00	68283	68285	1.00
SUPPLIES																														
Production	0	0	.00	581	581	1.00	387	387	1.00	0	0	.00	1452	1452	1.00	28226	28226	1.00	15129	15129	1.00	2548	2548	1.00	1097	1097	1.00	49419	49419	1.00
Imports	50	50	1.00	142	142	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	1028	1110	.93	2470	2470	1.00	4509	4592	.98
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	136	137	1.00
Storage	0	0	.00	4822	4823	1.00	126	1642	.08	0	0	.00	1537	11699	.13	4667	4667	1.00	3064	3538	.87	0	1016	.00	0	4029	.00	14217	31413	.45
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	186	187	1.00	5544	5545	1.00	513	2028	.25	0	0	.00	3809	13971	.27	32892	32892	1.00	18193	18667	.97	3576	4674	.77	3566	7595	.47	68283	85562	.80
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1366	1615	.85	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1366	1615	.85
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	2350	4579	.51	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3118	6498	.48
From IIIA	0	0	.00	0	0	.00	4645	4645	1.00	862	959	.90	14451	15580	.93	0	0	.00	0	0	.00	0	0	.00	0	0	.00	19958	21184	.94
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4184	4427	.95	12117	12383	.98
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1366	1615	.85	4962	7191	.69	5413	6564	.82	862	959	.90	21680	22809	.95	2066	2066	1.00	0	0	.00	190	475	.40	4298	4541	.95			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1366	1615	.85	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1366	1615	.85
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	2350	4579	.51	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4962	7191	.69
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	4645	4645	1.00	0	0	.00	0	0	.00	0	0	.00	5413	6564	.82
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	862	959	.90	0	0	.00	0	0	.00	0	0	.00	862	959	.90
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14451	15580	.93	5852	5852	1.00	1377	1377	1.00	0	0	.00	21680	22809	.95
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4184	4427	.95	114	114	1.00	0	0	.00	4298	4541	.95
Total PL Out	0	0	.00	1366	1615	.85	2612	2612	1.00	0	0	.00	3118	6498	.48	19958	21184	.94	12117	12383	.98	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 2 - JAN PK DAY 1988 16:22 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1531	1531	1.00	8757	8757	1.00	3372	3372	1.00	159	159	1.00	20223	20223	1.00	4406	4406	1.00	2472	2472	1.00	1761	1761	1.00	5790	5790	1.00	48469	48471	1.00
Commercial	719	719	1.00	3842	3842	1.00	1841	1841	1.00	292	292	1.00	9655	9655	1.00	2507	2507	1.00	1353	1353	1.00	1161	1161	1.00	2403	2403	1.00	23769	23772	1.00
Industrial	158	158	1.00	1443	1443	1.00	805	805	1.00	286	286	1.00	4760	4760	1.00	6582	6582	1.00	1928	1928	1.00	367	367	1.00	1446	1446	1.00	17774	17775	1.00
Electric	5	5	1.00	230	230	1.00	2	2	1.00	248	350	.71	58	58	1.00	2905	2906	1.00	761	761	1.00	83	84	.99	935	935	1.00	5229	5331	.98
Fuel	41	41	1.00	264	264	1.00	111	111	1.00	25	25	1.00	653	653	1.00	2049	2049	1.00	959	959	1.00	176	176	1.00	269	269	1.00	4546	4547	1.00
Total Demand	2453	2453	1.00	14535	14535	1.00	6130	6130	1.00	1010	1112	.91	35346	35349	1.00	18449	18450	1.00	7473	7473	1.00	3548	3549	1.00	10842	10842	1.00	99790	99897	1.00
SUPPLIES																														
Production	0	0	.00	523	523	1.00	348	348	1.00	0	0	.00	1306	1306	1.00	25403	25403	1.00	13616	13616	1.00	2294	2294	1.00	987	987	1.00	44477	44477	1.00
Imports	50	50	1.00	142	142	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	1110	1110	1.00	2470	2470	1.00	4591	4592	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	137	137	1.00
Storage	0	0	.00	8038	8038	1.00	2736	2736	1.00	0	0	.00	19499	19499	1.00	7778	7778	1.00	5897	5897	1.00	675	1693	.40	3785	6715	.56	48404	52356	.92
Peak Shaving	573	573	1.00	1607	2249	.71	0	1390	.00	0	0	.00	0	2224	.00	0	383	.00	0	0	.00	0	109	.00	0	850	.00	2179	7778	.28
Total Supply	759	760	1.00	10308	10951	.94	3084	4474	.69	0	0	.00	21622	23849	.91	33181	33564	.99	19512	19513	1.00	4079	5205	.78	7242	11022	.66	99790	109340	.91
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1694	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1694	1700	1.00
From IC	0	0	.00	1100	2750	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1100	2750	.40
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4820	4820	1.00	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5628	6840	.82
From IIIA	0	0	.00	0	0	.00	3339	4890	.68	1010	1010	1.00	12558	16400	.77	0	0	.00	0	0	.00	0	0	.00	0	0	.00	16907	22300	.76
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	40	40	1.00	3665	4660	.79	12040	13035	.92
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	634	1450	.44	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	754	1570	.48
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1694	1700	1.00	5920	7570	.78	4147	6910	.60	1010	1010	1.00	19352	24010	.81	2175	2175	1.00	0	0	.00	224	500	.45	3785	4780	.79			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1694	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1694	1700	1.00
To IB	0	0	.00	0	0	.00	1100	2750	.40	0	0	.00	4820	4820	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5920	7570	.78
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	3339	4890	.68	0	0	.00	0	0	.00	0	0	.00	4147	6910	.60
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	12558	16400	.77	6160	6160	1.00	634	1450	.44	0	0	.00	19352	24010	.81
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	40	40	1.00	0	0	.00	184	460	.40	224	500	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3665	4660	.79	120	120	1.00	0	0	.00	3785	4780	.79
Total PL Out	0	0	.00	1694	1700	1.00	1100	2750	.40	0	0	.00	5628	6840	.82	16907	22300	.76	12040	13035	.92	754	1570	.48	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 3 - JAN AVG DAY 1988 - 20% COLDER THAN NORMAL

16:27 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1078	1078	1.00	5851	5851	1.00	1815	1815	1.00	81	81	1.00	13463	13463	1.00	2557	2557	1.00	1836	1836	1.00	1170	1170	1.00	4089	4089	1.00	31938	31939	1.00
Commercial	497	497	1.00	2539	2539	1.00	969	969	1.00	138	138	1.00	6401	6401	1.00	1420	1420	1.00	972	972	1.00	765	765	1.00	1649	1649	1.00	15349	15349	1.00
Industrial	158	158	1.00	1443	1443	1.00	805	805	1.00	286	286	1.00	4760	4760	1.00	6582	6582	1.00	1928	1928	1.00	367	367	1.00	1446	1446	1.00	17775	17775	1.00
Electric	5	5	1.00	230	230	1.00	2	2	1.00	350	350	1.00	58	58	1.00	2906	2906	1.00	761	761	1.00	84	84	1.00	933	935	1.00	5331	5331	1.00
Fuel	41	41	1.00	264	264	1.00	111	111	1.00	25	25	1.00	653	653	1.00	2049	2049	1.00	959	959	1.00	176	176	1.00	269	269	1.00	4546	4547	1.00
Total Demand	1778	1778	1.00	10326	10327	1.00	3701	3701	1.00	879	879	1.00	25334	25335	1.00	15513	15514	1.00	6455	6456	1.00	2562	2562	1.00	8386	8387	1.00	74940	74942	1.00
SUPPLIES																														
Production	0	0	.00	581	581	1.00	387	387	1.00	0	0	.00	1452	1452	1.00	28226	28226	1.00	15129	15129	1.00	2548	2548	1.00	1097	1097	1.00	49419	49419	1.00
Imports	50	50	1.00	142	142	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	1110	1110	1.00	2470	2470	1.00	4591	4592	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	137	137	1.00
Storage	0	0	.00	4823	4823	1.00	1505	1642	.92	0	0	.00	5800	11699	.50	4667	4667	1.00	3537	3538	1.00	0	1016	.00	460	4029	.11	20792	31413	.66
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	5545	5545	1.00	1892	2028	.93	0	0	.00	8071	13971	.58	32892	32892	1.00	18666	18667	1.00	3658	4674	.78	4026	7595	.53	74940	85562	.88
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1591	1615	.99	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1591	1615	.99
From IC	0	0	.00	1794	2612	.69	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1794	2612	.69
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	2836	4645	.61	880	959	.92	15580	15580	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	19296	21184	.91
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	1917	2066	.93	0	0	.00	15	38	.39	4427	4427	1.00	12211	12383	.99
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1178	1377	.86	0	0	.00	0	0	.00	0	0	.00	108	114	.95	1286	1491	.86
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1591	1615	.99	6373	7191	.89	3604	6564	.55	880	959	.92	22610	22809	.99	1917	2066	.93	0	0	.00	190	475	.40	4535	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1591	1615	.99	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1591	1615	.99
To IB	0	0	.00	0	0	.00	1794	2612	.69	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6373	7191	.89
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2836	4645	.61	0	0	.00	0	0	.00	0	0	.00	3604	6564	.55
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	880	959	.92	0	0	.00	0	0	.00	0	0	.00	880	959	.92
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15580	15580	1.00	5852	5852	1.00	1178	1377	.86	0	0	.00	22610	22809	.99
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1917	2066	.93	0	0	.00	0	0	.00	1917	2066	.93
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	108	114	.95	0	0	.00	4535	4541	1.00
Total PL Out	0	0	.00	1591	1615	.99	1794	2612	.69	0	0	.00	5347	6498	.82	19296	21184	.91	12211	12383	.99	1286	1491	.86	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 4 - JAN AVG DAY 1988 - 10% COLDER THAN NORMAL 16:30 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	998	998	1.00	5430	5430	1.00	1682	1682	1.00	76	76	1.00	12451	12451	1.00	2382	2382	1.00	1703	1703	1.00	1082	1082	1.00	3825	3825	1.00	29627	29628	1.00
Commercial	464	464	1.00	2367	2367	1.00	907	907	1.00	134	134	1.00	5931	5931	1.00	1338	1338	1.00	915	915	1.00	710	710	1.00	1563	1563	1.00	14330	14331	1.00
Industrial	158	158	1.00	1443	1443	1.00	805	805	1.00	286	286	1.00	4760	4760	1.00	6582	6582	1.00	1928	1928	1.00	367	367	1.00	1446	1446	1.00	17775	17775	1.00
Electric	5	5	1.00	229	230	1.00	2	2	1.00	350	350	1.00	58	58	1.00	2906	2906	1.00	761	761	1.00	84	84	1.00	935	935	1.00	5330	5331	1.00
Fuel	41	41	1.00	264	264	1.00	111	111	1.00	25	25	1.00	653	653	1.00	2049	2049	1.00	959	959	1.00	176	176	1.00	269	269	1.00	4546	4547	1.00
Total Demand	1665	1665	1.00	9733	9734	1.00	3507	3507	1.00	870	870	1.00	23853	23853	1.00	15256	15257	1.00	6265	6266	1.00	2418	2418	1.00	8038	8038	1.00	71610	71612	1.00
SUPPLIES																														
Production	0	0	.00	581	581	1.00	387	387	1.00	0	0	.00	1452	1452	1.00	28226	28226	1.00	15129	15129	1.00	2548	2548	1.00	1097	1097	1.00	49419	49419	1.00
Imports	50	50	1.00	142	142	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	1110	1110	1.00	2470	2470	1.00	4591	4592	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	137	137	1.00
Storage	0	0	.00	4019	4019	1.00	1367	1368	1.00	0	0	.00	5134	9749	.53	3889	3889	1.00	2948	2948	1.00	0	846	.00	106	3357	.03	17462	26178	.67
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	4741	4741	1.00	1754	1755	1.00	0	0	.00	7405	12021	.62	32114	32114	1.00	18077	18077	1.00	3658	4504	.81	3672	6924	.53	71610	80326	.89
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1479	1615	.92	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1479	1615	.92
From IC	0	0	.00	1892	2612	.72	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1892	2612	.72
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4578	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5346	6498	.82
From IIIA	0	0	.00	0	0	.00	2878	4645	.62	871	959	.91	14627	15580	.94	0	0	.00	0	0	.00	0	0	.00	0	0	.00	18376	21184	.87
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	1518	2066	.73	0	0	.00	15	38	.39	4427	4427	1.00	11812	12383	.95
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1316	1377	.96	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1430	1491	.96
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1479	1615	.92	6470	7191	.90	3646	6564	.56	871	959	.91	21795	22809	.96	1518	2066	.73	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1479	1615	.92	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1479	1615	.92
To IB	0	0	.00	0	0	.00	1892	2612	.72	0	0	.00	4578	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6470	7191	.90
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2878	4645	.62	0	0	.00	0	0	.00	0	0	.00	3646	6564	.56
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	871	959	.91	0	0	.00	0	0	.00	0	0	.00	871	959	.91
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14627	15580	.94	5852	5852	1.00	1316	1377	.96	0	0	.00	21795	22809	.96
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1518	2066	.73	0	0	.00	0	0	.00	1518	2066	.73
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1479	1615	.92	1892	2612	.72	0	0	.00	5346	6498	.82	18376	21184	.87	11812	12383	.95	1430	1491	.96	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 5 - JAN AVG DAY 1988 - NO LNG

16:32 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 10			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	918	918	1.00	5008	5008	1.00	1550	1550	1.00	71	71	1.00	11440	11440	1.00	2207	2207	1.00	1569	1569	1.00	993	993	1.00	3562	3562	1.00	27317	27318	1.00
Commercial	431	431	1.00	2197	2197	1.00	846	846	1.00	130	130	1.00	5462	5462	1.00	1256	1256	1.00	859	859	1.00	655	655	1.00	1478	1478	1.00	13313	13314	1.00
Industrial	158	158	1.00	1443	1443	1.00	805	805	1.00	286	286	1.00	4760	4760	1.00	6582	6582	1.00	1928	1928	1.00	367	367	1.00	1446	1446	1.00	17775	17775	1.00
Electric	5	5	1.00	230	230	1.00	2	2	1.00	350	350	1.00	58	58	1.00	2906	2906	1.00	761	761	1.00	84	84	1.00	935	935	1.00	5331	5331	1.00
Fuel	41	41	1.00	264	264	1.00	111	111	1.00	25	25	1.00	653	653	1.00	2049	2049	1.00	959	959	1.00	176	176	1.00	269	269	1.00	4546	4547	1.00
Total Demand	1553	1553	1.00	9141	9142	1.00	3313	3314	1.00	862	862	1.00	22372	22373	1.00	14999	15000	1.00	6075	6076	1.00	2274	2275	1.00	7689	7690	1.00	68283	68285	1.00
SUPPLIES																														
Production	0	0	.00	581	581	1.00	387	387	1.00	0	0	.00	1452	1452	1.00	28226	28226	1.00	15129	15129	1.00	2548	2548	1.00	1097	1097	1.00	49419	49419	1.00
Imports	50	50	1.00	142	142	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	1028	1110	.93	2470	2470	1.00	4509	4592	.98
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	4822	4823	1.00	126	1642	.08	0	0	.00	1674	11699	.14	4667	4667	1.00	3064	3538	.87	0	1016	.00	0	4029	.00	14354	31413	.46
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	49	50	1.00	5544	5545	1.00	513	2028	.25	0	0	.00	3946	13971	.28	32892	32892	1.00	18193	18667	.97	3576	4674	.77	3566	7595	.47	68283	85425	.80
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1503	1615	.93	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1503	1615	.93
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	2487	4579	.54	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3255	6498	.50
From IIIA	0	0	.00	0	0	.00	4645	4645	1.00	862	959	.90	14451	15580	.93	0	0	.00	0	0	.00	0	0	.00	0	0	.00	19958	21184	.94
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4184	4427	.95	12117	12383	.98
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1503	1615	.93	5099	7191	.71	5413	6564	.82	862	959	.90	21680	22809	.95	2066	2066	1.00	0	0	.00	190	475	.40	4298	4541	.95			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1503	1615	.93	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1503	1615	.93
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	2487	4579	.54	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5099	7191	.71
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	4645	4645	1.00	0	0	.00	0	0	.00	0	0	.00	5413	6564	.82
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	862	959	.90	0	0	.00	0	0	.00	0	0	.00	862	959	.90
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14451	15580	.93	5852	5852	1.00	1377	1377	1.00	0	0	.00	21680	22809	.95
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4184	4427	.95	114	114	1.00	0	0	.00	4298	4541	.95
Total PL Out	0	0	.00	1503	1615	.93	2612	2612	1.00	0	0	.00	3255	6498	.50	19958	21184	.94	12117	12383	.98	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 6 - JAN PK DAY 1988 - NO LNG

16:34 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 10			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1531	1531	1.00	8757	8757	1.00	3372	3372	1.00	159	159	1.00	20223	20223	1.00	4406	4406	1.00	2472	2472	1.00	1761	1761	1.00	5790	5790	1.00	48469	48471	1.00
Commercial	719	719	1.00	3842	3842	1.00	1841	1841	1.00	292	292	1.00	9655	9655	1.00	2507	2507	1.00	1353	1353	1.00	1161	1161	1.00	2403	2403	1.00	23764	23772	1.00
Industrial	32	158	.20	1443	1443	1.00	805	805	1.00	286	286	1.00	4760	4760	1.00	6582	6582	1.00	1928	1928	1.00	367	367	1.00	1446	1446	1.00	17650	17775	.99
Electric	0	5	.00	230	230	1.00	2	2	1.00	248	350	.71	57	58	.98	2905	2906	1.00	761	761	1.00	84	84	1.00	935	935	1.00	5228	5331	.98
Fuel	41	41	1.00	264	264	1.00	111	111	1.00	25	25	1.00	653	653	1.00	2049	2049	1.00	959	959	1.00	176	176	1.00	269	269	1.00	4546	4547	1.00
Total Demand	2322	2453	.95	14535	14535	1.00	6130	6130	1.00	1010	1112	.91	35345	35349	1.00	18449	18450	1.00	7473	7473	1.00	3548	3549	1.00	10842	10842	1.00	99659	99897	1.00
SUPPLIES																														
Production	0	0	.00	523	523	1.00	348	348	1.00	0	0	.00	1306	1306	1.00	25403	25403	1.00	13616	13616	1.00	2294	2294	1.00	987	987	1.00	44477	44477	1.00
Imports	50	50	1.00	142	142	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	1110	1110	1.00	2470	2470	1.00	4591	4592	1.00
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	8038	8038	1.00	2736	2736	1.00	0	0	.00	19499	19499	1.00	7778	7778	1.00	5897	5897	1.00	1479	1693	.87	3762	6715	.56	49185	52356	.94
Peak Shaving	573	573	1.00	832	2249	.37	0	1390	.00	0	0	.00	0	2224	.00	0	383	.00	0	0	.00	0	109	.00	0	850	.00	1404	7778	.18
Total Supply	622	623	1.00	9534	10951	.87	3084	4474	.69	0	0	.00	21621	23849	.91	33181	33564	.99	19512	19513	1.00	4882	5205	.94	7219	11022	.65	99659	109203	.91
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	2585	2750	.94	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2585	2750	.94
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4116	4820	.85	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4924	6840	.72
From IIIA	0	0	.00	0	0	.00	4824	4890	.99	1010	1010	1.00	11073	16400	.68	0	0	.00	0	0	.00	0	0	.00	0	0	.00	16907	22300	.76
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	17	40	.43	3688	4660	.79	12040	13035	.92
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1415	1450	.98	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1535	1570	.98
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	6701	7570	.89	5632	6910	.82	1010	1010	1.00	18648	24010	.78	2175	2175	1.00	0	0	.00	201	500	.40	3808	4780	.80			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	2585	2750	.94	0	0	.00	4116	4820	.85	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6701	7570	.89
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	4824	4890	.99	0	0	.00	0	0	.00	0	0	.00	5632	6910	.82
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	11073	16400	.68	6160	6160	1.00	1415	1450	.98	0	0	.00	18648	24010	.78
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	17	40	.43	0	0	.00	184	460	.40	201	500	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3688	4660	.79	120	120	1.00	0	0	.00	3808	4780	.80
Total PL Out	0	0	.00	1700	1700	1.00	2585	2750	.94	0	0	.00	4924	6840	.72	16907	22300	.76	12040	13035	.92	1535	1570	.98	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 7 - JAN AVG DAY 1988 - 20% COLDER THAN NORMAL
- NO LNG

16:40 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1078	1078	1.00	5851	5851	1.00	1815	1815	1.00	81	81	1.00	13463	13463	1.00	2557	2557	1.00	1836	1836	1.00	1170	1170	1.00	4089	4089	1.00	31938	31939	1.00
Commercial	497	497	1.00	2539	2539	1.00	969	969	1.00	138	138	1.00	6401	6401	1.00	1420	1420	1.00	972	972	1.00	765	765	1.00	1649	1649	1.00	15345	15349	1.00
Industrial	49	158	.31	1443	1443	1.00	805	805	1.00	286	286	1.00	4760	4760	1.00	6582	6582	1.00	1928	1928	1.00	367	367	1.00	1446	1446	1.00	17669	17775	.99
Electric	0	5	.00	230	230	1.00	2	2	1.00	350	350	1.00	58	58	1.00	2906	2906	1.00	761	761	1.00	84	84	1.00	933	935	1.00	5326	5331	1.00
Fuel	41	41	1.00	264	264	1.00	111	111	1.00	25	25	1.00	653	653	1.00	2049	2049	1.00	959	959	1.00	176	176	1.00	269	269	1.00	4546	4547	1.00
Total Demand	1664	1778	.94	10326	10327	1.00	3701	3701	1.00	879	879	1.00	25334	25335	1.00	15513	15514	1.00	6455	6456	1.00	2562	2562	1.00	8386	8387	1.00	74826	74942	1.00
SUPPLIES																														
Production	0	0	.00	581	581	1.00	387	387	1.00	0	0	.00	1452	1452	1.00	28226	28226	1.00	15129	15129	1.00	2548	2548	1.00	1097	1097	1.00	49419	49419	1.00
Imports	50	50	1.00	142	142	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	1110	1110	1.00	2470	2470	1.00	4591	4592	1.00
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	4823	4823	1.00	1498	1642	.91	0	0	.00	5830	11699	.50	4667	4667	1.00	3538	3538	1.00	0	1016	.00	460	4029	.11	20815	31413	.66
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	50	50	1.00	5545	5545	1.00	1885	2028	.93	0	0	.00	8102	13971	.58	32892	32892	1.00	18666	18667	1.00	3658	4674	.78	4026	7595	.53	74826	85425	.88
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	1842	2612	.71	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1842	2612	.71
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4555	4579	.99	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5323	6498	.82
From IIIA	0	0	.00	0	0	.00	2890	4645	.62	880	959	.92	15525	15580	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	19295	21184	.91
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	1916	2066	.93	0	0	.00	16	38	.42	4427	4427	1.00	12211	12383	.99
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1178	1377	.86	0	0	.00	0	0	.00	0	0	.00	108	114	.95	1286	1491	.86
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	6397	7191	.89	3658	6564	.56	880	959	.92	22555	22809	.99	1916	2066	.93	0	0	.00	191	475	.40	4535	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	1842	2612	.71	0	0	.00	4555	4579	.99	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6397	7191	.89
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2890	4645	.62	0	0	.00	0	0	.00	0	0	.00	3658	6564	.56
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	880	959	.92	0	0	.00	0	0	.00	0	0	.00	880	959	.92
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15525	15580	1.00	5852	5852	1.00	1178	1377	.86	0	0	.00	22555	22809	.99
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1916	2066	.93	0	0	.00	0	0	.00	1916	2066	.93
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	16	38	.42	0	0	.00	175	437	.40	191	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	108	114	.95	0	0	.00	4535	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	1842	2612	.71	0	0	.00	5323	6498	.82	19295	21184	.91	12211	12383	.99	1286	1491	.86	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 8 - JAN AVG DAY 1988 - 10% COLDER THAN NORMAL
- NO LNG

16:45 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	998	998	1.00	5430	5430	1.00	1682	1682	1.00	76	76	1.00	12451	12451	1.00	2382	2382	1.00	1703	1703	1.00	1082	1082	1.00	3825	3825	1.00	29628	29628	1.00
Commercial	464	464	1.00	2367	2367	1.00	907	907	1.00	134	134	1.00	5931	5931	1.00	1338	1338	1.00	915	915	1.00	710	710	1.00	1563	1563	1.00	14330	14331	1.00
Industrial	158	158	1.00	1443	1443	1.00	805	805	1.00	286	286	1.00	4760	4760	1.00	6582	6582	1.00	1928	1928	1.00	367	367	1.00	1446	1446	1.00	17774	17775	1.00
Electric	5	5	1.00	230	230	1.00	2	2	1.00	350	350	1.00	58	58	1.00	2906	2906	1.00	761	761	1.00	84	84	1.00	935	935	1.00	5331	5331	1.00
Fuel	40	41	.98	264	264	1.00	111	111	1.00	25	25	1.00	653	653	1.00	2049	2049	1.00	959	959	1.00	176	176	1.00	269	269	1.00	4546	4547	1.00
Total Demand	1665	1665	1.00	9734	9734	1.00	3507	3507	1.00	870	870	1.00	23853	23853	1.00	15257	15257	1.00	6265	6266	1.00	2418	2418	1.00	8038	8038	1.00	71610	71612	1.00
SUPPLIES																														
Production	0	0	.00	581	581	1.00	387	387	1.00	0	0	.00	1452	1452	1.00	28226	28226	1.00	15129	15129	1.00	2548	2548	1.00	1097	1097	1.00	49419	49419	1.00
Imports	50	50	1.00	142	142	1.00	D	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	1110	1110	1.00	2470	2470	1.00	4591	4592	1.00
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	4019	4019	1.00	1368	1368	1.00	0	0	.00	5264	9749	.54	3889	3889	1.00	2948	2948	1.00	0	846	.00	111	3357	.03	17599	26178	.67
Peak Shaving	0	0	.00	0	D	.00	D	D	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	50	50	1.00	4741	4741	1.00	1754	1755	1.00	0	0	.00	7536	12021	.63	32114	32114	1.00	18077	18077	1.00	3658	4504	.81	3678	6924	.53	71610	80189	.89
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	D	.00	2029	2612	.78	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2029	2612	.78
From ID	0	0	.00	0	0	.00	D	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	D	.00	3014	4645	.65	871	959	.91	14468	15580	.93	0	0	.00	0	0	.00	0	0	.00	0	0	.00	18353	21184	.87
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	1495	2066	.72	0	0	.00	38	38	1.00	4427	4427	1.00	11812	12383	.95
From IV	D	0	.00	0	0	.00	0	0	.00	0	0	.00	1344	1377	.98	0	0	.00	0	0	.00	0	0	.00	108	114	.95	1452	1491	.97
From V	0	0	.00	D	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	6608	7191	.92	3782	6564	.58	871	959	.91	21664	22809	.95	1495	2066	.72	0	0	.00	213	475	.45	4535	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2029	2612	.78	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6608	7191	.92
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3014	4645	.65	0	0	.00	0	0	.00	0	0	.00	3782	6564	.58
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	871	959	.91	0	0	.00	0	0	.00	0	0	.00	871	959	.91
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14468	15580	.93	5852	5852	1.00	1344	1377	.98	0	0	.00	21664	22809	.95
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1495	2066	.72	0	0	.00	0	0	.00	1495	2066	.72
To IIIB	0	0	.00	0	0	.00	D	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	D	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	108	114	.95	0	0	.00	4535	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2029	2612	.78	0	0	.00	5347	6498	.82	18353	21184	.87	11812	12383	.95	1452	1491	.97	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 9 - JAN AVG DAY 1988 - WITH A 25% CANADIAN IMPORT REDUCTION

16:46 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	918	918	1.00	5008	5008	1.00	1550	1550	1.00	71	71	1.00	11440	11440	1.00	2207	2207	1.00	1569	1569	1.00	993	993	1.00	3562	3562	1.00	27317	27318	1.00
Commercial	431	431	1.00	2197	2197	1.00	846	846	1.00	130	130	1.00	5462	5462	1.00	1256	1256	1.00	859	859	1.00	655	655	1.00	1478	1478	1.00	13313	13314	1.00
Industrial	158	158	1.00	1443	1443	1.00	805	805	1.00	286	286	1.00	4760	4760	1.00	6582	6582	1.00	1928	1928	1.00	367	367	1.00	1446	1446	1.00	17775	17775	1.00
Electric	5	5	1.00	230	230	1.00	2	2	1.00	350	350	1.00	58	58	1.00	2906	2906	1.00	761	761	1.00	84	84	1.00	935	935	1.00	5331	5331	1.00
Fuel	41	41	1.00	264	264	1.00	111	111	1.00	25	25	1.00	653	653	1.00	2049	2049	1.00	959	959	1.00	176	176	1.00	269	269	1.00	4546	4547	1.00
Total Demand	1553	1553	1.00	9141	9142	1.00	3313	3314	1.00	862	862	1.00	22372	22373	1.00	14999	15000	1.00	6075	6076	1.00	2274	2275	1.00	7689	7690	1.00	68283	68285	1.00
SUPPLIES																														
Production	0	0	.00	581	581	1.00	387	387	1.00	0	0	.00	1452	1452	1.00	28226	28226	1.00	15129	15129	1.00	2548	2548	1.00	1097	1097	1.00	49419	49419	1.00
Imports	37	37	1.00	106	106	1.00	0	0	.00	0	0	.00	615	615	1.00	0	0	.00	0	0	.00	832	832	1.00	1852	1852	1.00	3443	3444	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	136	137	1.00
Storage	0	0	.00	4822	4823	1.00	126	1642	.08	0	0	.00	1957	11699	.17	4667	4667	1.00	3330	3538	.94	0	1016	.00	380	4029	.09	15283	31413	.49
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	174	174	1.00	5509	5510	1.00	513	2028	.25	0	0	.00	4024	13766	.29	32892	32892	1.00	18458	18667	.99	3380	4396	.77	3329	6978	.48	68283	84414	.81
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1379	1615	.85	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1379	1615	.85
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	2398	4579	.52	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3166	6498	.49
From IIIA	0	0	.00	0	0	.00	4645	4645	1.00	862	959	.90	14451	15580	.93	0	0	.00	0	0	.00	0	0	.00	0	0	.00	19958	21184	.94
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1210	1377	.88	0	0	.00	0	0	.00	0	0	.00	108	114	.95	1318	1491	.88
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1379	1615	.85	5010	7191	.70	5413	6564	.82	862	959	.90	21513	22809	.94	2066	2066	1.00	0	0	.00	213	475	.45	4535	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1379	1615	.85	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1379	1615	.85
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	2398	4579	.52	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5010	7191	.70
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	4645	4645	1.00	0	0	.00	0	0	.00	0	0	.00	5413	6564	.82
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	862	959	.90	0	0	.00	0	0	.00	0	0	.00	862	959	.90
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14451	15580	.93	5852	5852	1.00	1210	1377	.88	0	0	.00	21513	22809	.94
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	108	114	.95	0	0	.00	4535	4541	1.00
Total PL Out	0	0	.00	1379	1615	.85	2612	2612	1.00	0	0	.00	3166	6498	.49	19958	21184	.94	12383	12383	1.00	1318	1491	.88	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 10 - JAN AVG DAY 1988 - WITH A 50% CANADIAN IMPORT REDUCTION 16:48 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	918	918	1.00	5008	5008	1.00	1550	1550	1.00	71	71	1.00	11440	11440	1.00	2207	2207	1.00	1569	1569	1.00	993	993	1.00	3562	3562	1.00	27317	27318	1.00
Commercial	431	431	1.00	2197	2197	1.00	846	846	1.00	130	130	1.00	5462	5462	1.00	1256	1256	1.00	859	859	1.00	655	655	1.00	1478	1478	1.00	13313	13314	1.00
Industrial	158	158	1.00	1443	1443	1.00	805	805	1.00	286	286	1.00	4760	4760	1.00	6582	6582	1.00	1928	1928	1.00	367	367	1.00	1446	1446	1.00	17775	17775	1.00
Electric	5	5	1.00	230	230	1.00	2	2	1.00	350	350	1.00	58	58	1.00	2906	2906	1.00	761	761	1.00	84	84	1.00	935	935	1.00	5331	5331	1.00
Fuel	41	41	1.00	264	264	1.00	111	111	1.00	25	25	1.00	653	653	1.00	2049	2049	1.00	959	959	1.00	176	176	1.00	269	269	1.00	4546	4547	1.00
Total Demand	1553	1553	1.00	9141	9142	1.00	3313	3314	1.00	862	862	1.00	22372	22373	1.00	14999	15000	1.00	6075	6076	1.00	2274	2275	1.00	7689	7690	1.00	68283	68285	1.00
SUPPLIES																														
Production	0	0	.00	581	581	1.00	387	387	1.00	0	0	.00	1452	1452	1.00	28226	28226	1.00	15129	15129	1.00	2548	2548	1.00	1097	1097	1.00	49419	49419	1.00
Imports	25	25	1.00	71	71	1.00	0	0	.00	0	0	.00	410	410	1.00	0	0	.00	0	0	.00	555	555	1.00	1235	1235	1.00	2295	2296	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	136	137	1.00
Storage	0	0	.00	4822	4823	1.00	126	1642	.08	0	0	.00	2487	11699	.21	4667	4667	1.00	3330	3538	.94	0	1016	.00	998	4029	.25	16430	31413	.52
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	161	162	1.00	5473	5474	1.00	513	2028	.25	0	0	.00	4349	13561	.32	32892	32892	1.00	18458	18667	.99	3103	4119	.75	3329	6360	.52	68283	83266	.82
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1391	1615	.86	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1391	1615	.86
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	2446	4579	.53	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3214	6498	.49
From IIIA	0	0	.00	0	0	.00	4645	4645	1.00	862	959	.90	14451	15580	.93	0	0	.00	0	0	.00	0	0	.00	0	0	.00	19958	21184	.94
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	933	1377	.68	0	0	.00	0	0	.00	0	0	.00	108	114	.95	1041	1491	.70
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1391	1615	.86	5058	7191	.70	5413	6564	.82	862	959	.90	21236	22809	.93	2066	2066	1.00	0	0	.00	213	475	.45	4535	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1391	1615	.86	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1391	1615	.86
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	2446	4579	.53	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5058	7191	.70
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	4645	4645	1.00	0	0	.00	0	0	.00	0	0	.00	5413	6564	.82
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	862	959	.90	0	0	.00	0	0	.00	0	0	.00	862	959	.90
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14451	15580	.93	5852	5852	1.00	933	1377	.68	0	0	.00	21236	22809	.93
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	108	114	.95	0	0	.00	4535	4541	1.00
Total PL Out	0	0	.00	1391	1615	.86	2612	2612	1.00	0	0	.00	3214	6498	.49	19958	21184	.94	12383	12383	1.00	1041	1491	.70	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 11 - JAN PK DAY 1988 - WITH A 25% CANADIAN IMPORT REDUCTION 16:50 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1531	1531	1.00	8757	8757	1.00	3372	3372	1.00	159	159	1.00	20223	20223	1.00	4406	4406	1.00	2472	2472	1.00	1761	1761	1.00	5790	5790	1.00	48469	48471	1.00
Commercial	719	719	1.00	3842	3842	1.00	1841	1841	1.00	292	292	1.00	9655	9655	1.00	2507	2507	1.00	1353	1353	1.00	1161	1161	1.00	2403	2403	1.00	23768	23772	1.00
Industrial	157	158	.99	1443	1443	1.00	805	805	1.00	286	286	1.00	4760	4760	1.00	6582	6582	1.00	1928	1928	1.00	367	367	1.00	1446	1446	1.00	17774	17775	1.00
Electric	0	5	.00	230	230	1.00	2	2	1.00	248	350	.71	58	58	1.00	2905	2906	1.00	761	761	1.00	83	84	.99	935	935	1.00	5224	5331	.98
Fuel	41	41	1.00	264	264	1.00	111	111	1.00	25	25	1.00	653	653	1.00	2049	2049	1.00	959	959	1.00	176	176	1.00	269	269	1.00	4546	4547	1.00
Total Demand	2447	2453	1.00	14535	14535	1.00	6130	6130	1.00	1010	1112	.91	35346	35349	1.00	18449	18450	1.00	7473	7473	1.00	3548	3549	1.00	10842	10842	1.00	99783	99897	1.00
SUPPLIES																														
Production	0	0	.00	523	523	1.00	348	348	1.00	0	0	.00	1306	1306	1.00	25403	25403	1.00	13616	13616	1.00	2294	2294	1.00	987	987	1.00	44477	44477	1.00
Imports	37	37	1.00	106	106	1.00	0	0	.00	0	0	.00	615	615	1.00	0	0	.00	0	0	.00	832	832	1.00	1852	1852	1.00	3443	3444	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	137	137	1.00
Storage	0	0	.00	8038	8038	1.00	2736	2736	1.00	0	0	.00	19499	19499	1.00	7778	7778	1.00	5897	5897	1.00	1158	1693	.68	4402	6715	.66	49504	52356	.95
Peak Shaving	573	573	1.00	1648	2249	.73	0	1390	.00	0	0	.00	0	2224	.00	0	383	.00	0	0	.00	0	109	.00	0	850	.00	2221	7778	.29
Total Supply	747	747	1.00	10315	10916	.94	3084	4474	.69	0	0	.00	21417	23644	.91	33181	33564	.99	19512	19513	1.00	4284	4928	.87	7242	10404	.70	99783	108192	.92
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	1100	2750	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1100	2750	.40
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4820	4820	1.00	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5628	6840	.82
From IIIA	0	0	.00	0	0	.00	3339	4890	.68	1010	1010	1.00	12558	16400	.77	0	0	.00	0	0	.00	0	0	.00	0	0	.00	16907	22300	.76
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	40	40	1.00	3665	4660	.79	12040	13035	.92
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	839	1450	.58	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	959	1570	.61
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	5920	7570	.78	4147	6910	.60	1010	1010	1.00	19557	24010	.81	2175	2175	1.00	0	0	.00	224	500	.45	3785	4780	.79			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	1100	2750	.40	0	0	.00	4820	4820	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5920	7570	.78
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	3339	4890	.68	0	0	.00	0	0	.00	0	0	.00	4147	6910	.60
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	12558	16400	.77	6160	6160	1.00	839	1450	.58	0	0	.00	19557	24010	.81
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	40	40	1.00	0	0	.00	184	460	.40	224	500	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3665	4660	.79	120	120	1.00	0	0	.00	3785	4780	.79
Total PL Out	0	0	.00	1700	1700	1.00	1100	2750	.40	0	0	.00	5628	6840	.82	16907	22300	.76	12040	13035	.92	959	1570	.61	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 12 - JAN PK DAY 1988 - WITH A 50% CANADIAN IMPORT REDUCTION 16:54 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1531	1531	1.00	8757	8757	1.00	3372	3372	1.00	159	159	1.00	20223	20223	1.00	4406	4406	1.00	2472	2472	1.00	1761	1761	1.00	5790	5790	1.00	48469	48471	1.00
Commercial	719	719	1.00	3842	3842	1.00	1841	1841	1.00	292	292	1.00	9655	9655	1.00	2507	2507	1.00	1353	1353	1.00	1161	1161	1.00	2403	2403	1.00	23769	23772	1.00
Industrial	144	158	.91	1443	1443	1.00	805	805	1.00	286	286	1.00	4760	4760	1.00	6582	6582	1.00	1928	1928	1.00	367	367	1.00	1446	1446	1.00	17754	17775	1.00
Electric	0	5	.00	230	230	1.00	2	2	1.00	248	350	.71	57	58	.98	2905	2906	1.00	761	761	1.00	84	84	1.00	935	935	1.00	5231	5331	.98
Fuel	41	41	1.00	264	264	1.00	111	111	1.00	25	25	1.00	653	653	1.00	2049	2049	1.00	959	959	1.00	176	176	1.00	269	269	1.00	4546	4547	1.00
Total Demand	2434	2453	.99	14535	14535	1.00	6130	6130	1.00	1010	1112	.91	35345	35349	1.00	18449	18450	1.00	7473	7473	1.00	3548	3549	1.00	10842	10842	1.00	99771	99897	1.00
SUPPLIES																														
Production	0	0	.00	523	523	1.00	348	348	1.00	0	0	.00	1306	1306	1.00	25403	25403	1.00	13616	13616	1.00	2294	2294	1.00	987	987	1.00	44477	44477	1.00
Imports	25	25	1.00	71	71	1.00	0	0	.00	0	0	.00	410	410	1.00	0	0	.00	0	0	.00	555	555	1.00	1235	1235	1.00	2296	2296	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	137	137	1.00
Storage	0	0	.00	8038	8038	1.00	2736	2736	1.00	0	0	.00	19499	19499	1.00	7778	7778	1.00	5897	5897	1.00	1693	1693	1.00	4969	6715	.74	50605	52356	.97
Peak Shaving	573	573	1.00	1683	2249	.75	0	1390	.00	0	0	.00	0	2224	.00	0	383	.00	0	0	.00	0	109	.00	0	850	.00	2255	7778	.29
Total Supply	734	735	1.00	10313	10880	.95	3084	4474	.69	0	0	.00	21212	23439	.90	33181	33564	.99	19512	19513	1.00	4541	4650	.98	7190	9787	.73	99771	107044	.93
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	1134	2750	.41	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1134	2750	.41
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4787	4820	.99	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5595	6840	.82
From IIIA	0	0	.00	0	0	.00	3373	4890	.69	1010	1010	1.00	12496	16400	.76	0	0	.00	0	0	.00	0	0	.00	0	0	.00	16879	22300	.76
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2147	2175	.99	0	0	.00	17	40	.43	3716	4660	.80	12040	13035	.92
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1073	1450	.74	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1193	1570	.76
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	5921	7570	.78	4181	6910	.61	1010	1010	1.00	19729	24010	.82	2147	2175	.99	0	0	.00	201	500	.40	3836	4780	.80			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	1134	2750	.41	0	0	.00	4787	4820	.99	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5921	7570	.78
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	3373	4890	.69	0	0	.00	0	0	.00	0	0	.00	4181	6910	.61
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	12496	16400	.76	6160	6160	1.00	1073	1450	.74	0	0	.00	19729	24010	.82
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2147	2175	.99	0	0	.00	0	0	.00	2147	2175	.99
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	17	40	.43	0	0	.00	184	460	.40	201	500	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3716	4660	.80	120	120	1.00	0	0	.00	3836	4780	.80
Total PL Out	0	0	.00	1700	1700	1.00	1134	2750	.41	0	0	.00	5595	6840	.82	16879	22300	.76	12040	13035	.92	1193	1570	.76	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 13 - JAN AVG DAY 1988 - 20% COLDER THAN NORMAL
- WITH A 25% CANADIAN IMPORT REDUCTION

17:00 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PAOD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1078	1078	1.00	5851	5851	1.00	1815	1815	1.00	81	81	1.00	13463	13463	1.00	2557	2557	1.00	1836	1836	1.00	1170	1170	1.00	4089	4089	1.00	31938	31939	1.00
Commercial	497	497	1.00	2539	2539	1.00	969	969	1.00	138	138	1.00	6401	6401	1.00	1420	1420	1.00	972	972	1.00	765	765	1.00	1649	1649	1.00	15349	15349	1.00
Industrial	158	158	1.00	1443	1443	1.00	805	805	1.00	286	286	1.00	4760	4760	1.00	6582	6582	1.00	1928	1928	1.00	367	367	1.00	1446	1446	1.00	17774	17775	1.00
Electric	5	5	1.00	230	230	1.00	2	2	1.00	350	350	1.00	58	58	1.00	2906	2906	1.00	761	761	1.00	84	84	1.00	933	935	1.00	5330	5331	1.00
Fuel	41	41	1.00	264	264	1.00	111	111	1.00	25	25	1.00	653	653	1.00	2049	2049	1.00	959	959	1.00	176	176	1.00	269	269	1.00	4546	4547	1.00
Total Demand	1778	1778	1.00	10326	10327	1.00	3701	3701	1.00	879	879	1.00	25334	25335	1.00	15513	15514	1.00	6455	6456	1.00	2562	2562	1.00	8386	8387	1.00	74940	74942	1.00
SUPPLIES																														
Production	0	0	.00	581	581	1.00	387	387	1.00	0	0	.00	1452	1452	1.00	28226	28226	1.00	15129	15129	1.00	2548	2548	1.00	1097	1097	1.00	49419	49419	1.00
Imports	37	37	1.00	106	106	1.00	0	0	.00	0	0	.00	615	615	1.00	0	0	.00	0	0	.00	832	832	1.00	1852	1852	1.00	3443	3444	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	137	137	1.00
Storage	0	0	.00	4823	4823	1.00	1553	1642	.95	0	0	.00	6283	11699	.54	4667	4667	1.00	3538	3538	1.00	0	1016	.00	1077	4029	.27	21939	31413	.70
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	174	174	1.00	5509	5510	1.00	1940	2028	.96	0	0	.00	8349	13766	.61	32892	32892	1.00	18666	18667	1.00	3380	4396	.77	4026	6978	.58	74940	84414	.89
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1604	1615	.99	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1604	1615	.99
From IC	0	0	.00	1842	2612	.71	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1842	2612	.71
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	2836	4645	.61	880	959	.92	15580	15580	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	19296	21184	.91
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	1917	2066	.93	0	0	.00	15	38	.39	4427	4427	1.00	12211	12383	.99
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	900	1377	.65	0	0	.00	0	0	.00	0	0	.00	108	114	.95	1008	1491	.68
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1604	1615	.99	6421	7191	.89	3604	6564	.55	880	959	.92	22332	22809	.98	1917	2066	.93	0	0	.00	190	475	.40	4535	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1604	1615	.99	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1604	1615	.99
To IB	0	0	.00	0	0	.00	1842	2612	.71	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6421	7191	.89
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2836	4645	.61	0	0	.00	0	0	.00	0	0	.00	3604	6564	.55
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	880	959	.92	0	0	.00	0	0	.00	0	0	.00	880	959	.92
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15580	15580	1.00	5852	5852	1.00	900	1377	.65	0	0	.00	22332	22809	.98
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1917	2066	.93	0	0	.00	0	0	.00	1917	2066	.93
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	108	114	.95	0	0	.00	4535	4541	1.00
Total PL Out	0	0	.00	1604	1615	.99	1842	2612	.71	0	0	.00	5347	6498	.82	19296	21184	.91	12211	12383	.99	1008	1491	.68	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 14 - JAN AVG DAY 1988 - 20% COLDER THAN NORMAL
- WITH A 50% CANADIAN IMPORT REDUCTION

17:02 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1078	1078	1.00	5851	5851	1.00	1815	1815	1.00	81	81	1.00	13463	13463	1.00	2557	2557	1.00	1836	1836	1.00	1170	1170	1.00	4089	4089	1.00	31938	31939	1.00
Commercial	497	497	1.00	2539	2539	1.00	969	969	1.00	138	138	1.00	6401	6401	1.00	1420	1420	1.00	972	972	1.00	765	765	1.00	1649	1649	1.00	15349	15349	1.00
Industrial	158	158	1.00	1443	1443	1.00	805	805	1.00	286	286	1.00	4760	4760	1.00	6582	6582	1.00	1928	1928	1.00	367	367	1.00	1446	1446	1.00	17774	17775	1.00
Electric	3	5	.60	230	230	1.00	2	2	1.00	350	350	1.00	58	58	1.00	2906	2906	1.00	761	761	1.00	84	84	1.00	933	935	1.00	5329	5331	1.00
Fuel	41	41	1.00	264	264	1.00	111	111	1.00	25	25	1.00	653	653	1.00	2049	2049	1.00	959	959	1.00	176	176	1.00	269	269	1.00	4546	4547	1.00
Total Demand	1776	1778	1.00	10326	10327	1.00	3701	3701	1.00	879	879	1.00	25334	25335	1.00	15513	15514	1.00	6455	6456	1.00	2562	2562	1.00	8386	8387	1.00	74938	74942	1.00
SUPPLIES																														
Production	0	0	.00	581	581	1.00	387	387	1.00	0	0	.00	1452	1452	1.00	28226	28226	1.00	15129	15129	1.00	2548	2548	1.00	1097	1097	1.00	49419	49419	1.00
Imports	25	25	1.00	71	71	1.00	0	0	.00	0	0	.00	410	410	1.00	0	0	.00	0	0	.00	555	555	1.00	1235	1235	1.00	2295	2296	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	137	137	1.00
Storage	0	0	.00	4823	4823	1.00	1546	1642	.94	0	0	.00	6818	11699	.58	4667	4667	1.00	3538	3538	1.00	0	1016	.00	1695	4029	.42	23086	31413	.73
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	162	162	1.00	5474	5474	1.00	1933	2028	.95	0	0	.00	8680	13561	.64	32892	32892	1.00	18666	18667	1.00	3103	4119	.75	4026	6360	.63	74938	83266	.90
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	1924	2612	.74	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1924	2612	.74
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4543	4579	.99	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5311	6498	.82
From IIIA	0	0	.00	0	0	.00	2925	4645	.63	880	959	.92	15490	15580	.99	0	0	.00	0	0	.00	0	0	.00	0	0	.00	19295	21184	.91
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	1916	2066	.93	0	0	.00	16	38	.42	4427	4427	1.00	12211	12383	.99
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	624	1377	.45	0	0	.00	0	0	.00	0	0	.00	108	114	.95	732	1491	.49
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	6467	7191	.90	3693	6564	.56	880	959	.92	21966	22809	.96	1916	2066	.93	0	0	.00	191	475	.40	4535	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	1924	2612	.74	0	0	.00	4543	4579	.99	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6467	7191	.90
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2925	4645	.63	0	0	.00	0	0	.00	0	0	.00	3693	6564	.56
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	880	959	.92	0	0	.00	0	0	.00	0	0	.00	880	959	.92
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15490	15580	.99	5852	5852	1.00	624	1377	.45	0	0	.00	21966	22809	.96
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1916	2066	.93	0	0	.00	0	0	.00	1916	2066	.93
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	16	38	.42	0	0	.00	175	437	.40	191	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	108	114	.95	0	0	.00	4535	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	1924	2612	.74	0	0	.00	5311	6498	.82	19295	21184	.91	12211	12383	.99	732	1491	.49	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 15 - JAN AVG DAY 1988 - 10% COLDER THAN NORMAL
- WITH A 25% CANADIAN IMPORT REDUCTION

17:06 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	998	998	1.00	5430	5430	1.00	1682	1682	1.00	76	76	1.00	12451	12451	1.00	2382	2382	1.00	1703	1703	1.00	1082	1082	1.00	3825	3825	1.00	29627	29628	1.00
Commercial	464	464	1.00	2367	2367	1.00	907	907	1.00	134	134	1.00	5931	5931	1.00	1338	1338	1.00	915	915	1.00	710	710	1.00	1563	1563	1.00	14330	14331	1.00
Industrial	158	158	1.00	1443	1443	1.00	805	805	1.00	286	286	1.00	4760	4760	1.00	6582	6582	1.00	1928	1928	1.00	367	367	1.00	1446	1446	1.00	17775	17775	1.00
Electric	5	5	1.00	229	230	1.00	2	2	1.00	350	350	1.00	58	58	1.00	2906	2906	1.00	761	761	1.00	84	84	1.00	935	935	1.00	5331	5331	1.00
Fuel	41	41	1.00	264	264	1.00	111	111	1.00	25	25	1.00	653	653	1.00	2049	2049	1.00	959	959	1.00	176	176	1.00	269	269	1.00	4546	4547	1.00
Total Demand	1665	1665	1.00	9733	9734	1.00	3507	3507	1.00	870	870	1.00	23853	23853	1.00	15257	15257	1.00	6265	6266	1.00	2418	2418	1.00	8038	8038	1.00	71610	71612	1.00
SUPPLIES																														
Production	0	0	.00	581	581	1.00	387	387	1.00	0	0	.00	1452	1452	1.00	28226	28226	1.00	15129	15129	1.00	2548	2548	1.00	1097	1097	1.00	49419	49419	1.00
Imports	37	37	1.00	106	106	1.00	0	0	.00	0	0	.00	615	615	1.00	0	0	.00	0	0	.00	832	832	1.00	1852	1852	1.00	3443	3444	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	137	137	1.00
Storage	0	0	.00	4019	4019	1.00	1367	1368	1.00	0	0	.00	5664	9749	.58	3889	3889	1.00	2948	2948	1.00	0	846	.00	723	3357	.22	18610	26178	.71
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	174	174	1.00	4705	4706	1.00	1754	1755	1.00	0	0	.00	7730	11816	.65	32114	32114	1.00	18077	18077	1.00	3380	4227	.80	3672	6306	.58	71610	79178	.90
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1491	1615	.92	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1491	1615	.92
From IC	0	0	.00	1940	2612	.74	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1940	2612	.74
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4578	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5346	6498	.82
From IIIA	0	0	.00	0	0	.00	2926	4645	.63	871	959	.91	14579	15580	.94	0	0	.00	0	0	.00	0	0	.00	0	0	.00	18376	21184	.87
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	1518	2066	.73	0	0	.00	15	38	.39	4427	4427	1.00	11812	12383	.95
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1038	1377	.75	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1152	1491	.77
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1491	1615	.92	6518	7191	.91	3694	6564	.56	871	959	.91	21469	22809	.94	1518	2066	.73	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1491	1615	.92	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1491	1615	.92
To IB	0	0	.00	0	0	.00	1940	2612	.74	0	0	.00	4578	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6518	7191	.91
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2926	4645	.63	0	0	.00	0	0	.00	0	0	.00	3694	6564	.56
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	871	959	.91	0	0	.00	0	0	.00	0	0	.00	871	959	.91
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14579	15580	.94	5852	5852	1.00	1038	1377	.75	0	0	.00	21469	22809	.94
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1518	2066	.73	0	0	.00	0	0	.00	1518	2066	.73
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1491	1615	.92	1940	2612	.74	0	0	.00	5346	6498	.82	18376	21184	.87	11812	12383	.95	1152	1491	.77	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 16 - JAN AVG DAY 1988 - 10% COLDER THAN NORMAL
- WITH A 50% CANADIAN IMPORT REDUCTION

17:09 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 10			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	998	998	1.00	5430	5430	1.00	1682	1682	1.00	76	76	1.00	12451	12451	1.00	2382	2382	1.00	1703	1703	1.00	1082	1082	1.00	3825	3825	1.00	29627	29628	1.00
Commercial	464	464	1.00	2367	2367	1.00	907	907	1.00	134	134	1.00	5931	5931	1.00	1338	1338	1.00	915	915	1.00	710	710	1.00	1563	1563	1.00	14330	14331	1.00
Industrial	158	158	1.00	1443	1443	1.00	805	805	1.00	286	286	1.00	4760	4760	1.00	6582	6582	1.00	1928	1928	1.00	367	367	1.00	1446	1446	1.00	17775	17775	1.00
Electric	5	5	1.00	229	230	1.00	2	2	1.00	350	350	1.00	58	58	1.00	2906	2906	1.00	761	761	1.00	84	84	1.00	935	935	1.00	5331	5331	1.00
Fuel	41	41	1.00	264	264	1.00	111	111	1.00	25	25	1.00	653	653	1.00	2049	2049	1.00	959	959	1.00	176	176	1.00	269	269	1.00	4546	4547	1.00
Total Demand	1665	1665	1.00	9733	9734	1.00	3507	3507	1.00	870	870	1.00	23853	23853	1.00	15257	15257	1.00	6265	6266	1.00	2418	2418	1.00	8038	8038	1.00	71610	71612	1.00
SUPPLIES																														
Production	0	0	.00	581	581	1.00	387	387	1.00	0	0	.00	1452	1452	1.00	28226	28226	1.00	15129	15129	1.00	2548	2548	1.00	1097	1097	1.00	49419	49419	1.00
Imports	25	25	1.00	71	71	1.00	0	0	.00	0	0	.00	410	410	1.00	0	0	.00	0	0	.00	555	555	1.00	1235	1235	1.00	2295	2296	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	137	137	1.00
Storage	0	0	.00	4019	4019	1.00	1368	1368	1.00	0	0	.00	6195	9749	.64	3889	3889	1.00	2948	2948	1.00	0	846	.00	1341	3357	.40	19758	26178	.75
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	162	162	1.00	4670	4670	1.00	1754	1755	1.00	0	0	.00	8056	11611	.69	32114	32114	1.00	18077	18077	1.00	3103	3949	.79	3672	5689	.65	71610	78030	.92
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1504	1615	.93	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1504	1615	.93
From IC	0	0	.00	1988	2612	.76	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1988	2612	.76
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4578	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5346	6498	.82
From IIIA	0	0	.00	0	0	.00	2974	4645	.64	871	959	.91	14531	15580	.93	0	0	.00	0	0	.00	0	0	.00	0	0	.00	18376	21184	.87
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	1518	2066	.73	0	0	.00	15	38	.39	4427	4427	1.00	11812	12383	.95
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	761	1377	.55	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	875	1491	.59
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1504	1615	.93	6566	7191	.91	3742	6564	.57	871	959	.91	21144	22809	.93	1518	2066	.73	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1504	1615	.93	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1504	1615	.93
To IB	0	0	.00	0	0	.00	1988	2612	.76	0	0	.00	4578	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6566	7191	.91
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2974	4645	.64	0	0	.00	0	0	.00	0	0	.00	3742	6564	.57
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	871	959	.91	0	0	.00	0	0	.00	0	0	.00	871	959	.91
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14531	15580	.93	5852	5852	1.00	761	1377	.55	0	0	.00	21144	22809	.93
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1518	2066	.73	0	0	.00	0	0	.00	1518	2066	.73
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1504	1615	.93	1988	2612	.76	0	0	.00	5346	6498	.82	18376	21184	.87	11812	12383	.95	875	1491	.59	175	437	.40			

National Petroleum Council - Inter-PADD flow Analysis

CASE 17 - JAN AVG DAY 1992 - HIGH DEMAND & LOW SUPPLY

19:55 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1200	1200	1.00	5198	5198	1.00	1311	1311	1.00	74	74	1.00	10347	10347	1.00	1904	1904	1.00	1279	1279	1.00	850	850	1.00	2732	2732	1.00	24895	24895	1.00
Commercial	302	302	1.00	1820	1820	1.00	631	631	1.00	112	112	1.00	5367	5367	1.00	1646	1646	1.00	945	945	1.00	634	634	1.00	1209	1209	1.00	12665	12666	1.00
Industrial	287	287	1.00	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21990	21992	1.00
Electric	10	47	.21	800	800	1.00	15	15	1.00	543	720	.75	891	891	1.00	2878	2880	1.00	1185	1185	1.00	53	53	1.00	1662	1662	1.00	8038	8253	.97
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1802	1839	.98	10337	10337	1.00	3055	3056	1.00	989	1167	.85	22584	22584	1.00	15268	15270	1.00	6731	6731	1.00	2448	2448	1.00	8039	8039	1.00	71255	71471	1.00
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45027	45027	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	525	1110	.47	2470	2470	1.00	4065	4650	.87
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4822	4823	1.00	1641	1642	1.00	0	0	.00	7449	11699	.64	4667	4667	1.00	3036	3538	.86	0	1016	.00	0	4029	.00	21614	31413	.69
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	5519	5519	1.00	2179	2180	1.00	30	30	1.00	9337	13588	.69	27487	27487	1.00	19081	19584	.97	3749	5350	.70	3682	7711	.48	71255	81638	.87
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	3820	4579	.83	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4588	6498	.71
From IIIA	0	0	.00	0	0	.00	2721	4645	.59	959	959	1.00	10605	15580	.68	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14285	21184	.67
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4417	4427	1.00	12350	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	6432	7191	.89	3489	6564	.53	959	959	1.00	17834	22809	.78	2066	2066	1.00	0	0	.00	190	475	.40	4531	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	3820	4579	.83	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6432	7191	.89
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2721	4645	.59	0	0	.00	0	0	.00	0	0	.00	3489	6564	.53
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10605	15580	.68	5852	5852	1.00	1377	1377	1.00	0	0	.00	17834	22809	.78
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4417	4427	1.00	114	114	1.00	0	0	.00	4531	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	4588	6498	.71	14285	21184	.67	12350	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 18 - JAN AVG DAY 1992 - HIGH DEMAND & HIGH SUPPLY

19:57 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1200	1200	1.00	5198	5198	1.00	1311	1311	1.00	74	74	1.00	10347	10347	1.00	1904	1904	1.00	1279	1279	1.00	850	850	1.00	2732	2732	1.00	24895	24895	1.00
Commercial	302	302	1.00	1820	1820	1.00	631	631	1.00	112	112	1.00	5367	5367	1.00	1646	1646	1.00	945	945	1.00	634	634	1.00	1209	1209	1.00	12665	12666	1.00
Industrial	287	287	1.00	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21990	21992	1.00
Electric	10	47	.21	800	800	1.00	15	15	1.00	543	720	.75	891	891	1.00	2879	2880	1.00	1185	1185	1.00	53	53	1.00	1662	1662	1.00	8038	8253	.97
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1801	1839	.98	10337	10337	1.00	3055	3056	1.00	989	1167	.85	22584	22584	1.00	15268	15270	1.00	6731	6731	1.00	2448	2448	1.00	8039	8039	1.00	71255	71471	1.00
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	18187	18187	1.00	3654	3654	1.00	1381	1381	1.00	50997	50997	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	95	1110	.09	2470	2470	1.00	3935	4950	.79
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4822	4823	1.00	8	1642	.00	0	0	.00	5553	11699	.47	4667	4667	1.00	725	3538	.20	0	1016	.00	0	4029	.00	15775	31413	.50
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	5577	5578	1.00	606	2240	.27	30	30	1.00	7582	13729	.55	30757	30757	1.00	18912	21725	.87	3749	5780	.65	3851	7880	.49	71255	87908	.81
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	3762	4579	.82	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4530	6498	.70
From IIIA	0	0	.00	0	0	.00	4294	4645	.92	959	959	1.00	12301	15580	.79	0	0	.00	0	0	.00	0	0	.00	0	0	.00	17554	21184	.83
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4248	4427	.96	12181	12383	.98
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	6374	7191	.89	5062	6564	.77	959	959	1.00	19530	22809	.86	2066	2066	1.00	0	0	.00	190	475	.40	4362	4541	.96			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	3762	4579	.82	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6374	7191	.89
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	4294	4645	.92	0	0	.00	0	0	.00	0	0	.00	5062	6564	.77
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	12301	15580	.79	5852	5852	1.00	1377	1377	1.00	0	0	.00	19530	22809	.86
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4248	4427	.96	114	114	1.00	0	0	.00	4362	4541	.96
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	4530	6498	.70	17554	21184	.83	12181	12383	.98	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 19 - JAN AVG DAY 1992 - LOW DEMAND & LOW SUPPLY

17:18 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	938	938	1.00	4496	4496	1.00	1357	1357	1.00	76	76	1.00	9789	9789	1.00	1793	1793	1.00	1178	1178	1.00	954	954	1.00	2668	2668	1.00	23244	23249	1.00
Commercial	465	465	1.00	2125	2125	1.00	808	808	1.00	143	143	1.00	5194	5194	1.00	1087	1087	1.00	721	721	1.00	591	591	1.00	1307	1307	1.00	12440	12441	1.00
Industrial	164	164	1.00	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18522	18524	1.00
Electric	13	13	1.00	398	398	1.00	17	17	1.00	531	849	.63	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6533	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1584	1585	1.00	8718	8719	1.00	3291	3292	1.00	989	1307	.76	20461	20466	1.00	13683	13684	1.00	5782	5783	1.00	2072	2073	1.00	7734	7735	1.00	64321	64644	1.00
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45027	45027	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	150	1110	.14	2470	2470	1.00	3689	4650	.79
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	547	548	1.00
Storage	0	0	.00	4821	4823	1.00	4	1642	.00	0	0	.00	3776	11699	.32	4666	4667	1.00	1783	3538	.50	0	1016	.00	0	4029	.00	15055	31413	.48
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	5518	5519	1.00	542	2180	.25	30	30	1.00	5670	13588	.42	27486	27487	1.00	17829	19584	.91	3374	5350	.63	3682	7711	.48	64321	81638	.79
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1398	1615	.87	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1398	1615	.87
From IC	0	0	.00	2607	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2607	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	1992	4579	.44	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2760	6498	.42
From IIIA	0	0	.00	0	0	.00	4589	4645	.99	959	959	1.00	10321	15580	.66	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15869	21184	.75
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4113	4427	.93	12046	12383	.97
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1398	1615	.87	4599	7191	.64	5357	6564	.82	959	959	1.00	17550	22809	.77	2066	2066	1.00	0	0	.00	190	475	.40	4227	4541	.93			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1398	1615	.87	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1398	1615	.87
To IB	0	0	.00	0	0	.00	2607	2612	1.00	0	0	.00	1992	4579	.44	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4599	7191	.64
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	4589	4645	.99	0	0	.00	0	0	.00	0	0	.00	5357	6564	.82
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10321	15580	.66	5852	5852	1.00	1377	1377	1.00	0	0	.00	17550	22809	.77
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4113	4427	.93	114	114	1.00	0	0	.00	4227	4541	.93
Total PL Out	0	0	.00	1398	1615	.87	2607	2612	1.00	0	0	.00	2760	6498	.42	15869	21184	.75	12046	12383	.97	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 20 - JAN AVG DAY 1992 - LOW DEMAND & HIGH SUPPLY 17:21 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	938	938	1.00	4496	4496	1.00	1357	1357	1.00	76	76	1.00	9789	9789	1.00	1793	1793	1.00	1178	1178	1.00	954	954	1.00	2668	2668	1.00	23244	23249	1.00
Commercial	465	465	1.00	2125	2125	1.00	808	808	1.00	143	143	1.00	5194	5194	1.00	1087	1087	1.00	721	721	1.00	591	591	1.00	1307	1307	1.00	12440	12441	1.00
Industrial	164	164	1.00	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18523	18524	1.00
Electric	13	13	1.00	398	398	1.00	17	17	1.00	532	849	.63	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6532	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1584	1585	1.00	8718	8719	1.00	3291	3292	1.00	989	1307	.76	20461	20466	1.00	13683	13684	1.00	5782	5783	1.00	2072	2073	1.00	7734	7735	1.00	64321	64644	1.00
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	18143	18187	1.00	3374	3654	.92	1381	1381	1.00	50672	50997	.99
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	0	1110	.00	1987	2470	.80	3356	4950	.68
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	547	548	1.00
Storage	0	0	.00	4821	4823	1.00	258	1642	.16	0	0	.00	-4	11699	.00	4665	4667	1.00	0	3538	.00	0	1016	.00	0	4029	.00	9744	31413	.31
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	186	187	1.00	5576	5578	1.00	857	2240	.38	30	30	1.00	2029	13729	.15	30755	30757	1.00	18143	21725	.84	3374	5780	.58	3368	7880	.43	64321	87908	.73
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1398	1615	.87	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1398	1615	.87
From IC	0	0	.00	1046	2612	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1046	2612	.40
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	3494	4579	.76	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4262	6498	.66
From IIIA	0	0	.00	0	0	.00	2713	4645	.58	959	959	1.00	15465	15580	.99	0	0	.00	0	0	.00	0	0	.00	0	0	.00	19137	21184	.90
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1398	1615	.87	4540	7191	.63	3481	6564	.53	959	959	1.00	22694	22809	.99	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1398	1615	.87	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1398	1615	.87
To IB	0	0	.00	0	0	.00	1046	2612	.40	0	0	.00	3494	4579	.76	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4540	7191	.63
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2713	4645	.58	0	0	.00	0	0	.00	0	0	.00	3481	6564	.53
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15465	15580	.99	5852	5852	1.00	1377	1377	1.00	0	0	.00	22694	22809	.99
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1398	1615	.87	1046	2612	.40	0	0	.00	4262	6498	.66	19137	21184	.90	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 21 - JAN PK DAY 1992 - HIGH DEMAND & LOW SUPPLY 19:59 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	2052	2052	1.00	9715	9715	1.00	3065	3065	1.00	209	209	1.00	18972	18972	1.00	3788	3788	1.00	2169	2169	1.00	1635	1635	1.00	5017	5017	1.00	46621	46621	1.00
Commercial	405	516	.78	3402	3402	1.00	1475	1475	1.00	316	316	1.00	9841	9841	1.00	3274	3274	1.00	1603	1603	1.00	1220	1220	1.00	2220	2220	1.00	23754	23866	1.00
Industrial	0	287	.00	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21674	21992	.99
Electric	0	47	.00	493	800	.62	12	15	.80	252	720	.35	549	891	.62	1844	2880	.64	1185	1185	1.00	53	53	1.00	1662	1662	1.00	6080	8253	.74
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	2460	2905	.85	16129	16435	.98	5650	5653	1.00	1037	1505	.69	35340	35682	.99	17745	18782	.94	8279	8279	1.00	3818	3818	1.00	11335	11335	1.00	101795	104398	.98
SUPPLIES																														
Production	0	0	.00	447	447	1.00	485	485	1.00	27	27	1.00	962	962	1.00	20169	20169	1.00	14441	14441	1.00	2902	2902	1.00	1091	1091	1.00	40524	40524	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	1110	1110	1.00	2470	2470	1.00	4650	4650	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	8038	8038	1.00	2736	2736	1.00	0	0	.00	19499	19499	1.00	7778	7778	1.00	5897	5897	1.00	1172	1693	.69	4134	6715	.62	49254	52356	.94
Peak Shaving	573	573	1.00	2249	2249	1.00	1390	1390	1.00	0	0	.00	2224	2224	1.00	383	383	1.00	0	0	.00	0	109	.00	0	850	.00	6818	7778	.88
Total Supply	760	760	1.00	10934	10934	1.00	4610	4611	1.00	27	27	1.00	23504	23505	1.00	28741	28741	1.00	20338	20338	1.00	5183	5814	.89	7695	11126	.69	101795	105856	.96
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	2529	2750	.92	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2529	2750	.92
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4366	4820	.91	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5174	6840	.76
From IIIA	0	0	.00	0	0	.00	2760	4890	.56	1010	1010	1.00	9400	16400	.57	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13170	22300	.59
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	21	40	.52	3703	4660	.79	12059	13035	.93
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1450	1450	1.00	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1570	1570	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	6895	7570	.91	3568	6910	.52	1010	1010	1.00	17010	24010	.71	2175	2175	1.00	0	0	.00	205	500	.41	3823	4780	.80			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	2529	2750	.92	0	0	.00	4366	4820	.91	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6895	7570	.91
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	2760	4890	.56	0	0	.00	0	0	.00	0	0	.00	3568	6910	.52
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	9400	16400	.57	6160	6160	1.00	1450	1450	1.00	0	0	.00	17010	24010	.71
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	21	40	.52	0	0	.00	184	460	.40	205	500	.41
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3703	4660	.79	120	120	1.00	0	0	.00	3823	4780	.80
Total PL Out	0	0	.00	1700	1700	1.00	2529	2750	.92	0	0	.00	5174	6840	.76	13170	22300	.59	12059	13035	.93	1570	1570	1.00	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 22 - JAN PK DAY 1992 - HIGH DEMAND & HIGH SUPPLY 20:03 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	2052	2052	1.00	9715	9715	1.00	3065	3065	1.00	209	209	1.00	18972	18972	1.00	3788	3788	1.00	2169	2169	1.00	1635	1635	1.00	5017	5017	1.00	46621	46621	1.00
Commercial	405	516	.78	3402	3402	1.00	1475	1475	1.00	316	316	1.00	9841	9841	1.00	3274	3274	1.00	1603	1603	1.00	1220	1220	1.00	2220	2220	1.00	23754	23866	1.00
Industrial	0	287	.00	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21686	21992	.99
Electric	0	47	.00	799	800	1.00	15	15	1.00	252	720	.35	891	891	1.00	2879	2880	1.00	1185	1185	1.00	36	53	.68	1662	1662	1.00	7738	8253	.94
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	2460	2905	.85	16435	16435	1.00	5653	5653	1.00	1037	1505	.69	35682	35682	1.00	18781	18782	1.00	8279	8279	1.00	3801	3818	1.00	11335	11335	1.00	103466	104398	.99
SUPPLIES																														
Production	0	0	.00	500	500	1.00	539	539	1.00	27	27	1.00	1089	1089	1.00	22842	22842	1.00	16368	16368	1.00	3289	3289	1.00	1243	1243	1.00	45897	45897	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	1110	1110	1.00	2470	2470	1.00	4950	4950	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	8038	8038	1.00	2736	2736	1.00	0	0	.00	19499	19499	1.00	7778	7778	1.00	4945	5897	.84	742	1693	.44	3026	6715	.45	46763	52356	.89
Peak Shaving	573	573	1.00	2249	2249	1.00	301	1390	.22	0	0	.00	2185	2224	.98	0	383	.00	0	0	.00	0	109	.00	0	850	.00	5307	7778	.68
Total Supply	760	760	1.00	10986	10986	1.00	3575	4664	.77	27	27	1.00	23592	23631	1.00	31331	31714	.99	21313	22265	.96	5141	6201	.83	6739	11278	.60	103466	111529	.93
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	2381	2750	.87	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2381	2750	.87
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4768	4820	.99	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5576	6840	.82
From IIIA	0	0	.00	0	0	.00	3651	4890	.75	1010	1010	1.00	10064	16400	.61	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14725	22300	.66
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	39	40	.98	4660	4660	1.00	13034	13035	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1442	1450	.99	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1562	1570	.99
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	7149	7570	.94	4459	6910	.65	1010	1010	1.00	17666	24010	.74	2175	2175	1.00	0	0	.00	223	500	.45	4780	4780	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	2381	2750	.87	0	0	.00	4768	4820	.99	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7149	7570	.94
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	3651	4890	.75	0	0	.00	0	0	.00	0	0	.00	4459	6910	.65
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10064	16400	.61	6160	6160	1.00	1442	1450	.99	0	0	.00	17666	24010	.74
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	39	40	.98	0	0	.00	184	460	.40	223	500	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4660	4660	1.00	120	120	1.00	0	0	.00	4780	4780	1.00
Total PL Out	0	0	.00	1700	1700	1.00	2381	2750	.87	0	0	.00	5576	6840	.82	14725	22300	.66	13034	13035	1.00	1562	1570	.99	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 23 - JAN PK DAY 1992 - LOW DEMAND & LOW SUPPLY 20:07 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1553	1553	1.00	7989	7989	1.00	3111	3111	1.00	207	207	1.00	17544	17544	1.00	3752	3752	1.00	2003	2003	1.00	1671	1671	1.00	4797	4797	1.00	42627	42627	1.00
Commercial	770	770	1.00	3776	3776	1.00	1852	1852	1.00	390	390	1.00	9309	9309	1.00	2275	2275	1.00	1226	1226	1.00	1035	1035	1.00	2350	2350	1.00	22979	22983	1.00
Industrial	132	164	.80	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18488	18524	1.00
Electric	0	13	.00	398	398	1.00	17	17	1.00	200	849	.24	121	121	1.00	2463	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6190	6850	.90
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	2459	2504	.98	13863	13863	1.00	6089	6090	1.00	1037	1686	.62	32334	32336	1.00	16829	16831	1.00	7112	7113	1.00	3233	3233	1.00	10906	10906	1.00	93866	94564	.99
SUPPLIES																														
Production	0	0	.00	447	447	1.00	485	485	1.00	27	27	1.00	962	962	1.00	20169	20169	1.00	14441	14441	1.00	2902	2902	1.00	1091	1091	1.00	40524	40524	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	1110	1110	1.00	2470	2470	1.00	4649	4650	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	8037	8038	1.00	2736	2736	1.00	0	0	.00	19499	19499	1.00	7778	7778	1.00	5706	5897	.97	567	1693	.33	2749	6715	.41	47070	52356	.90
Peak Shaving	573	573	1.00	500	2249	.22	0	1390	.00	0	0	.00	0	2224	.00	0	383	.00	0	0	.00	0	109	.00	0	850	.00	1073	7778	.14
Total Supply	760	760	1.00	9184	10934	.84	3220	4611	.70	27	27	1.00	21278	23505	.91	28357	28741	.99	20147	20338	.99	4579	5814	.79	6310	11126	.57	93866	105856	.89
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	1773	2750	.64	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1773	2750	.64
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4606	4820	.96	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5414	6840	.79
From IIIA	0	0	.00	0	0	.00	3834	4890	.78	1010	1010	1.00	8860	16400	.54	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13704	22300	.61
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	40	40	1.00	4660	4660	1.00	13035	13035	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1450	1450	1.00	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1570	1570	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	6379	7570	.84	4642	6910	.67	1010	1010	1.00	16470	24010	.69	2175	2175	1.00	0	0	.00	224	500	.45	4780	4780	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	1773	2750	.64	0	0	.00	4606	4820	.96	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6379	7570	.84
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	3834	4890	.78	0	0	.00	0	0	.00	0	0	.00	4642	6910	.67
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	8860	16400	.54	6160	6160	1.00	1450	1450	1.00	0	0	.00	16470	24010	.69
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	40	40	1.00	0	0	.00	184	460	.40	224	500	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4660	4660	1.00	120	120	1.00	0	0	.00	4780	4780	1.00
Total PL Out	0	0	.00	1700	1700	1.00	1773	2750	.64	0	0	.00	5414	6840	.79	13704	22300	.61	13035	13035	1.00	1570	1570	1.00	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 24 - JAN PK DAY 1992 - LOW DEMAND & HIGH SUPPLY

20:15 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1553	1553	1.00	7989	7989	1.00	3111	3111	1.00	207	207	1.00	17544	17544	1.00	3752	3752	1.00	2003	2003	1.00	1671	1671	1.00	4797	4797	1.00	42627	42627	1.00
Commercial	770	770	1.00	3776	3776	1.00	1852	1852	1.00	390	390	1.00	9309	9309	1.00	2275	2275	1.00	1226	1226	1.00	1035	1035	1.00	2350	2350	1.00	22982	22983	1.00
Industrial	133	164	.81	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18488	18524	1.00
Electric	0	13	.00	398	398	1.00	17	17	1.00	200	849	.24	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6188	6850	.90
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	2460	2504	.98	13863	13863	1.00	6090	6090	1.00	1037	1686	.62	32332	32336	1.00	16831	16831	1.00	7113	7113	1.00	3233	3233	1.00	10906	10906	1.00	93867	94564	.99
SUPPLIES																														
Production	0	0	.00	500	500	1.00	539	539	1.00	27	27	1.00	1089	1089	1.00	22842	22842	1.00	16368	16368	1.00	3289	3289	1.00	1243	1243	1.00	45897	45897	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	1110	1110	1.00	2470	2470	1.00	4949	4950	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	8037	8038	1.00	2736	2736	1.00	0	0	.00	16968	19499	.87	7778	7778	1.00	3779	5897	.64	0	1693	.00	2597	6715	.39	41899	52356	.80
Peak Shaving	573	573	1.00	0	2249	.00	0	1390	.00	0	0	.00	0	2224	.00	0	383	.00	0	0	.00	0	109	.00	0	850	.00	573	7778	.07
Total Supply	760	760	1.00	8736	10986	.80	3274	4664	.70	27	27	1.00	18881	23631	.80	31331	31714	.99	20147	22265	.90	4399	6201	.71	6310	11278	.56	93867	111529	.84
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	2064	2750	.75	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2064	2750	.75
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4762	4820	.99	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5570	6840	.81
From IIIA	0	0	.00	0	0	.00	4072	4890	.83	1010	1010	1.00	11593	16400	.71	0	0	.00	0	0	.00	0	0	.00	0	0	.00	16675	22300	.75
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	40	40	1.00	4660	4660	1.00	13035	13035	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1269	1450	.88	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1389	1570	.88
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	6826	7570	.90	4880	6910	.71	1010	1010	1.00	19022	24010	.79	2175	2175	1.00	0	0	.00	224	500	.45	4780	4780	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	2064	2750	.75	0	0	.00	4762	4820	.99	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6826	7570	.90
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	4072	4890	.83	0	0	.00	0	0	.00	0	0	.00	4880	6910	.71
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	11593	16400	.71	6160	6160	1.00	1269	1450	.88	0	0	.00	19022	24010	.79
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	40	40	1.00	0	0	.00	184	460	.40	224	500	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4660	4660	1.00	120	120	1.00	0	0	.00	4780	4780	1.00
Total PL Out	0	0	.00	1700	1700	1.00	2064	2750	.75	0	0	.00	5570	6840	.81	16675	22300	.75	13035	13035	1.00	1389	1570	.88	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 25 - JAN AVG DAY 1992 - HIGH DEMAND & LOW SUPPLY
- 20% COLDER THAN NORMAL

20:18 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1409	1409	1.00	6073	6073	1.00	1534	1534	1.00	84	84	1.00	12176	12176	1.00	2206	2206	1.00	1497	1497	1.00	1001	1001	1.00	3136	3136	1.00	29116	29116	1.00
Commercial	348	348	1.00	2103	2103	1.00	723	723	1.00	119	119	1.00	6290	6290	1.00	1861	1861	1.00	1069	1069	1.00	741	741	1.00	1348	1348	1.00	14600	14602	1.00
Industrial	42	287	.15	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21743	21992	.99
Electric	0	47	.00	401	800	.50	3	15	.20	526	720	.73	876	891	.98	2815	2880	.98	1185	1185	1.00	53	53	1.00	1662	1662	1.00	7524	8253	.91
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1802	2094	.86	11096	11495	.97	3358	3371	1.00	989	1184	.84	25321	25336	1.00	15721	15787	1.00	7072	7073	1.00	2705	2706	1.00	8582	8582	1.00	76649	77628	.99
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45027	45027	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	783	1110	.71	2470	2470	1.00	4322	4650	.93
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4823	4823	1.00	1642	1642	1.00	0	0	.00	11699	11699	1.00	4667	4667	1.00	3387	3538	.96	0	1016	.00	534	4029	.13	26751	31413	.85
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	5519	5519	1.00	2180	2180	1.00	30	30	1.00	13588	13588	1.00	27487	27487	1.00	19433	19584	.99	4007	5350	.75	4215	7711	.55	76649	81638	.94
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3023	4645	.65	959	959	1.00	9850	15580	.63	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13832	21184	.65
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	7191	7191	1.00	3791	6564	.58	959	959	1.00	17079	22809	.75	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3023	4645	.65	0	0	.00	0	0	.00	0	0	.00	3791	6564	.58
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	9850	15580	.63	5852	5852	1.00	1377	1377	1.00	0	0	.00	17079	22809	.75
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	5347	6498	.82	13832	21184	.65	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 26 - JAN AVG DAY 1992 - HIGH DEMAND & HIGH SUPPLY
- 20% COLDER THAN NORMAL

20:20 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1409	1409	1.00	6073	6073	1.00	1534	1534	1.00	84	84	1.00	12176	12176	1.00	2206	2206	1.00	1497	1497	1.00	1001	1001	1.00	3136	3136	1.00	29116	29116	1.00
Commercial	348	348	1.00	2103	2103	1.00	723	723	1.00	119	119	1.00	6290	6290	1.00	1861	1861	1.00	1069	1069	1.00	741	741	1.00	1348	1348	1.00	14600	14602	1.00
Industrial	42	287	.15	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21746	21992	.99
Electric	0	47	.00	460	800	.57	15	15	1.00	526	720	.73	891	891	1.00	2880	2880	1.00	1185	1185	1.00	53	53	1.00	1662	1662	1.00	7672	8253	.93
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1802	2094	.86	11154	11495	.97	3371	3371	1.00	989	1184	.84	25335	25336	1.00	15786	15787	1.00	7072	7073	1.00	2705	2706	1.00	8582	8582	1.00	76800	77628	.99
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	18187	18187	1.00	3654	3654	1.00	1381	1381	1.00	50996	50997	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	353	1110	.32	2470	2470	1.00	4192	4950	.85
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4823	4823	1.00	1621	1642	.99	0	0	.00	8341	11699	.71	4667	4667	1.00	1246	3538	.35	0	1016	.00	364	4029	.09	21062	31413	.67
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	5578	5578	1.00	2219	2240	.99	30	30	1.00	10371	13729	.76	30757	30757	1.00	19433	21725	.89	4007	5780	.69	4215	7880	.53	76800	87908	.87
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	2996	4645	.64	959	959	1.00	13081	15580	.84	0	0	.00	0	0	.00	0	0	.00	0	0	.00	17036	21184	.80
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	7191	7191	1.00	3764	6564	.57	959	959	1.00	20310	22809	.89	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2996	4645	.64	0	0	.00	0	0	.00	0	0	.00	3764	6564	.57
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13081	15580	.84	5852	5852	1.00	1377	1377	1.00	0	0	.00	20310	22809	.89
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	5347	6498	.82	17036	21184	.80	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 27 - JAN AVG DAY 1992 - LOW DEMAND & LOW SUPPLY
- 20% COLDER THAN NORMAL

20:22 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1101	1101	1.00	5253	5253	1.00	1583	1583	1.00	86	86	1.00	11520	11520	1.00	2077	2077	1.00	1379	1379	1.00	1124	1124	1.00	3063	3063	1.00	27186	27186	1.00
Commercial	536	536	1.00	2454	2454	1.00	925	925	1.00	152	152	1.00	6088	6088	1.00	1229	1229	1.00	816	816	1.00	691	691	1.00	1457	1457	1.00	14346	14348	1.00
Industrial	160	164	.98	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18513	18524	1.00
Electric	0	13	.00	398	398	1.00	17	17	1.00	513	849	.60	121	121	1.00	2462	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6500	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	1801	1819	.99	9804	9805	1.00	3635	3635	1.00	989	1326	.75	23085	23091	1.00	14107	14110	1.00	6079	6079	1.00	2343	2343	1.00	8280	8280	1.00	70125	70488	.99
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45027	45027	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	420	1110	.38	2470	2470	1.00	3960	4650	.85
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4822	4823	1.00	301	1642	.18	0	0	.00	8170	11699	.70	4667	4667	1.00	2393	3538	.68	0	1016	.00	231	4029	.06	20590	31413	.66
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	5518	5519	1.00	839	2180	.39	30	30	1.00	10065	13588	.74	27487	27487	1.00	18439	19584	.94	3644	5350	.68	3913	7711	.51	70125	81638	.86
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	1889	2612	.72	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1889	2612	.72
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4012	4579	.88	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4780	6498	.74
From IIIA	0	0	.00	0	0	.00	3917	4645	.84	959	959	1.00	10570	15580	.68	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15446	21184	.73
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	5901	7191	.82	4685	6564	.71	959	959	1.00	17799	22809	.78	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	1889	2612	.72	0	0	.00	4012	4579	.88	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5901	7191	.82
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3917	4645	.84	0	0	.00	0	0	.00	0	0	.00	4685	6564	.71
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10570	15580	.68	5852	5852	1.00	1377	1377	1.00	0	0	.00	17799	22809	.78
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	1889	2612	.72	0	0	.00	4780	6498	.74	15446	21184	.73	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 28 - JAN AVG DAY 1992 - LOW DEMAND & HIGH SUPPLY
- 20% COLDER THAN NORMAL

20:24 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1101	1101	1.00	5253	5253	1.00	1583	1583	1.00	86	86	1.00	11520	11520	1.00	2077	2077	1.00	1379	1379	1.00	1124	1124	1.00	3063	3063	1.00	27186	27186	1.00
Commercial	536	536	1.00	2454	2454	1.00	925	925	1.00	152	152	1.00	6088	6088	1.00	1229	1229	1.00	816	816	1.00	691	691	1.00	1457	1457	1.00	14341	14348	1.00
Industrial	160	164	.98	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18495	18524	1.00
Electric	0	13	.00	397	398	1.00	17	17	1.00	512	849	.60	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6506	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	1801	1819	.99	9803	9805	1.00	3635	3635	1.00	989	1326	.75	23066	23091	1.00	14109	14110	1.00	6079	6079	1.00	2343	2343	1.00	8280	8280	1.00	70108	70488	.99
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	18187	18187	1.00	3644	3654	1.00	1381	1381	1.00	50986	50997	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	0	1110	.00	2470	2470	1.00	3840	4950	.78
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4821	4823	1.00	1354	1642	.82	0	0	.00	3568	11699	.30	4666	4667	1.00	252	3538	.07	0	1016	.00	62	4029	.02	14747	31413	.47
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	5576	5578	1.00	1953	2240	.87	30	30	1.00	5621	13729	.41	30756	30757	1.00	18439	21725	.85	3644	5780	.63	3913	7880	.50	70122	87908	.80
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2573	2612	.99	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2573	2612	.99
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	3269	4579	.71	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4037	6498	.62
From IIIA	0	0	.00	0	0	.00	3488	4645	.75	959	959	1.00	14266	15580	.92	0	0	.00	0	0	.00	0	0	.00	0	0	.00	18713	21184	.88
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	5842	7191	.81	4256	6564	.65	959	959	1.00	21495	22809	.94	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2573	2612	.99	0	0	.00	3269	4579	.71	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5842	7191	.81
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3488	4645	.75	0	0	.00	0	0	.00	0	0	.00	4256	6564	.65
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14266	15580	.92	5852	5852	1.00	1377	1377	1.00	0	0	.00	21495	22809	.94
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2573	2612	.99	0	0	.00	4037	6498	.62	18713	21184	.88	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 29 - JAN AVG DAY 1992 - HIGH DEMAND & LOW SUPPLY
- 10% COLDER THAN NORMAL

20:26 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1304	1304	1.00	5636	5636	1.00	1423	1423	1.00	79	79	1.00	11262	11262	1.00	2055	2055	1.00	1388	1388	1.00	925	925	1.00	2934	2934	1.00	27006	27006	1.00
Commercial	325	325	1.00	1962	1962	1.00	677	677	1.00	115	115	1.00	5828	5828	1.00	1754	1754	1.00	1007	1007	1.00	687	687	1.00	1279	1279	1.00	13633	13634	1.00
Industrial	170	287	.59	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21866	21992	.99
Electric	0	47	.00	164	800	.20	7	15	.47	470	720	.65	442	891	.50	1536	2880	.53	1185	1185	1.00	53	53	1.00	1662	1662	1.00	5527	8253	.67
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1802	1966	.92	10280	10917	.94	3206	3214	1.00	924	1175	.79	23510	23960	.98	14185	15529	.91	6902	6902	1.00	2575	2576	1.00	8310	8311	1.00	71697	74550	.96
SUPPLIES																														
Production	0	0	.00	485	485	1.00	539	539	1.00	29	29	1.00	1054	1054	1.00	21862	21862	1.00	19285	22066	.87	2694	2694	1.00	1225	1225	1.00	47174	49955	.94
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	1110	1110	1.00	2470	2470	1.00	4649	4650	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4019	4019	1.00	1368	1368	1.00	0	0	.00	9749	9749	1.00	3889	3889	1.00	0	2948	.00	45	846	.05	255	3357	.08	19325	26178	.74
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	4704	4704	1.00	1907	1907	1.00	29	29	1.00	11623	11623	1.00	26162	26162	1.00	19285	25014	.77	3848	4650	.83	3950	7052	.56	71697	81331	.88
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3144	4645	.68	896	959	.93	10004	15580	.64	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14044	21184	.66
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	108	114	.95	1485	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	7191	7191	1.00	3912	6564	.60	896	959	.93	17233	22809	.76	2066	2066	1.00	0	0	.00	213	475	.45	4535	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3144	4645	.68	0	0	.00	0	0	.00	0	0	.00	3912	6564	.60
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	896	959	.93	0	0	.00	0	0	.00	0	0	.00	896	959	.93
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10004	15580	.64	5852	5852	1.00	1377	1377	1.00	0	0	.00	17233	22809	.76
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	108	114	.95	0	0	.00	4535	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	5347	6498	.82	14044	21184	.66	12383	12383	1.00	1485	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 30 - JAN AVG DAY 1992 - HIGH DEMAND & HIGH SUPPLY
- 10% COLDER THAN NORMAL

20:31 D1-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1304	1304	1.00	5636	5636	1.00	1423	1423	1.00	79	79	1.00	11262	11262	1.00	2055	2055	1.00	1388	1388	1.00	925	925	1.00	2934	2934	1.00	27006	27006	1.00
Commercial	325	325	1.00	1962	1962	1.00	677	677	1.00	115	115	1.00	5828	5828	1.00	1754	1754	1.00	1007	1007	1.00	687	687	1.00	1279	1279	1.00	13633	13634	1.00
Industrial	170	287	.59	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21860	21992	.99
Electric	0	47	.00	221	800	.28	15	15	1.00	534	720	.74	891	891	1.00	2873	2880	1.00	1185	1185	1.00	53	53	1.00	1660	1662	1.00	7440	8253	.90
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1802	1966	.92	10337	10917	.95	3214	3214	1.00	988	1175	.84	23955	23960	1.00	15522	15529	1.00	6902	6902	1.00	2575	2576	1.00	8309	8311	1.00	73606	74550	.99
SUPPLIES																														
Production	0	0	.00	542	542	1.00	599	599	1.00	29	29	1.00	1193	1193	1.00	24760	24760	1.00	19285	25011	.77	3053	3053	1.00	1396	1396	1.00	50857	56583	.90
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	801	1110	.72	2470	2470	1.00	4641	4950	.94
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4019	4019	1.00	21	1368	.02	0	0	.00	9559	9749	.98	3889	3889	1.00	0	2948	.00	0	846	.00	79	3357	.02	17572	26178	.67
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	4761	4761	1.00	620	1967	.32	29	29	1.00	11577	11762	.98	29359	29359	1.00	19285	27959	.69	3854	5009	.77	3944	7223	.55	73619	88259	.83
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	4439	4645	.96	959	959	1.00	10500	15580	.67	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15898	21184	.75
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	7191	7191	1.00	5207	6564	.79	959	959	1.00	17729	22809	.78	2066	2066	1.00	0	0	.00	213	475	.45	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	4439	4645	.96	0	0	.00	0	0	.00	0	0	.00	5207	6564	.79
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10500	15580	.67	5852	5852	1.00	1377	1377	1.00	0	0	.00	17729	22809	.78
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	5347	6498	.82	15898	21184	.75	12383	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 31 - JAN AVG DAY 1992 - LOW DEMAND & LOW SUPPLY
- 10% COLDER THAN NORMAL

20:32 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1020	1020	1.00	4875	4875	1.00	1467	1467	1.00	81	81	1.00	10655	10655	1.00	1935	1935	1.00	1279	1279	1.00	1039	1039	1.00	2865	2865	1.00	25216	25216	1.00
Commercial	501	501	1.00	2289	2289	1.00	866	866	1.00	148	148	1.00	5641	5641	1.00	1158	1158	1.00	768	768	1.00	641	641	1.00	1382	1382	1.00	13392	13394	1.00
Industrial	164	164	1.00	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18522	18524	1.00
Electric	13	13	1.00	398	398	1.00	17	17	1.00	521	849	.61	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6521	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	1703	1703	1.00	9261	9262	1.00	3459	3460	1.00	988	1317	.75	21776	21779	1.00	13896	13897	1.00	5931	5931	1.00	2208	2208	1.00	8006	8007	1.00	67232	67564	1.00
SUPPLIES																														
Production	0	0	.00	485	485	1.00	539	539	1.00	29	29	1.00	1054	1054	1.00	21862	21862	1.00	18314	22066	.83	2694	2694	1.00	1225	1225	1.00	46203	49955	.92
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	787	1110	.71	2421	2470	.98	4278	4650	.92
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4019	4019	1.00	1367	1368	1.00	0	0	.00	6925	9749	.71	3889	3889	1.00	0	2948	.00	0	846	.00	0	3357	.00	16203	26178	.62
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	4704	4704	1.00	1906	1907	1.00	29	29	1.00	8802	11623	.76	26162	26162	1.00	18314	25014	.73	3480	4650	.75	3646	7052	.52	67232	81331	.83
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1516	1615	.94	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1516	1615	.94
From IC	0	0	.00	2227	2612	.85	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2227	2612	.85
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	3847	4579	.84	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4615	6498	.71
From IIIA	0	0	.00	0	0	.00	3012	4645	.65	959	959	1.00	10360	15580	.66	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14331	21184	.68
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	108	114	.95	1485	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1516	1615	.94	6074	7191	.84	3780	6564	.58	959	959	1.00	17589	22809	.77	2066	2066	1.00	0	0	.00	213	475	.45	4535	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1516	1615	.94	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1516	1615	.94
To IB	0	0	.00	0	0	.00	2227	2612	.85	0	0	.00	3847	4579	.84	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6074	7191	.84
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3012	4645	.65	0	0	.00	0	0	.00	0	0	.00	3780	6564	.58
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10360	15580	.66	5852	5852	1.00	1377	1377	1.00	0	0	.00	17589	22809	.77
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	108	114	.95	0	0	.00	4535	4541	1.00
Total PL Out	0	0	.00	1516	1615	.94	2227	2612	.85	0	0	.00	4615	6498	.71	14331	21184	.68	12383	12383	1.00	1485	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 32 - JAN AVG DAY 1992 - LOW DEMAND & HIGH SUPPLY
- 10% COLDER THAN NORMAL

20:37 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1020	1020	1.00	4875	4875	1.00	1467	1467	1.00	81	81	1.00	10655	10655	1.00	1935	1935	1.00	1279	1279	1.00	1039	1039	1.00	2865	2865	1.00	25216	25216	1.00
Commercial	501	501	1.00	2289	2289	1.00	866	866	1.00	148	148	1.00	5641	5641	1.00	1158	1158	1.00	768	768	1.00	641	641	1.00	1382	1382	1.00	13392	13394	1.00
Industrial	164	164	1.00	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18521	18524	1.00
Electric	13	13	1.00	398	398	1.00	17	17	1.00	521	849	.61	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6522	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	1702	1703	1.00	9261	9262	1.00	3459	3460	1.00	988	1317	.75	21776	21779	1.00	13896	13897	1.00	5931	5931	1.00	2208	2208	1.00	8006	8007	1.00	67232	67564	1.00
SUPPLIES																														
Production	0	0	.00	542	542	1.00	599	599	1.00	29	29	1.00	1193	1193	1.00	24760	24760	1.00	18314	25011	.73	3053	3053	1.00	1396	1396	1.00	49886	56583	.88
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	428	1110	.39	2250	2470	.91	4048	4950	.82
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4019	4019	1.00	1367	1368	1.00	0	0	.00	3474	9749	.36	3889	3889	1.00	0	2948	.00	0	846	.00	0	3357	.00	12750	26178	.49
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	4760	4761	1.00	1966	1967	1.00	29	29	1.00	5488	11762	.47	29359	29359	1.00	18314	27959	.66	3481	5009	.69	3646	7223	.50	67232	88259	.76
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1516	1615	.94	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1516	1615	.94
From IC	0	0	.00	2412	2612	.92	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2412	2612	.92
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	3605	4579	.79	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4373	6498	.67
From IIIA	0	0	.00	0	0	.00	3138	4645	.68	959	959	1.00	13431	15580	.86	0	0	.00	0	0	.00	0	0	.00	0	0	.00	17528	21184	.83
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	108	114	.95	1485	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1516	1615	.94	6017	7191	.84	3906	6564	.60	959	959	1.00	20660	22809	.91	2066	2066	1.00	0	0	.00	213	475	.45	4535	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1516	1615	.94	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1516	1615	.94
To IB	0	0	.00	0	0	.00	2412	2612	.92	0	0	.00	3605	4579	.79	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6017	7191	.84
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3138	4645	.68	0	0	.00	0	0	.00	0	0	.00	3906	6564	.60
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13431	15580	.86	5852	5852	1.00	1377	1377	1.00	0	0	.00	20660	22809	.91
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	108	114	.95	0	0	.00	4535	4541	1.00
Total PL Out	0	0	.00	1516	1615	.94	2412	2612	.92	0	0	.00	4373	6498	.67	17528	21184	.83	12383	12383	1.00	1485	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 33 - JAN AVG DAY 1992 - HIGH DEMAND & LOW SUPPLY
- WITH A 25% CANADIAN IMPORT REDUCTION

20:38 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1200	1200	1.00	5198	5198	1.00	1311	1311	1.00	74	74	1.00	10347	10347	1.00	1904	1904	1.00	1279	1279	1.00	850	850	1.00	2732	2732	1.00	24895	24895	1.00
Commercial	302	302	1.00	1820	1820	1.00	631	631	1.00	112	112	1.00	5367	5367	1.00	1646	1646	1.00	945	945	1.00	634	634	1.00	1209	1209	1.00	12664	12666	1.00
Industrial	284	287	.99	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21986	21992	1.00
Electric	0	47	.00	798	800	1.00	15	15	1.00	542	720	.75	891	891	1.00	2880	2880	1.00	1185	1185	1.00	53	53	1.00	1662	1662	1.00	8030	8253	.97
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1789	1839	.97	10334	10337	1.00	3055	3056	1.00	989	1167	.85	22584	22584	1.00	15270	15270	1.00	6731	6731	1.00	2448	2448	1.00	8039	8039	1.00	71241	71471	1.00
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45027	45027	1.00
Imports	37	37	1.00	150	150	1.00	0	0	.00	0	0	.00	615	615	1.00	0	0	.00	0	0	.00	525	832	.63	1852	1852	1.00	3180	3487	.91
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4823	4823	1.00	0	1642	.00	0	0	.00	9344	11699	.80	4667	4667	1.00	3046	3538	.86	0	1016	.00	608	4029	.15	22487	31413	.72
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	174	174	1.00	5469	5469	1.00	539	2180	.25	30	30	1.00	11028	13383	.82	27487	27487	1.00	19091	19584	.97	3749	5072	.74	3672	7093	.52	71242	80476	.89
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	1909	2612	.73	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1909	2612	.73
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4573	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5341	6498	.82
From IIIA	0	0	.00	0	0	.00	3658	4645	.79	959	959	1.00	9667	15580	.62	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14284	21184	.67
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	6482	7191	.90	4426	6564	.67	959	959	1.00	16896	22809	.74	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	1909	2612	.73	0	0	.00	4573	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6482	7191	.90
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3658	4645	.79	0	0	.00	0	0	.00	0	0	.00	4426	6564	.67
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	9667	15580	.62	5852	5852	1.00	1377	1377	1.00	0	0	.00	16896	22809	.74
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	1909	2612	.73	0	0	.00	5341	6498	.82	14284	21184	.67	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 34 - JAN AVG DAY 1992 - HIGH DEMAND & LOW SUPPLY
- WITH A 50% CANADIAN IMPORT REDUCTION

20:39 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1200	1200	1.00	5198	5198	1.00	1311	1311	1.00	74	74	1.00	10347	10347	1.00	1904	1904	1.00	1279	1279	1.00	850	850	1.00	2732	2732	1.00	24895	24895	1.00
Commercial	302	302	1.00	1820	1820	1.00	631	631	1.00	112	112	1.00	5367	5367	1.00	1646	1646	1.00	945	945	1.00	634	634	1.00	1209	1209	1.00	12664	12666	1.00
Industrial	272	287	.95	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21975	21992	1.00
Electric	0	47	.00	798	800	1.00	15	15	1.00	543	720	.75	891	891	1.00	2880	2880	1.00	1185	1185	1.00	53	53	1.00	1662	1662	1.00	8029	8253	.97
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1777	1839	.97	10334	10337	1.00	3055	3056	1.00	989	1167	.85	22584	22584	1.00	15270	15270	1.00	6731	6731	1.00	2448	2448	1.00	8039	8039	1.00	71229	71471	1.00
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45027	45027	1.00
Imports	25	25	1.00	100	100	1.00	0	0	.00	0	0	.00	410	410	1.00	0	0	.00	0	0	.00	525	555	.95	1235	1235	1.00	2295	2325	.99
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4822	4823	1.00	1641	1642	1.00	0	0	.00	7959	11699	.68	4667	4667	1.00	3046	3538	.86	0	1016	.00	1225	4029	.30	23360	31413	.74
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	162	162	1.00	5419	5419	1.00	2179	2180	1.00	30	30	1.00	9437	13178	.72	27487	27487	1.00	19091	19584	.97	3749	4795	.78	3672	6476	.57	71230	79313	.90
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	1957	2612	.75	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1957	2612	.75
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4574	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5342	6498	.82
From IIIA	0	0	.00	0	0	.00	2066	4645	.44	959	959	1.00	11259	15580	.72	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14284	21184	.67
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	6531	7191	.91	2834	6564	.43	959	959	1.00	18488	22809	.81	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	1957	2612	.75	0	0	.00	4574	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6531	7191	.91
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2066	4645	.44	0	0	.00	0	0	.00	0	0	.00	2834	6564	.43
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	11259	15580	.72	5852	5852	1.00	1377	1377	1.00	0	0	.00	18488	22809	.81
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	1957	2612	.75	0	0	.00	5342	6498	.82	14284	21184	.67	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 35 - JAN AVG DAY 1992 - HIGH DEMAND & HIGH SUPPLY
- WITH A 25% CANADIAN IMPORT REDUCTION

20:40 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1200	1200	1.00	5198	5198	1.00	1311	1311	1.00	74	74	1.00	10347	10347	1.00	1904	1904	1.00	1279	1279	1.00	850	850	1.00	2732	2732	1.00	24895	24895	1.00
Commercial	302	302	1.00	1820	1820	1.00	631	631	1.00	112	112	1.00	5367	5367	1.00	1646	1646	1.00	945	945	1.00	634	634	1.00	1209	1209	1.00	12664	12666	1.00
Industrial	284	287	.99	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21987	21992	1.00
Electric	0	47	.00	798	800	1.00	15	15	1.00	543	720	.75	891	891	1.00	2880	2880	1.00	1185	1185	1.00	53	53	1.00	1662	1662	1.00	8030	8253	.97
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1789	1839	.97	10334	10337	1.00	3055	3056	1.00	989	1167	.85	22584	22584	1.00	15270	15270	1.00	6731	6731	1.00	2448	2448	1.00	8039	8039	1.00	71241	71471	1.00
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	18187	18187	1.00	3654	3654	1.00	1381	1381	1.00	50997	50997	1.00
Imports	37	37	1.00	150	150	1.00	0	0	.00	0	0	.00	615	615	1.00	300	300	1.00	0	0	.00	95	832	.11	1852	1852	1.00	3050	3787	.81
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4822	4823	1.00	0	1642	.00	0	0	.00	5815	11699	.50	4667	4667	1.00	904	3538	.26	0	1016	.00	439	4029	.11	16647	31413	.53
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	174	174	1.00	5527	5528	1.00	599	2240	.27	30	30	1.00	7640	13524	.56	30757	30757	1.00	19091	21725	.88	3749	5502	.68	3672	7263	.51	71242	86746	.82
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	1850	2612	.71	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1850	2612	.71
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4573	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5341	6498	.82
From IIIA	0	0	.00	0	0	.00	3540	4645	.76	959	959	1.00	13055	15580	.84	0	0	.00	0	0	.00	0	0	.00	0	0	.00	17554	21184	.83
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	6423	7191	.89	4308	6564	.66	959	959	1.00	20284	22809	.89	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	1850	2612	.71	0	0	.00	4573	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6423	7191	.89
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3540	4645	.76	0	0	.00	0	0	.00	0	0	.00	4308	6564	.66
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13055	15580	.84	5852	5852	1.00	1377	1377	1.00	0	0	.00	20284	22809	.89
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	1850	2612	.71	0	0	.00	5341	6498	.82	17554	21184	.83	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 36 - JAN AVG DAY 1992 - HIGH DEMAND & HIGH SUPPLY
- WITH A 50% CANADIAN IMPORT REDUCTION

20:41 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1200	1200	1.00	5198	5198	1.00	1311	1311	1.00	74	74	1.00	10347	10347	1.00	1904	1904	1.00	1279	1279	1.00	850	850	1.00	2732	2732	1.00	24895	24895	1.00
Commercial	302	302	1.00	1820	1820	1.00	631	631	1.00	112	112	1.00	5367	5367	1.00	1646	1646	1.00	945	945	1.00	634	634	1.00	1209	1209	1.00	12665	12666	1.00
Industrial	272	287	.95	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21975	21992	1.00
Electric	0	47	.00	800	800	1.00	15	15	1.00	543	720	.75	891	891	1.00	2879	2880	1.00	1185	1185	1.00	53	53	1.00	1662	1662	1.00	8028	8253	.97
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1777	1839	.97	10336	10337	1.00	3055	3056	1.00	989	1167	.85	22584	22584	1.00	15268	15270	1.00	6731	6731	1.00	2448	2448	1.00	8039	8039	1.00	71230	71471	1.00
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	18187	18187	1.00	3654	3654	1.00	1381	1381	1.00	50997	50997	1.00
Imports	25	25	1.00	100	100	1.00	0	0	.00	0	0	.00	410	410	1.00	300	300	1.00	0	0	.00	95	555	.17	1235	1235	1.00	2165	2625	.82
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4822	4823	1.00	1633	1642	.99	0	0	.00	4438	11699	.38	4667	4667	1.00	904	3538	.26	0	1016	.00	1056	4029	.26	17520	31413	.56
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	162	162	1.00	5477	5478	1.00	2231	2240	1.00	30	30	1.00	6057	13319	.45	30757	30757	1.00	19091	21725	.88	3749	5225	.72	3672	6645	.55	71230	85583	.83
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	3862	4579	.84	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4630	6498	.71
From IIIA	0	0	.00	0	0	.00	2669	4645	.57	959	959	1.00	13926	15580	.89	0	0	.00	0	0	.00	0	0	.00	0	0	.00	17554	21184	.83
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	6474	7191	.90	3437	6564	.52	959	959	1.00	21155	22809	.93	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	3862	4579	.84	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6474	7191	.90
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2669	4645	.57	0	0	.00	0	0	.00	0	0	.00	3437	6564	.52
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13926	15580	.89	5852	5852	1.00	1377	1377	1.00	0	0	.00	21155	22809	.93
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	4630	6498	.71	17554	21184	.83	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 37 - JAN AVG DAY 1992 - LOW DEMAND & LOW SUPPLY
- WITH A 25% CANADIAN IMPORT REDUCTION

18:45 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	938	938	1.00	4496	4496	1.00	1357	1357	1.00	76	76	1.00	9789	9789	1.00	1793	1793	1.00	1178	1178	1.00	954	954	1.00	2668	2668	1.00	23244	23249	1.00
Commercial	465	465	1.00	2125	2125	1.00	808	808	1.00	143	143	1.00	5194	5194	1.00	1087	1087	1.00	721	721	1.00	591	591	1.00	1307	1307	1.00	12440	12441	1.00
Industrial	164	164	1.00	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18522	18524	1.00
Electric	13	13	1.00	398	398	1.00	17	17	1.00	531	849	.63	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6533	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1584	1585	1.00	8718	8719	1.00	3291	3292	1.00	989	1307	.76	20461	20466	1.00	13683	13684	1.00	5782	5783	1.00	2072	2073	1.00	7734	7735	1.00	64321	64644	1.00
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45027	45027	1.00
Imports	37	37	1.00	150	150	1.00	0	0	.00	0	0	.00	615	615	1.00	0	0	.00	0	0	.00	150	832	.18	1852	1852	1.00	2804	3487	.80
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	547	548	1.00
Storage	0	0	.00	4821	4823	1.00	4	1642	.00	0	0	.00	4044	11699	.35	4666	4667	1.00	2097	3538	.59	0	1016	.00	304	4029	.08	15940	31413	.51
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	174	174	1.00	5468	5469	1.00	542	2180	.25	30	30	1.00	5732	13383	.43	27487	27487	1.00	18142	19584	.93	3374	5072	.67	3368	7093	.47	64321	80476	.80
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1410	1615	.87	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1410	1615	.87
From IC	0	0	.00	2607	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2607	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	2054	4579	.45	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2822	6498	.43
From IIIA	0	0	.00	0	0	.00	4589	4645	.99	959	959	1.00	10321	15580	.66	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15869	21184	.75
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1410	1615	.87	4661	7191	.65	5357	6564	.82	959	959	1.00	17550	22809	.77	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1410	1615	.87	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1410	1615	.87
To IB	0	0	.00	0	0	.00	2607	2612	1.00	0	0	.00	2054	4579	.45	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4661	7191	.65
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	4589	4645	.99	0	0	.00	0	0	.00	0	0	.00	5357	6564	.82
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10321	15580	.66	5852	5852	1.00	1377	1377	1.00	0	0	.00	17550	22809	.77
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1410	1615	.87	2607	2612	1.00	0	0	.00	2822	6498	.43	15869	21184	.75	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 38 - JAN AVG DAY 1992 - LOW DEMAND & LOW SUPPLY
- WITH A 50% CANADIAN IMPORT REDUCTION

18:47 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 10			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	938	938	1.00	4496	4496	1.00	1357	1357	1.00	76	76	1.00	9789	9789	1.00	1793	1793	1.00	1178	1178	1.00	954	954	1.00	2668	2668	1.00	23244	23249	1.00
Commercial	465	465	1.00	2125	2125	1.00	808	808	1.00	143	143	1.00	5194	5194	1.00	1087	1087	1.00	721	721	1.00	591	591	1.00	1307	1307	1.00	12440	12441	1.00
Industrial	164	164	1.00	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18522	18524	1.00
Electric	13	13	1.00	398	398	1.00	17	17	1.00	531	849	.63	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6533	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1584	1585	1.00	8718	8719	1.00	3291	3292	1.00	989	1307	.76	20461	20466	1.00	13683	13684	1.00	5782	5783	1.00	2072	2073	1.00	7734	7735	1.00	64321	64644	1.00
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45027	45027	1.00
Imports	25	25	1.00	100	100	1.00	0	0	.00	0	0	.00	410	410	1.00	0	0	.00	0	0	.00	150	555	.27	1235	1235	1.00	1919	2325	.83
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	547	548	1.00
Storage	0	0	.00	4821	4823	1.00	4	1642	.00	0	0	.00	4311	11699	.37	4666	4667	1.00	2097	3538	.59	0	1016	.00	921	4029	.23	16825	31413	.54
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	162	162	1.00	5418	5419	1.00	542	2180	.25	30	30	1.00	5795	13178	.44	27487	27487	1.00	18142	19584	.93	3374	4795	.70	3368	6476	.52	64321	79313	.81
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1423	1615	.88	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1423	1615	.88
From IC	0	0	.00	2607	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2607	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	2116	4579	.46	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2884	6498	.44
From IIIA	0	0	.00	0	0	.00	4589	4645	.99	959	959	1.00	10321	15580	.66	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15869	21184	.75
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1423	1615	.88	4723	7191	.66	5357	6564	.82	959	959	1.00	17550	22809	.77	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1423	1615	.88	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1423	1615	.88
To IB	0	0	.00	0	0	.00	2607	2612	1.00	0	0	.00	2116	4579	.46	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4723	7191	.66
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	4589	4645	.99	0	0	.00	0	0	.00	0	0	.00	5357	6564	.82
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10321	15580	.66	5852	5852	1.00	1377	1377	1.00	0	0	.00	17550	22809	.77
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1423	1615	.88	2607	2612	1.00	0	0	.00	2884	6498	.44	15869	21184	.75	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 39 - JAN AVG DAY 1992 - LOW DEMAND & HIGH SUPPLY
- WITH A 25% CANADIAN IMPORT REDUCTION

18:50 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	938	938	1.00	4496	4496	1.00	1357	1357	1.00	76	76	1.00	9789	9789	1.00	1793	1793	1.00	1178	1178	1.00	954	954	1.00	2668	2668	1.00	23244	23249	1.00
Commercial	465	465	1.00	2125	2125	1.00	808	808	1.00	143	143	1.00	5194	5194	1.00	1087	1087	1.00	721	721	1.00	591	591	1.00	1307	1307	1.00	12440	12441	1.00
Industrial	164	164	1.00	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18522	18524	1.00
Electric	13	13	1.00	398	398	1.00	17	17	1.00	532	849	.63	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6532	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1584	1585	1.00	8718	8719	1.00	3291	3292	1.00	989	1307	.76	20460	20466	1.00	13683	13684	1.00	5782	5783	1.00	2072	2073	1.00	7734	7735	1.00	64320	64644	.99
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	18143	18187	1.00	3374	3654	.92	1381	1381	1.00	50672	50997	.99
Imports	37	37	1.00	150	150	1.00	0	0	.00	0	0	.00	615	615	1.00	300	300	1.00	0	0	.00	0	832	.00	1852	1852	1.00	2954	3787	.78
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	547	548	1.00
Storage	0	0	.00	4820	4823	1.00	370	1642	.23	0	0	.00	150	11699	.01	4665	4667	1.00	0	3538	.00	0	1016	.00	135	4029	.03	10144	31413	.32
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	174	174	1.00	5525	5528	1.00	968	2240	.43	30	30	1.00	1980	13524	.15	30755	30757	1.00	18143	21725	.84	3374	5502	.61	3368	7263	.46	64320	86746	.74
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1410	1615	.87	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1410	1615	.87
From IC	0	0	.00	1047	2612	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1047	2612	.40
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	3557	4579	.78	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4325	6498	.67
From IIIA	0	0	.00	0	0	.00	2602	4645	.56	959	959	1.00	15576	15580	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	19137	21184	.90
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1410	1615	.87	4604	7191	.64	3370	6564	.51	959	959	1.00	22805	22809	1.00	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1410	1615	.87	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1410	1615	.87
To IB	0	0	.00	0	0	.00	1047	2612	.40	0	0	.00	3557	4579	.78	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4604	7191	.64
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2602	4645	.56	0	0	.00	0	0	.00	0	0	.00	3370	6564	.51
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15576	15580	1.00	5852	5852	1.00	1377	1377	1.00	0	0	.00	22805	22809	1.00
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1410	1615	.87	1047	2612	.40	0	0	.00	4325	6498	.67	19137	21184	.90	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 40 - JAN AVG DAY 1992 - LOW DEMAND & HIGH SUPPLY
- WITH A 50% CANADIAN IMPORT REDUCTION

18:52 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	938	938	1.00	4496	4496	1.00	1357	1357	1.00	76	76	1.00	9789	9789	1.00	1793	1793	1.00	1178	1178	1.00	954	954	1.00	2668	2668	1.00	23244	23249	1.00
Commercial	465	465	1.00	2125	2125	1.00	808	808	1.00	143	143	1.00	5194	5194	1.00	1087	1087	1.00	721	721	1.00	591	591	1.00	1307	1307	1.00	12440	12441	1.00
Industrial	164	164	1.00	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18522	18524	1.00
Electric	13	13	1.00	398	398	1.00	17	17	1.00	532	849	.63	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6532	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1584	1585	1.00	8718	8719	1.00	3291	3292	1.00	989	1307	.76	20460	20466	1.00	13683	13684	1.00	5782	5783	1.00	2072	2073	1.00	7734	7735	1.00	64320	64644	.99
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	18143	18187	1.00	3374	3654	.92	1381	1381	1.00	50672	50997	.99
Imports	25	25	1.00	100	100	1.00	0	0	.00	0	0	.00	410	410	1.00	300	300	1.00	0	0	.00	0	555	.00	1235	1235	1.00	2069	2625	.79
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	547	548	1.00
Storage	0	0	.00	4820	4823	1.00	370	1642	.23	0	0	.00	418	11699	.04	4665	4667	1.00	0	3538	.00	0	1016	.00	752	4029	.19	11030	31413	.35
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	161	162	1.00	5475	5478	1.00	968	2240	.43	30	30	1.00	2042	13319	.15	30755	30757	1.00	18143	21725	.84	3374	5225	.65	3368	6645	.51	64320	85583	.75
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1423	1615	.88	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1423	1615	.88
From IC	0	0	.00	1046	2612	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1046	2612	.40
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	3620	4579	.79	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4388	6498	.68
From IIIA	0	0	.00	0	0	.00	2602	4645	.56	959	959	1.00	15576	15580	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	19137	21184	.90
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1423	1615	.88	4666	7191	.65	3370	6564	.51	959	959	1.00	22805	22809	1.00	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1423	1615	.88	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1423	1615	.88
To IB	0	0	.00	0	0	.00	1046	2612	.40	0	0	.00	3620	4579	.79	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4666	7191	.65
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2602	4645	.56	0	0	.00	0	0	.00	0	0	.00	3370	6564	.51
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15576	15580	1.00	5852	5852	1.00	1377	1377	1.00	0	0	.00	22805	22809	1.00
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1423	1615	.88	1046	2612	.40	0	0	.00	4388	6498	.68	19137	21184	.90	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 41 - JAN PK DAY 1992 - HIGH DEMAND & LOW SUPPLY
- WITH A 25% CANADIAN IMPORT REDUCTION

20:43 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	2052	2052	1.00	9715	9715	1.00	3065	3065	1.00	209	209	1.00	18972	18972	1.00	3788	3788	1.00	2169	2169	1.00	1635	1635	1.00	5017	5017	1.00	46621	46621	1.00
Commercial	392	516	.76	3402	3402	1.00	1475	1475	1.00	316	316	1.00	9841	9841	1.00	3274	3274	1.00	1603	1603	1.00	1220	1220	1.00	2220	2220	1.00	23742	23866	1.00
Industrial	0	287	.00	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21702	21992	.99
Electric	0	47	.00	789	800	.99	15	15	1.00	251	720	.35	880	891	.99	959	2880	.33	1185	1185	1.00	53	53	1.00	1662	1662	1.00	5797	8253	.70
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	2447	2905	.84	16425	16435	1.00	5653	5653	1.00	1037	1505	.69	35671	35682	1.00	16860	18782	.90	8279	8279	1.00	3818	3818	1.00	11335	11335	1.00	101528	104398	.97
SUPPLIES																														
Production	0	0	.00	447	447	1.00	485	485	1.00	27	27	1.00	962	962	1.00	20169	20169	1.00	14441	14441	1.00	2902	2902	1.00	1091	1091	1.00	40524	40524	1.00
Imports	37	37	1.00	150	150	1.00	0	0	.00	0	0	.00	615	615	1.00	0	0	.00	0	0	.00	832	832	1.00	1852	1852	1.00	3487	3487	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	8038	8038	1.00	2736	2736	1.00	0	0	.00	19499	19499	1.00	7778	7778	1.00	5897	5897	1.00	1435	1693	.85	4766	6715	.71	50149	52356	.96
Peak Shaving	573	573	1.00	2249	2249	1.00	1390	1390	1.00	0	0	.00	2224	2224	1.00	383	383	1.00	0	0	.00	0	109	.00	0	850	.00	6819	7778	.88
Total Supply	747	747	1.00	10884	10884	1.00	4611	4611	1.00	27	27	1.00	23300	23300	1.00	28741	28741	1.00	20338	20338	1.00	5169	5536	.93	7710	10508	.73	101528	104694	.97
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	2436	2750	.89	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2436	2750	.89
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4806	4820	1.00	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5614	6840	.82
From IIIA	0	0	.00	0	0	.00	2670	4890	.55	1010	1010	1.00	10375	16400	.63	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14055	22300	.63
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	35	40	.88	3689	4660	.79	12059	13035	.93
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1450	1450	1.00	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1570	1570	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	7242	7570	.96	3478	6910	.50	1010	1010	1.00	17985	24010	.75	2175	2175	1.00	0	0	.00	219	500	.44	3809	4780	.80			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	2436	2750	.89	0	0	.00	4806	4820	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7242	7570	.96
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	2670	4890	.55	0	0	.00	0	0	.00	0	0	.00	3478	6910	.50
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10375	16400	.63	6160	6160	1.00	1450	1450	1.00	0	0	.00	17985	24010	.75
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	35	40	.88	0	0	.00	184	460	.40	219	500	.44
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3689	4660	.79	120	120	1.00	0	0	.00	3809	4780	.80
Total PL Out	0	0	.00	1700	1700	1.00	2436	2750	.89	0	0	.00	5614	6840	.82	14055	22300	.63	12059	13035	.93	1570	1570	1.00	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 42 - JAN PK DAY 1992 - HIGH DEMAND & LOW SUPPLY
- WITH A 50% CANADIAN IMPORT REDUCTION

20:45 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	2052	2052	1.00	9715	9715	1.00	3065	3065	1.00	209	209	1.00	18972	18972	1.00	3788	3788	1.00	2169	2169	1.00	1635	1635	1.00	5017	5017	1.00	46621	46621	1.00
Commercial	380	516	.74	3402	3402	1.00	1475	1475	1.00	316	316	1.00	9841	9841	1.00	3274	3274	1.00	1603	1603	1.00	1220	1220	1.00	2220	2220	1.00	23729	23866	1.00
Industrial	0	287	.00	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21633	21992	.98
Electric	0	47	.00	581	800	.73	11	15	.73	252	720	.35	635	891	.71	1160	2880	.40	1185	1185	1.00	53	53	1.00	1662	1662	1.00	5610	8253	.68
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	2435	2905	.84	16217	16435	.99	5649	5653	1.00	1037	1505	.69	35427	35682	.99	17061	18782	.91	8279	8279	1.00	3818	3818	1.00	11335	11335	1.00	101260	104398	.97
SUPPLIES																														
Production	0	0	.00	447	447	1.00	485	485	1.00	27	27	1.00	962	962	1.00	20169	20169	1.00	14441	14441	1.00	2902	2902	1.00	1091	1091	1.00	40524	40524	1.00
Imports	25	25	1.00	100	100	1.00	0	0	.00	0	0	.00	410	410	1.00	0	0	.00	0	0	.00	555	555	1.00	1235	1235	1.00	2325	2325	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	8038	8038	1.00	2736	2736	1.00	0	0	.00	19499	19499	1.00	7778	7778	1.00	5897	5897	1.00	1693	1693	1.00	5403	6715	.80	51044	52356	.97
Peak Shaving	573	573	1.00	2249	2249	1.00	1390	1390	1.00	0	0	.00	2224	2224	1.00	383	383	1.00	0	0	.00	0	109	.00	0	850	.00	6819	7778	.88
Total Supply	735	735	1.00	10834	10834	1.00	4611	4611	1.00	27	27	1.00	23095	23095	1.00	28741	28741	1.00	20338	20338	1.00	5149	5259	.98	7729	9891	.78	101260	103531	.98
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	2559	2750	.93	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2559	2750	.93
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4524	4820	.94	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5332	6840	.78
From IIIA	0	0	.00	0	0	.00	2789	4890	.57	1010	1010	1.00	10055	16400	.61	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13854	22300	.62
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	40	40	1.00	3684	4660	.79	12059	13035	.93
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1450	1450	1.00	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1570	1570	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	199	460	.43	0	0	.00	199	460	.43
Total PL In	1700	1700	1.00	7083	7570	.94	3597	6910	.52	1010	1010	1.00	17665	24010	.74	2175	2175	1.00	0	0	.00	239	500	.48	3804	4780	.80			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	2559	2750	.93	0	0	.00	4524	4820	.94	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7083	7570	.94
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	2789	4890	.57	0	0	.00	0	0	.00	0	0	.00	3597	6910	.52
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10055	16400	.61	6160	6160	1.00	1450	1450	1.00	0	0	.00	17665	24010	.74
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	40	40	1.00	0	0	.00	199	460	.43	239	500	.48
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3684	4660	.79	120	120	1.00	0	0	.00	3804	4780	.80
Total PL Out	0	0	.00	1700	1700	1.00	2559	2750	.93	0	0	.00	5332	6840	.78	13854	22300	.62	12059	13035	.93	1570	1570	1.00	199	460	.43			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 43 - JAN PK DAY 1992 - HIGH DEMAND & HIGH SUPPLY
- WITH A 25% CANADIAN IMPORT REDUCTION

20:51 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	2052	2052	1.00	9715	9715	1.00	3065	3065	1.00	209	209	1.00	18972	18972	1.00	3788	3788	1.00	2169	2169	1.00	1635	1635	1.00	5017	5017	1.00	46621	46621	1.00
Commercial	392	516	.76	3402	3402	1.00	1475	1475	1.00	316	316	1.00	9841	9841	1.00	3274	3274	1.00	1603	1603	1.00	1220	1220	1.00	2220	2220	1.00	23742	23866	1.00
Industrial	0	287	.00	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21695	21992	.99
Electric	0	47	.00	799	800	1.00	15	15	1.00	252	720	.35	891	891	1.00	2880	2880	1.00	1185	1185	1.00	44	53	.83	1662	1662	1.00	7738	8253	.94
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	2447	2905	.84	16435	16435	1.00	5653	5653	1.00	1037	1505	.69	35682	35682	1.00	18781	18782	1.00	8279	8279	1.00	3810	3818	1.00	11335	11335	1.00	103462	104398	.99
SUPPLIES																														
Production	0	0	.00	500	500	1.00	539	539	1.00	27	27	1.00	1089	1089	1.00	22842	22842	1.00	16368	16368	1.00	3289	3289	1.00	1243	1243	1.00	45897	45897	1.00
Imports	37	37	1.00	150	150	1.00	0	0	.00	0	0	.00	615	615	1.00	300	300	1.00	0	0	.00	832	832	1.00	1852	1852	1.00	3787	3787	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	8038	8038	1.00	2736	2736	1.00	0	0	.00	19499	19499	1.00	7778	7778	1.00	4945	5897	.84	996	1693	.59	3643	6715	.54	47635	52356	.91
Peak Shaving	573	573	1.00	2249	2249	1.00	813	1390	.58	0	0	.00	1960	2224	.88	0	383	.00	0	0	.00	0	109	.00	0	850	.00	5594	7778	.72
Total Supply	747	747	1.00	10936	10936	1.00	4087	4664	.88	27	27	1.00	23162	23426	.99	31331	31714	.99	21314	22265	.96	5117	5923	.86	6739	10660	.63	103462	110366	.94
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	2447	2750	.89	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2447	2750	.89
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4752	4820	.99	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5560	6840	.81
From IIIA	0	0	.00	0	0	.00	3205	4890	.66	1010	1010	1.00	10509	16400	.64	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14724	22300	.66
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	40	40	1.00	4660	4660	1.00	13035	13035	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1411	1450	.97	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1531	1570	.98
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	7199	7570	.95	4013	6910	.58	1010	1010	1.00	18080	24010	.75	2175	2175	1.00	0	0	.00	224	500	.45	4780	4780	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	2447	2750	.89	0	0	.00	4752	4820	.99	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7199	7570	.95
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	3205	4890	.66	0	0	.00	0	0	.00	0	0	.00	4013	6910	.58
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10509	16400	.64	6160	6160	1.00	1411	1450	.97	0	0	.00	18080	24010	.75
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	40	40	1.00	0	0	.00	184	460	.40	224	500	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4660	4660	1.00	120	120	1.00	0	0	.00	4780	4780	1.00
Total PL Out	0	0	.00	1700	1700	1.00	2447	2750	.89	0	0	.00	5560	6840	.81	14724	22300	.66	13035	13035	1.00	1531	1570	.98	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 44 - JAN PK DAY 1992 - HIGH DEMAND & HIGH SUPPLY
- WITH A 50% CANADIAN IMPORT REDUCTION

20:53 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	2052	2052	1.00	9715	9715	1.00	3065	3065	1.00	209	209	1.00	18972	18972	1.00	3788	3788	1.00	2169	2169	1.00	1635	1635	1.00	5017	5017	1.00	46621	46621	1.00
Commercial	380	516	.74	3402	3402	1.00	1475	1475	1.00	316	316	1.00	9841	9841	1.00	3274	3274	1.00	1603	1603	1.00	1220	1220	1.00	2220	2220	1.00	23728	23866	1.00
Industrial	0	287	.00	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21702	21992	.99
Electric	0	47	.00	799	800	1.00	14	15	.93	252	720	.35	891	891	1.00	2880	2880	1.00	1185	1185	1.00	52	53	.98	1662	1662	1.00	7739	8253	.94
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	2435	2905	.84	16435	16435	1.00	5652	5653	1.00	1037	1505	.69	35682	35682	1.00	18781	18782	1.00	8279	8279	1.00	3818	3818	1.00	11335	11335	1.00	103457	104398	.99
SUPPLIES																														
Production	0	0	.00	500	500	1.00	539	539	1.00	27	27	1.00	1089	1089	1.00	22842	22842	1.00	16368	16368	1.00	3289	3289	1.00	1243	1243	1.00	45897	45897	1.00
Imports	25	25	1.00	100	100	1.00	0	0	.00	0	0	.00	410	410	1.00	300	300	1.00	0	0	.00	555	555	1.00	1235	1235	1.00	2625	2625	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	8038	8038	1.00	2736	2736	1.00	0	0	.00	19499	19499	1.00	7778	7778	1.00	4945	5897	.84	1319	1693	.78	4261	6715	.63	48575	52356	.93
Peak Shaving	573	573	1.00	2249	2249	1.00	1364	1390	.98	0	0	.00	1625	2224	.73	0	383	.00	0	0	.00	0	109	.00	0	850	.00	5811	7778	.75
Total Supply	735	735	1.00	10886	10886	1.00	4639	4664	.99	27	27	1.00	22622	23221	.97	31331	31714	.99	21314	22265	.96	5162	5646	.91	6739	10043	.67	103457	109204	.95
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	2651	2750	.96	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2651	2750	.96
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4597	4820	.95	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5405	6840	.79
From IIIA	0	0	.00	0	0	.00	2857	4890	.58	1010	1010	1.00	10857	16400	.66	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14724	22300	.66
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	40	40	1.00	4660	4660	1.00	13035	13035	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1448	1450	1.00	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1568	1570	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	7248	7570	.96	3665	6910	.53	1010	1010	1.00	18465	24010	.77	2175	2175	1.00	0	0	.00	224	500	.45	4780	4780	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	2651	2750	.96	0	0	.00	4597	4820	.95	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7248	7570	.96
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	2857	4890	.58	0	0	.00	0	0	.00	0	0	.00	3665	6910	.53
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10857	16400	.66	6160	6160	1.00	1448	1450	1.00	0	0	.00	18465	24010	.77
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	40	40	1.00	0	0	.00	184	460	.40	224	500	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4660	4660	1.00	120	120	1.00	0	0	.00	4780	4780	1.00
Total PL Out	0	0	.00	1700	1700	1.00	2651	2750	.96	0	0	.00	5405	6840	.79	14724	22300	.66	13035	13035	1.00	1568	1570	1.00	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 45 - JAN PK DAY 1992 - LOW DEMAND & LOW SUPPLY
- WITH A 25% CANADIAN IMPORT REDUCTION

21:00 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1553	1553	1.00	7989	7989	1.00	3111	3111	1.00	207	207	1.00	17544	17544	1.00	3752	3752	1.00	2003	2003	1.00	1671	1671	1.00	4797	4797	1.00	42627	42627	1.00
Commercial	770	770	1.00	3776	3776	1.00	1852	1852	1.00	390	390	1.00	9309	9309	1.00	2275	2275	1.00	1226	1226	1.00	1035	1035	1.00	2350	2350	1.00	22982	22983	1.00
Industrial	120	164	.73	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18455	18524	1.00
Electric	0	13	.00	398	398	1.00	17	17	1.00	201	849	.24	99	121	.82	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6188	6850	.90
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	2447	2504	.98	13863	13863	1.00	6090	6090	1.00	1037	1686	.62	32312	32336	1.00	16831	16831	1.00	7113	7113	1.00	3233	3233	1.00	10906	10906	1.00	93834	94564	.99
SUPPLIES																														
Production	0	0	.00	447	447	1.00	485	485	1.00	27	27	1.00	962	962	1.00	20169	20169	1.00	14441	14441	1.00	2902	2902	1.00	1091	1091	1.00	40524	40524	1.00
Imports	37	37	1.00	150	150	1.00	0	0	.00	0	0	.00	615	615	1.00	0	0	.00	0	0	.00	832	832	1.00	1852	1852	1.00	3487	3487	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	8037	8038	1.00	2736	2736	1.00	0	0	.00	19499	19499	1.00	7778	7778	1.00	5706	5897	.97	810	1693	.48	3367	6715	.50	47931	52356	.92
Peak Shaving	573	573	1.00	770	2249	.34	0	1390	.00	0	0	.00	0	2224	.00	0	383	.00	0	0	.00	0	109	.00	0	850	.00	1343	7778	.17
Total Supply	747	747	1.00	9403	10884	.86	3220	4611	.70	27	27	1.00	21074	23300	.90	28357	28741	.99	20147	20338	.99	4545	5536	.82	6310	10508	.60	93834	104694	.90
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	1345	2750	.49	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1345	2750	.49
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4815	4820	1.00	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5623	6840	.82
From IIIA	0	0	.00	0	0	.00	3406	4890	.70	1010	1010	1.00	9286	16400	.57	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13702	22300	.61
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	40	40	1.00	4660	4660	1.00	13035	13035	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1415	1450	.98	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1535	1570	.98
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	6160	7570	.81	4214	6910	.61	1010	1010	1.00	16861	24010	.70	2175	2175	1.00	0	0	.00	224	500	.45	4780	4780	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	1345	2750	.49	0	0	.00	4815	4820	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	7570	.81
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	3406	4890	.70	0	0	.00	0	0	.00	0	0	.00	4214	6910	.61
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	9286	16400	.57	6160	6160	1.00	1415	1450	.98	0	0	.00	16861	24010	.70
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	40	40	1.00	0	0	.00	184	460	.40	224	500	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4660	4660	1.00	120	120	1.00	0	0	.00	4780	4780	1.00
Total PL Out	0	0	.00	1700	1700	1.00	1345	2750	.49	0	0	.00	5623	6840	.82	13702	22300	.61	13035	13035	1.00	1535	1570	.98	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 46 - JAN PK DAY 1992 - LOW DEMAND & LOW SUPPLY
- WITH A 50% CANADIAN IMPORT REDUCTION

21:01 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1553	1553	1.00	7989	7989	1.00	3111	3111	1.00	207	207	1.00	17544	17544	1.00	3752	3752	1.00	2003	2003	1.00	1671	1671	1.00	4797	4797	1.00	42627	42627	1.00
Commercial	770	770	1.00	3776	3776	1.00	1852	1852	1.00	390	390	1.00	9309	9309	1.00	2275	2275	1.00	1226	1226	1.00	1035	1035	1.00	2350	2350	1.00	22982	22983	1.00
Industrial	108	164	.66	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18457	18524	1.00
Electric	0	13	.00	398	398	1.00	17	17	1.00	200	849	.24	113	121	.93	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6188	6850	.90
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	2435	2504	.97	13863	13863	1.00	6090	6090	1.00	1037	1686	.62	32326	32336	1.00	16831	16831	1.00	7113	7113	1.00	3233	3233	1.00	10906	10906	1.00	93836	94564	.99
SUPPLIES																														
Production	0	0	.00	447	447	1.00	485	485	1.00	27	27	1.00	962	962	1.00	20169	20169	1.00	14441	14441	1.00	2902	2902	1.00	1091	1091	1.00	40524	40524	1.00
Imports	25	25	1.00	100	100	1.00	0	0	.00	0	0	.00	410	410	1.00	0	0	.00	0	0	.00	555	555	1.00	1235	1235	1.00	2325	2325	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	8037	8038	1.00	2736	2736	1.00	0	0	.00	19499	19499	1.00	7778	7778	1.00	5707	5897	.97	1118	1693	.66	3984	6715	.59	48856	52356	.93
Peak Shaving	573	573	1.00	1009	2249	.45	0	1390	.00	0	0	.00	0	2224	.00	0	383	.00	0	0	.00	0	109	.00	0	850	.00	1582	7778	.20
Total Supply	735	735	1.00	9593	10834	.89	3220	4611	.70	27	27	1.00	20869	23095	.90	28358	28741	.99	20147	20338	.99	4574	5259	.87	6310	9891	.64	93836	103531	.91
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	1211	2750	.44	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1211	2750	.44
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4759	4820	.99	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5567	6840	.81
From IIIA	0	0	.00	0	0	.00	3273	4890	.67	1010	1010	1.00	9419	16400	.57	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13702	22300	.61
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	40	40	1.00	4660	4660	1.00	13035	13035	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1445	1450	1.00	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1565	1570	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	5970	7570	.79	4081	6910	.59	1010	1010	1.00	17024	24010	.71	2175	2175	1.00	0	0	.00	224	500	.45	4780	4780	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	1211	2750	.44	0	0	.00	4759	4820	.99	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5970	7570	.79
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	3273	4890	.67	0	0	.00	0	0	.00	0	0	.00	4081	6910	.59
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	9419	16400	.57	6160	6160	1.00	1445	1450	1.00	0	0	.00	17024	24010	.71
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	40	40	1.00	0	0	.00	184	460	.40	224	500	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4660	4660	1.00	120	120	1.00	0	0	.00	4780	4780	1.00
Total PL Out	0	0	.00	1700	1700	1.00	1211	2750	.44	0	0	.00	5567	6840	.81	13702	22300	.61	13035	13035	1.00	1565	1570	1.00	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 47 - JAN PK DAY 1992 - LOW DEMAND & HIGH SUPPLY
- WITH A 25% CANADIAN IMPORT REDUCTION

21:03 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1553	1553	1.00	7989	7989	1.00	3111	3111	1.00	207	207	1.00	17544	17544	1.00	3752	3752	1.00	2003	2003	1.00	1671	1671	1.00	4797	4797	1.00	42627	42627	1.00
Commercial	770	770	1.00	3776	3776	1.00	1852	1852	1.00	390	390	1.00	9309	9309	1.00	2275	2275	1.00	1226	1226	1.00	1035	1035	1.00	2350	2350	1.00	22980	22983	1.00
Industrial	120	164	.73	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18476	18524	1.00
Electric	0	13	.00	398	398	1.00	17	17	1.00	200	849	.24	121	121	1.00	2464	2465	1.00	905	905	1.00	31	31	1.00	2050	2051	1.00	6190	6850	.90
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	2447	2504	.98	13863	13863	1.00	6089	6090	1.00	1037	1686	.62	32334	32336	1.00	16830	16831	1.00	7113	7113	1.00	3233	3233	1.00	10905	10906	1.00	93854	94564	.99
SUPPLIES																														
Production	0	0	.00	500	500	1.00	539	539	1.00	27	27	1.00	1089	1089	1.00	22842	22842	1.00	16368	16368	1.00	3289	3289	1.00	1243	1243	1.00	45897	45897	1.00
Imports	37	37	1.00	150	150	1.00	0	0	.00	0	0	.00	615	615	1.00	300	300	1.00	0	0	.00	832	832	1.00	1852	1852	1.00	3787	3787	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	8037	8038	1.00	2736	2736	1.00	0	0	.00	17503	19499	.90	7778	7778	1.00	3779	5897	.64	0	1693	.00	3214	6715	.48	43048	52356	.82
Peak Shaving	573	573	1.00	0	2249	.00	0	1390	.00	0	0	.00	0	2224	.00	0	383	.00	0	0	.00	0	109	.00	0	850	.00	573	7778	.07
Total Supply	747	747	1.00	8686	10936	.79	3274	4664	.70	27	27	1.00	19208	23426	.82	31331	31714	.99	20147	22265	.90	4121	5923	.70	6310	10660	.59	93854	110366	.85
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	2205	2750	.80	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2205	2750	.80
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4672	4820	.97	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5480	6840	.80
From IIIA	0	0	.00	0	0	.00	4212	4890	.86	1010	1010	1.00	11454	16400	.70	0	0	.00	0	0	.00	0	0	.00	0	0	.00	16676	22300	.75
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	40	40	1.00	4660	4660	1.00	13035	13035	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	992	1450	.68	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1112	1570	.71
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	185	460	.40	0	0	.00	185	460	.40
Total PL In	1700	1700	1.00	6877	7570	.91	5020	6910	.73	1010	1010	1.00	18606	24010	.77	2175	2175	1.00	0	0	.00	225	500	.45	4780	4780	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	2205	2750	.80	0	0	.00	4672	4820	.97	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6877	7570	.91
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	4212	4890	.86	0	0	.00	0	0	.00	0	0	.00	5020	6910	.73
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	11454	16400	.70	6160	6160	1.00	992	1450	.68	0	0	.00	18606	24010	.77
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	40	40	1.00	0	0	.00	185	460	.40	225	500	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4660	4660	1.00	120	120	1.00	0	0	.00	4780	4780	1.00
Total PL Out	0	0	.00	1700	1700	1.00	2205	2750	.80	0	0	.00	5480	6840	.80	16676	22300	.75	13035	13035	1.00	1112	1570	.71	185	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 48 - JAN PK DAY 1992 - LOW DEMAND & HIGH SUPPLY
- WITH A 50% CANADIAN IMPORT REDUCTION

21:10 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1553	1553	1.00	7989	7989	1.00	3111	3111	1.00	207	207	1.00	17544	17544	1.00	3752	3752	1.00	2003	2003	1.00	1671	1671	1.00	4797	4797	1.00	42627	42627	1.00
Commercial	770	770	1.00	3776	3776	1.00	1852	1852	1.00	390	390	1.00	9309	9309	1.00	2275	2275	1.00	1226	1226	1.00	1035	1035	1.00	2350	2350	1.00	22982	22983	1.00
Industrial	108	164	.66	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18448	18524	1.00
Electric	0	13	.00	398	398	1.00	17	17	1.00	201	849	.24	121	121	1.00	2462	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6188	6850	.90
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	2434	2504	.97	13863	13863	1.00	6090	6090	1.00	1037	1686	.62	32319	32336	1.00	16828	16831	1.00	7113	7113	1.00	3233	3233	1.00	10906	10906	1.00	93826	94564	.99
SUPPLIES																														
Production	0	0	.00	500	500	1.00	539	539	1.00	27	27	1.00	1089	1089	1.00	22842	22842	1.00	16368	16368	1.00	3289	3289	1.00	1243	1243	1.00	45897	45897	1.00
Imports	25	25	1.00	100	100	1.00	0	0	.00	0	0	.00	410	410	1.00	300	300	1.00	0	0	.00	555	555	1.00	1235	1235	1.00	2625	2625	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	8037	8038	1.00	2733	2736	1.00	0	0	.00	18008	19499	.92	7778	7778	1.00	3779	5897	.64	0	1693	.00	3832	6715	.57	44183	52356	.84
Peak Shaving	573	573	1.00	0	2249	.00	0	1390	.00	0	0	.00	0	2224	.00	0	383	.00	0	0	.00	0	109	.00	0	850	.00	573	7778	.07
Total Supply	735	735	1.00	8636	10886	.79	3271	4664	.70	27	27	1.00	19522	23221	.84	31331	31714	.99	20147	22265	.90	3844	5646	.68	6310	10043	.63	93826	109204	.86
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	2210	2750	.80	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2210	2750	.80
From IO	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4717	4820	.98	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5525	6840	.81
From IIIA	0	0	.00	0	0	.00	4220	4890	.86	1010	1010	1.00	11447	16400	.70	0	0	.00	0	0	.00	0	0	.00	0	0	.00	16677	22300	.75
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	40	40	1.00	4660	4660	1.00	13035	13035	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	714	1450	.49	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	834	1570	.53
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	6927	7570	.92	5028	6910	.73	1010	1010	1.00	18321	24010	.76	2175	2175	1.00	0	0	.00	224	500	.45	4780	4780	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	2210	2750	.80	0	0	.00	4717	4820	.98	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6927	7570	.92
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	4220	4890	.86	0	0	.00	0	0	.00	0	0	.00	5028	6910	.73
To IO	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	11447	16400	.70	6160	6160	1.00	714	1450	.49	0	0	.00	18321	24010	.76
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	40	40	1.00	0	0	.00	184	460	.40	224	500	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4660	4660	1.00	120	120	1.00	0	0	.00	4780	4780	1.00
Total PL Out	0	0	.00	1700	1700	1.00	2210	2750	.80	0	0	.00	5525	6840	.81	16677	22300	.75	13035	13035	1.00	834	1570	.53	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 49 - JAN AVG DAY 1992 - HIGH DEMAND & LOW SUPPLY
- 20% COLDER THAN NORMAL
- WITH A 25% CANADIAN IMPORT REDUCTION

00:03 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1409	1409	1.00	6073	6073	1.00	1534	1534	1.00	84	84	1.00	12176	12176	1.00	2206	2206	1.00	1497	1497	1.00	1001	1001	1.00	3136	3136	1.00	29116	29116	1.00
Commercial	348	348	1.00	2103	2103	1.00	723	723	1.00	119	119	1.00	6290	6290	1.00	1861	1861	1.00	1069	1069	1.00	741	741	1.00	1348	1348	1.00	14600	14602	1.00
Industrial	29	287	.10	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	20957	21992	.95
Electric	0	47	.00	352	800	.44	15	15	1.00	526	720	.73	891	891	1.00	2581	2880	.90	1185	1185	1.00	53	53	1.00	1662	1662	1.00	8040	8253	.97
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1789	2094	.85	11046	11495	.96	3371	3371	1.00	989	1184	.84	25335	25336	1.00	15487	15787	.98	7072	7073	1.00	2705	2706	1.00	8582	8582	1.00	76380	77628	.98
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45027	45027	1.00
Imports	37	37	1.00	150	150	1.00	0	0	.00	0	0	.00	615	615	1.00	0	0	.00	0	0	.00	783	832	.94	1852	1852	1.00	3437	3487	.99
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4823	4823	1.00	1641	1642	1.00	0	0	.00	11698	11699	1.00	4667	4667	1.00	3387	3538	.96	0	1016	.00	1151	4029	.29	27367	31413	.87
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	174	174	1.00	5469	5469	1.00	2180	2180	1.00	30	30	1.00	13381	13383	1.00	27487	27487	1.00	19433	19584	.99	4007	5072	.79	4215	7093	.59	76380	80476	.95
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3036	4645	.65	959	959	1.00	10071	15580	.65	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14066	21184	.66
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	7191	7191	1.00	3804	6564	.58	959	959	1.00	17300	22809	.76	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3036	4645	.65	0	0	.00	0	0	.00	0	0	.00	3804	6564	.58
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10071	15580	.65	5852	5852	1.00	1377	1377	1.00	0	0	.00	17300	22809	.76
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	5347	6498	.82	14066	21184	.66	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 50 - JAN AVG DAY 1992 - HIGH DEMAND & LOW SUPPLY
- 20% COLDER THAN NORMAL
- WITH A 50% CANADIAN IMPORT REDUCTION

00:04 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1409	1409	1.00	6073	6073	1.00	1534	1534	1.00	84	84	1.00	12176	12176	1.00	2206	2206	1.00	1497	1497	1.00	1001	1001	1.00	3136	3136	1.00	29116	29116	1.00
Commercial	348	348	1.00	2103	2103	1.00	723	723	1.00	119	119	1.00	6290	6290	1.00	1861	1861	1.00	1069	1069	1.00	741	741	1.00	1348	1348	1.00	14600	14602	1.00
Industrial	17	287	.06	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21716	21992	.99
Electric	0	47	.00	301	800	.38	11	15	.73	526	720	.73	646	891	.73	2626	2880	.91	1185	1185	1.00	52	53	.98	1662	1662	1.00	7015	8253	.85
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1777	2094	.85	10995	11495	.96	3366	3371	1.00	989	1184	.84	25091	25336	.99	15533	15787	.98	7072	7073	1.00	2705	2706	1.00	8582	8582	1.00	76114	77628	.98
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45027	45027	1.00
Imports	25	25	1.00	100	100	1.00	0	0	.00	0	0	.00	410	410	1.00	0	0	.00	0	0	.00	555	555	1.00	1235	1235	1.00	2324	2325	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4823	4823	1.00	1642	1642	1.00	0	0	.00	11699	11699	1.00	4667	4667	1.00	3408	3538	.96	200	1016	.20	1776	4029	.44	28214	31413	.90
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	162	162	1.00	5419	5419	1.00	2180	2180	1.00	30	30	1.00	13178	13178	1.00	27487	27487	1.00	19454	19584	.99	3979	4795	.83	4222	6476	.65	76114	79313	.96
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3031	4645	.65	959	959	1.00	10030	15580	.64	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14020	21184	.66
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	37	38	.97	4426	4427	1.00	12381	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	108	114	.95	1485	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	7191	7191	1.00	3799	6564	.58	959	959	1.00	17259	22809	.76	2066	2066	1.00	0	0	.00	212	475	.45	4534	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3031	4645	.65	0	0	.00	0	0	.00	0	0	.00	3799	6564	.58
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10030	15580	.64	5852	5852	1.00	1377	1377	1.00	0	0	.00	17259	22809	.76
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	37	38	.97	0	0	.00	175	437	.40	212	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4426	4427	1.00	108	114	.95	0	0	.00	4534	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	5347	6498	.82	14020	21184	.66	12381	12383	1.00	1485	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 51 - JAN AVG DAY 1992 - HIGH DEMAND & HIGH SUPPLY
- 20% COLDER THAN NORMAL
- WITH A 25% CANADIAN IMPORT REDUCTION

00:08 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1409	1409	1.00	6073	6073	1.00	1534	1534	1.00	84	84	1.00	12176	12176	1.00	2206	2206	1.00	1497	1497	1.00	1001	1001	1.00	3136	3136	1.00	29116	29116	1.00
Commercial	348	348	1.00	2103	2103	1.00	723	723	1.00	119	119	1.00	6290	6290	1.00	1861	1861	1.00	1069	1069	1.00	741	741	1.00	1348	1348	1.00	14600	14602	1.00
Industrial	30	287	.10	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21732	21992	.99
Electric	0	47	.00	409	800	.51	15	15	1.00	526	720	.73	891	891	1.00	2880	2880	1.00	1185	1185	1.00	53	53	1.00	1662	1662	1.00	7623	8253	.92
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1789	2094	.85	11104	11495	.97	3371	3371	1.00	989	1184	.84	25335	25336	1.00	15786	15787	1.00	7072	7073	1.00	2705	2706	1.00	8582	8582	1.00	76737	77628	.99
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	18187	18187	1.00	3654	3654	1.00	1381	1381	1.00	50996	50997	1.00
Imports	37	37	1.00	150	150	1.00	0	0	.00	0	0	.00	615	615	1.00	300	300	1.00	0	0	.00	353	832	.42	1852	1852	1.00	3307	3787	.87
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4823	4823	1.00	1621	1642	.99	0	0	.00	8545	11699	.73	4667	4667	1.00	1246	3538	.35	0	1016	.00	982	4029	.24	21884	31413	.70
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	174	174	1.00	5528	5528	1.00	2219	2240	.99	30	30	1.00	10370	13524	.77	30757	30757	1.00	19433	21725	.89	4007	5502	.73	4215	7263	.58	76737	86746	.88
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	2996	4645	.64	959	959	1.00	13082	15580	.84	0	0	.00	0	0	.00	0	0	.00	0	0	.00	17037	21184	.80
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	7191	7191	1.00	3764	6564	.57	959	959	1.00	20311	22809	.89	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2996	4645	.64	0	0	.00	0	0	.00	0	0	.00	3764	6564	.57
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13082	15580	.84	5852	5852	1.00	1377	1377	1.00	0	0	.00	20311	22809	.89
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	5347	6498	.82	17037	21184	.80	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 52 - JAN AVG DAY 1992 - HIGH DEMAND & HIGH SUPPLY
- 20% COLDER THAN NORMAL
- WITH A 50% CANADIAN IMPORT REDUCTION

00:12 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1409	1409	1.00	6073	6073	1.00	1534	1534	1.00	84	84	1.00	12176	12176	1.00	2206	2206	1.00	1497	1497	1.00	1001	1001	1.00	3136	3136	1.00	29116	29116	1.00
Commercial	348	348	1.00	2103	2103	1.00	723	723	1.00	119	119	1.00	6290	6290	1.00	1861	1861	1.00	1069	1069	1.00	741	741	1.00	1348	1348	1.00	14600	14602	1.00
Industrial	17	287	.06	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21720	21992	.99
Electric	0	47	.00	360	800	.45	15	15	1.00	526	720	.73	891	891	1.00	2880	2880	1.00	1185	1185	1.00	53	53	1.00	1662	1662	1.00	7572	8253	.92
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1777	2094	.85	11054	11495	.96	3371	3371	1.00	989	1184	.84	25335	25336	1.00	15786	15787	1.00	7072	7073	1.00	2705	2706	1.00	8582	8582	1.00	76674	77628	.99
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	18187	18187	1.00	3654	3654	1.00	1381	1381	1.00	50996	50997	1.00
Imports	25	25	1.00	100	100	1.00	0	0	.00	0	0	.00	410	410	1.00	300	300	1.00	0	0	.00	353	555	.64	1235	1235	1.00	2422	2625	.92
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4823	4823	1.00	1556	1642	.95	0	0	.00	8816	11699	.75	4667	4667	1.00	1246	3538	.35	0	1016	.00	1599	4029	.40	22707	31413	.72
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	162	162	1.00	5478	5478	1.00	2154	2240	.96	30	30	1.00	10436	13319	.78	30757	30757	1.00	19433	21725	.89	4007	5225	.77	4215	6645	.63	76674	85583	.90
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3062	4645	.66	959	959	1.00	13016	15580	.84	0	0	.00	0	0	.00	0	0	.00	0	0	.00	17037	21184	.80
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	7191	7191	1.00	3830	6564	.58	959	959	1.00	20245	22809	.89	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3062	4645	.66	0	0	.00	0	0	.00	0	0	.00	3830	6564	.58
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13016	15580	.84	5852	5852	1.00	1377	1377	1.00	0	0	.00	20245	22809	.89
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	5347	6498	.82	17037	21184	.80	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 53 - JAN AVG DAY 1992 - LOW DEMAND & LOW SUPPLY
- 20% COLDER THAN NORMAL
- WITH A 25% CANADIAN IMPORT REDUCTION

00:14 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1101	1101	1.00	5253	5253	1.00	1583	1583	1.00	86	86	1.00	11520	11520	1.00	2077	2077	1.00	1379	1379	1.00	1124	1124	1.00	3063	3063	1.00	27186	27186	1.00
Commercial	536	536	1.00	2454	2454	1.00	925	925	1.00	152	152	1.00	6088	6088	1.00	1229	1229	1.00	816	816	1.00	691	691	1.00	1457	1457	1.00	14345	14348	1.00
Industrial	148	164	.90	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18504	18524	1.00
Electric	0	13	.00	398	398	1.00	17	17	1.00	513	849	.60	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6500	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	1789	1819	.98	9805	9805	1.00	3635	3635	1.00	989	1326	.75	23086	23091	1.00	14110	14110	1.00	6079	6079	1.00	2343	2343	1.00	8280	8280	1.00	70117	70488	.99
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45026	45027	1.00
Imports	37	37	1.00	150	150	1.00	0	0	.00	0	0	.00	615	615	1.00	0	0	.00	0	0	.00	420	832	.50	1852	1852	1.00	3075	3487	.88
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4822	4823	1.00	1641	1642	1.00	0	0	.00	7090	11699	.61	4667	4667	1.00	2393	3538	.68	0	1016	.00	849	4029	.21	21467	31413	.68
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	174	174	1.00	5469	5469	1.00	2180	2180	1.00	30	30	1.00	8778	13383	.66	27487	27487	1.00	18439	19584	.94	3644	5072	.72	3913	7093	.55	70117	80476	.87
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	1862	2612	.71	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1862	2612	.71
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4089	4579	.89	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4857	6498	.75
From IIIA	0	0	.00	0	0	.00	2549	4645	.55	959	959	1.00	11935	15580	.77	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15443	21184	.73
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	5951	7191	.83	3317	6564	.51	959	959	1.00	19164	22809	.84	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	1862	2612	.71	0	0	.00	4089	4579	.89	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5951	7191	.83
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2549	4645	.55	0	0	.00	0	0	.00	0	0	.00	3317	6564	.51
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	11935	15580	.77	5852	5852	1.00	1377	1377	1.00	0	0	.00	19164	22809	.84
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	1862	2612	.71	0	0	.00	4857	6498	.75	15443	21184	.73	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 54 - JAN AVG DAY 1992 - LOW DEMAND & LOW SUPPLY
- 20% COLDER THAN NORMAL
- WITH A 50% CANADIAN IMPORT REDUCTION

00:16 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1101	1101	1.00	5253	5253	1.00	1583	1583	1.00	86	86	1.00	11520	11520	1.00	2077	2077	1.00	1379	1379	1.00	1124	1124	1.00	3063	3063	1.00	27186	27186	1.00
Commercial	536	536	1.00	2454	2454	1.00	925	925	1.00	152	152	1.00	6088	6088	1.00	1229	1229	1.00	816	816	1.00	691	691	1.00	1457	1457	1.00	14346	14348	1.00
Industrial	135	164	.82	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18485	18524	1.00
Electric	0	13	.00	398	398	1.00	17	17	1.00	513	849	.60	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6500	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	1776	1819	.98	9804	9805	1.00	3635	3635	1.00	989	1326	.75	23080	23091	1.00	14109	14110	1.00	6079	6079	1.00	2343	2343	1.00	8280	8280	1.00	70098	70488	.99
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45026	45027	1.00
Imports	25	25	1.00	100	100	1.00	0	0	.00	0	0	.00	410	410	1.00	0	0	.00	0	0	.00	420	555	.76	1235	1235	1.00	2190	2325	.94
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4822	4823	1.00	1552	1642	.95	0	0	.00	7422	11699	.63	4666	4667	1.00	2393	3538	.68	0	1016	.00	1466	4029	.36	22333	31413	.71
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	162	162	1.00	5418	5419	1.00	2090	2180	.96	30	30	1.00	8911	13178	.68	27487	27487	1.00	18439	19584	.94	3644	4795	.76	3913	6476	.60	70098	79313	.88
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2325	2612	.89	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2325	2612	.89
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	3676	4579	.80	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4444	6498	.68
From IIIA	0	0	.00	0	0	.00	3101	4645	.67	959	959	1.00	11383	15580	.73	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15443	21184	.73
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	6001	7191	.83	3869	6564	.59	959	959	1.00	18612	22809	.82	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2325	2612	.89	0	0	.00	3676	4579	.80	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6001	7191	.83
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3101	4645	.67	0	0	.00	0	0	.00	0	0	.00	3869	6564	.59
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	11383	15580	.73	5852	5852	1.00	1377	1377	1.00	0	0	.00	18612	22809	.82
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2325	2612	.89	0	0	.00	4444	6498	.68	15443	21184	.73	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 55 - JAN AVG DAY 1992 - LOW DEMAND & HIGH SUPPLY
- 20% COLDER THAN NORMAL
- WITH A 25% CANADIAN IMPORT REDUCTION

00:20 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1101	1101	1.00	5253	5253	1.00	1583	1583	1.00	86	86	1.00	11520	11520	1.00	2077	2077	1.00	1379	1379	1.00	1124	1124	1.00	3063	3063	1.00	27186	27186	1.00
Commercial	536	536	1.00	2454	2454	1.00	925	925	1.00	152	152	1.00	6088	6088	1.00	1229	1229	1.00	816	816	1.00	691	691	1.00	1457	1457	1.00	14346	14348	1.00
Industrial	148	164	.90	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18499	18524	1.00
Electric	0	13	.00	398	398	1.00	17	17	1.00	513	849	.60	121	121	1.00	2464	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6500	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	1789	1819	.98	9804	9805	1.00	3635	3635	1.00	989	1326	.75	23083	23091	1.00	14108	14110	1.00	6079	6079	1.00	2343	2343	1.00	8280	8280	1.00	70112	70488	.99
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	18187	18187	1.00	3644	3654	1.00	1381	1381	1.00	50986	50997	1.00
Imports	37	37	1.00	150	150	1.00	0	0	.00	0	0	.00	615	615	1.00	300	300	1.00	0	0	.00	0	832	.00	1852	1852	1.00	2955	3787	.78
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4822	4823	1.00	406	1642	.25	0	0	.00	4789	11699	.41	4666	4667	1.00	252	3538	.07	0	1016	.00	680	4029	.17	15623	31413	.50
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	174	174	1.00	5527	5528	1.00	1004	2240	.45	30	30	1.00	6621	13524	.49	30757	30757	1.00	18439	21725	.85	3644	5502	.66	3913	7263	.54	70112	86746	.81
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2162	2612	.83	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2162	2612	.83
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	3731	4579	.81	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4499	6498	.69
From IIIA	0	0	.00	0	0	.00	4025	4645	.87	959	959	1.00	13730	15580	.88	0	0	.00	0	0	.00	0	0	.00	0	0	.00	18714	21184	.88
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	5893	7191	.82	4793	6564	.73	959	959	1.00	20959	22809	.92	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2162	2612	.83	0	0	.00	3731	4579	.81	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5893	7191	.82
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	4025	4645	.87	0	0	.00	0	0	.00	0	0	.00	4793	6564	.73
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13730	15580	.88	5852	5852	1.00	1377	1377	1.00	0	0	.00	20959	22809	.92
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2162	2612	.83	0	0	.00	4499	6498	.69	18714	21184	.88	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 56 - JAN AVG DAY 1992 - LOW DEMAND & HIGH SUPPLY
- 20% COLDER THAN NORMAL
- WITH A 50% CANADIAN IMPORT REDUCTION

00:25 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1101	1101	1.00	5253	5253	1.00	1583	1583	1.00	86	86	1.00	11520	11520	1.00	2077	2077	1.00	1379	1379	1.00	1124	1124	1.00	3063	3063	1.00	27186	27186	1.00
Commercial	536	536	1.00	2454	2454	1.00	925	925	1.00	152	152	1.00	6088	6088	1.00	1229	1229	1.00	816	816	1.00	691	691	1.00	1457	1457	1.00	14347	14348	1.00
Industrial	135	164	.82	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18466	18524	1.00
Electric	0	13	.00	398	398	1.00	17	17	1.00	513	849	.60	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6502	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	1777	1819	.98	9805	9805	1.00	3635	3635	1.00	989	1326	.75	23064	23091	1.00	14109	14110	1.00	6079	6079	1.00	2343	2343	1.00	8280	8280	1.00	70082	70488	.99
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	18187	18187	1.00	3644	3654	1.00	1381	1381	1.00	50986	50997	1.00
Imports	25	25	1.00	100	100	1.00	0	0	.00	0	0	.00	410	410	1.00	300	300	1.00	0	0	.00	0	555	.00	1235	1235	1.00	2070	2625	.79
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4822	4823	1.00	318	1642	.19	0	0	.00	5109	11699	.44	4666	4667	1.00	252	3538	.07	0	1016	.00	1297	4029	.32	16491	31413	.52
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	162	162	1.00	5477	5478	1.00	917	2240	.41	30	30	1.00	6755	13319	.51	30756	30757	1.00	18439	21725	.85	3644	5225	.70	3913	6645	.59	70096	85583	.82
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2601	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2601	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	3342	4579	.73	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4110	6498	.63
From IIIA	0	0	.00	0	0	.00	4551	4645	.98	959	959	1.00	13202	15580	.85	0	0	.00	0	0	.00	0	0	.00	0	0	.00	18712	21184	.88
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	5943	7191	.83	5319	6564	.81	959	959	1.00	20431	22809	.90	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2601	2612	1.00	0	0	.00	3342	4579	.73	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5943	7191	.83
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	4551	4645	.98	0	0	.00	0	0	.00	0	0	.00	5319	6564	.81
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13202	15580	.85	5852	5852	1.00	1377	1377	1.00	0	0	.00	20431	22809	.90
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2601	2612	1.00	0	0	.00	4110	6498	.63	18712	21184	.88	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 57 - JAN AVG DAY 1992 - HIGH DEMAND & LOW SUPPLY
- 10% COLDER THAN NORMAL
- WITH A 25% CANADIAN IMPORT REDUCTION

00:26 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PAOD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1304	1304	1.00	5636	5636	1.00	1423	1423	1.00	79	79	1.00	11262	11262	1.00	2055	2055	1.00	1388	1388	1.00	925	925	1.00	2934	2934	1.00	27006	27006	1.00
Commercial	325	325	1.00	1962	1962	1.00	677	677	1.00	115	115	1.00	5828	5828	1.00	1754	1754	1.00	1007	1007	1.00	687	687	1.00	1279	1279	1.00	13632	13634	1.00
Industrial	158	287	.55	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21851	21992	.99
Electric	0	47	.00	114	800	.14	8	15	.53	316	720	.44	493	891	.55	1434	2880	.50	1185	1185	1.00	53	53	1.00	1662	1662	1.00	5274	8253	.64
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1789	1966	.91	10230	10917	.94	3207	3214	1.00	770	1175	.66	23561	23960	.98	14082	15529	.91	6902	6902	1.00	2575	2576	1.00	8310	8311	1.00	71430	74550	.96
SUPPLIES																														
Production	0	0	.00	485	485	1.00	539	539	1.00	29	29	1.00	1054	1054	1.00	21862	21862	1.00	19285	22066	.87	2694	2694	1.00	1225	1225	1.00	47174	49955	.94
Imports	37	37	1.00	150	150	1.00	0	0	.00	0	0	.00	615	615	1.00	0	0	.00	0	0	.00	832	832	1.00	1852	1852	1.00	3487	3487	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4019	4019	1.00	1368	1368	1.00	0	0	.00	9749	9749	1.00	3889	3889	1.00	0	2948	.00	322	846	.38	873	3357	.26	20220	26178	.77
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	174	174	1.00	4654	4654	1.00	1907	1907	1.00	29	29	1.00	11418	11418	1.00	26162	26162	1.00	19285	25014	.77	3848	4372	.88	3950	6435	.61	71430	80168	.89
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3145	4645	.68	742	959	.77	10259	15580	.66	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14146	21184	.67
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	108	114	.95	1485	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	7191	7191	1.00	3913	6564	.60	742	959	.77	17488	22809	.77	2066	2066	1.00	0	0	.00	213	475	.45	4535	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3145	4645	.68	0	0	.00	0	0	.00	0	0	.00	3913	6564	.60
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	742	959	.77	0	0	.00	0	0	.00	0	0	.00	742	959	.77
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10259	15580	.66	5852	5852	1.00	1377	1377	1.00	0	0	.00	17488	22809	.77
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	108	114	.95	0	0	.00	4535	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	5347	6498	.82	14146	21184	.67	12383	12383	1.00	1485	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 58 - JAN AVG DAY 1992 - HIGH DEMAND & LOW SUPPLY
- 10% COLDER THAN NORMAL
- WITH A 50% CANADIAN IMPORT REDUCTION

D0:37 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1304	1304	1.00	5636	5636	1.00	1423	1423	1.00	79	79	1.00	11262	11262	1.00	2055	2055	1.00	1388	1388	1.00	925	925	1.00	2934	2934	1.00	27006	27006	1.00
Commercial	325	325	1.00	1962	1962	1.00	677	677	1.00	115	115	1.00	5828	5828	1.00	1754	1754	1.00	1007	1007	1.00	687	687	1.00	1279	1279	1.00	13632	13634	1.00
Industrial	145	287	.51	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21837	21992	.99
Electric	0	47	.00	64	800	.08	7	15	.47	290	720	.40	480	891	.54	1267	2880	.44	1185	1185	1.00	50	53	.94	1662	1662	1.00	5018	8253	.61
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1777	1966	.90	10180	10917	.93	3206	3214	1.00	744	1175	.63	23549	23960	.98	13916	15529	.90	6902	6902	1.00	2573	2576	1.00	8310	8311	1.00	71160	74550	.95
SUPPLIES																														
Production	0	0	.00	485	485	1.00	539	539	1.00	29	29	1.00	1054	1054	1.00	21862	21862	1.00	19285	22066	.87	2694	2694	1.00	1225	1225	1.00	47174	49955	.94
Imports	25	25	1.00	100	100	1.00	0	0	.00	0	0	.00	410	410	1.00	0	0	.00	0	0	.00	555	555	1.00	1235	1235	1.00	2325	2325	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4019	4019	1.00	1368	1368	1.00	0	0	.00	9749	9749	1.00	3889	3889	1.00	0	2948	.00	597	846	.71	1490	3357	.44	21113	26178	.81
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	162	162	1.00	4604	4604	1.00	1907	1907	1.00	29	29	1.00	11213	11213	1.00	26162	26162	1.00	19285	25014	.77	3846	4095	.94	3950	5817	.68	71160	79006	.90
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3144	4645	.68	716	959	.75	10452	15580	.67	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14312	21184	.68
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	108	114	.95	1485	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	7191	7191	1.00	3912	6564	.60	716	959	.75	17681	22809	.78	2066	2066	1.00	0	0	.00	213	475	.45	4535	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3144	4645	.68	0	0	.00	0	0	.00	0	0	.00	3912	6564	.60
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	716	959	.75	0	0	.00	0	0	.00	0	0	.00	716	959	.75
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10452	15580	.67	5852	5852	1.00	1377	1377	1.00	0	0	.00	17681	22809	.78
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	108	114	.95	0	0	.00	4535	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	5347	6498	.82	14312	21184	.68	12383	12383	1.00	1485	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 59 - JAN AVG DAY 1992 - HIGH DEMAND & HIGH SUPPLY
- 10% COLDER THAN NORMAL
- WITH A 25% CANADIAN IMPORT REDUCTION

00:43 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 10			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1304	1304	1.00	5636	5636	1.00	1423	1423	1.00	79	79	1.00	11262	11262	1.00	2055	2055	1.00	1388	1388	1.00	925	925	1.00	2934	2934	1.00	27006	27006	1.00
Commercial	325	325	1.00	1962	1962	1.00	677	677	1.00	115	115	1.00	5828	5828	1.00	1754	1754	1.00	1007	1007	1.00	687	687	1.00	1279	1279	1.00	13632	13634	1.00
Industrial	158	287	.55	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21860	21992	.99
Electric	0	47	.00	171	800	.21	15	15	1.00	534	720	.74	891	891	1.00	2880	2880	1.00	1185	1185	1.00	53	53	1.00	1662	1662	1.00	7392	8253	.90
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1789	1966	.91	10287	10917	.94	3214	3214	1.00	988	1175	.84	23959	23960	1.00	15528	15529	1.00	6902	6902	1.00	2575	2576	1.00	8310	8311	1.00	73556	74550	.99
SUPPLIES																														
Production	0	0	.00	542	542	1.00	599	599	1.00	29	29	1.00	1193	1193	1.00	24760	24760	1.00	19285	25011	.77	3053	3053	1.00	1396	1396	1.00	50857	56583	.90
Imports	37	37	1.00	150	150	1.00	0	0	.00	0	0	.00	615	615	1.00	300	300	1.00	0	0	.00	801	832	.96	1852	1852	1.00	3756	3787	.99
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4019	4019	1.00	43	1368	.03	0	0	.00	9749	9749	1.00	3889	3889	1.00	0	2948	.00	0	846	.00	696	3357	.21	18394	26178	.70
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	174	174	1.00	4711	4711	1.00	641	1967	.33	29	29	1.00	11555	11557	1.00	29359	29359	1.00	19285	27959	.69	3854	4732	.81	3944	6606	.60	73556	87096	.84
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	4417	4645	.95	959	959	1.00	10521	15580	.68	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15897	21184	.75
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	7191	7191	1.00	5185	6564	.79	959	959	1.00	17750	22809	.78	2066	2066	1.00	0	0	.00	213	475	.45	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	4417	4645	.95	0	0	.00	0	0	.00	0	0	.00	5185	6564	.79
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10521	15580	.68	5852	5852	1.00	1377	1377	1.00	0	0	.00	17750	22809	.78
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	5347	6498	.82	15897	21184	.75	12383	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 60 - JAN AVG DAY 1992 - HIGH DEMAND & HIGH SUPPLY
- 10% COLDER THAN NORMAL
- WITH A 50% CANADIAN IMPORT REDUCTION

00:46 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1304	1304	1.00	5636	5636	1.00	1423	1423	1.00	79	79	1.00	11262	11262	1.00	2055	2055	1.00	1388	1388	1.00	925	925	1.00	2934	2934	1.00	27006	27006	1.00
Commercial	325	325	1.00	1962	1962	1.00	677	677	1.00	115	115	1.00	5828	5828	1.00	1754	1754	1.00	1007	1007	1.00	687	687	1.00	1279	1279	1.00	13618	13634	1.00
Industrial	145	287	.51	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21809	21992	.99
Electric	0	47	.00	121	800	.15	15	15	1.00	534	720	.74	891	891	1.00	2880	2880	1.00	1185	1185	1.00	53	53	1.00	1662	1662	1.00	7342	8253	.89
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1777	1966	.90	10237	10917	.94	3214	3214	1.00	988	1175	.84	23906	23960	1.00	15529	15529	1.00	6902	6902	1.00	2575	2576	1.00	8311	8311	1.00	73441	74550	.99
SUPPLIES																														
Production	0	0	.00	542	542	1.00	599	599	1.00	29	29	1.00	1193	1193	1.00	24760	24760	1.00	19285	25011	.77	3053	3053	1.00	1396	1396	1.00	50857	56583	.90
Imports	25	25	1.00	100	100	1.00	0	0	.00	0	0	.00	410	410	1.00	300	300	1.00	0	0	.00	555	555	1.00	1235	1235	1.00	2624	2625	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	4019	4019	1.00	863	1368	.63	0	0	.00	9306	9749	.95	3889	3889	1.00	0	2948	.00	0	846	.00	1319	3357	.39	19449	26178	.74
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	162	162	1.00	4661	4661	1.00	1461	1967	.74	29	29	1.00	10963	11352	.97	29359	29359	1.00	19285	27959	.69	3607	4454	.81	3950	5988	.66	73480	85934	.86
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3597	4645	.77	959	959	1.00	11340	15580	.73	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15896	21184	.75
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1136	1377	.82	0	0	.00	0	0	.00	0	0	.00	109	114	.96	1245	1491	.84
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	7191	7191	1.00	4365	6564	.66	959	959	1.00	18328	22809	.80	2066	2066	1.00	0	0	.00	213	475	.45	4536	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3597	4645	.77	0	0	.00	0	0	.00	0	0	.00	4365	6564	.66
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	11340	15580	.73	5852	5852	1.00	1136	1377	.82	0	0	.00	18328	22809	.80
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	109	114	.96	0	0	.00	4536	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	5347	6498	.82	15896	21184	.75	12383	12383	1.00	1245	1491	.84	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 61 - JAN AVG DAY 1992 - LOW DEMAND & LOW SUPPLY
- 10% COLDER THAN NORMAL
- WITH A 25% CANADIAN IMPORT REDUCTION

22:33 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1020	1020	1.00	4875	4875	1.00	1467	1467	1.00	81	81	1.00	10655	10655	1.00	1935	1935	1.00	1279	1279	1.00	1039	1039	1.00	2865	2865	1.00	25215	25216	1.00
Commercial	501	501	1.00	2289	2289	1.00	866	866	1.00	148	148	1.00	5641	5641	1.00	1158	1158	1.00	768	768	1.00	641	641	1.00	1382	1382	1.00	13392	13394	1.00
Industrial	164	164	1.00	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18518	18524	1.00
Electric	13	13	1.00	398	398	1.00	17	17	1.00	521	849	.61	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6526	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1702	1703	1.00	9261	9262	1.00	3459	3460	1.00	988	1317	.75	21776	21779	1.00	13896	13897	1.00	5930	5931	1.00	2207	2208	1.00	8006	8007	1.00	67232	67564	1.00
SUPPLIES																														
Production	0	0	.00	485	485	1.00	539	539	1.00	29	29	1.00	1054	1054	1.00	21862	21862	1.00	18314	22066	.83	2694	2694	1.00	1225	1225	1.00	46203	49955	.92
Imports	37	37	1.00	150	150	1.00	0	0	.00	0	0	.00	615	615	1.00	0	0	.00	0	0	.00	793	832	.95	1852	1852	1.00	3447	3487	.99
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	547	548	1.00
Storage	0	0	.00	4019	4019	1.00	1339	1368	.98	0	0	.00	7222	9749	.74	3889	3889	1.00	0	2948	.00	0	846	.00	563	3357	.17	17033	26178	.65
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	174	174	1.00	4654	4654	1.00	1878	1907	.98	29	29	1.00	8893	11418	.78	26161	26162	1.00	18314	25014	.73	3486	4372	.80	3640	6435	.57	67232	80168	.84
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1528	1615	.95	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1528	1615	.95
From IC	0	0	.00	1577	2612	.60	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1577	2612	.60
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4559	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5327	6498	.82
From IIIA	0	0	.00	0	0	.00	2391	4645	.51	959	959	1.00	10981	15580	.70	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14331	21184	.68
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1528	1615	.95	6136	7191	.85	3159	6564	.48	959	959	1.00	18210	22809	.80	2066	2066	1.00	0	0	.00	213	475	.45	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1528	1615	.95	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1528	1615	.95
To IB	0	0	.00	0	0	.00	1577	2612	.60	0	0	.00	4559	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6136	7191	.85
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2391	4645	.51	0	0	.00	0	0	.00	0	0	.00	3159	6564	.48
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10981	15580	.70	5852	5852	1.00	1377	1377	1.00	0	0	.00	18210	22809	.80
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1528	1615	.95	1577	2612	.60	0	0	.00	5327	6498	.82	14331	21184	.68	12383	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 62 - JAN AVG DAY 1992 - LOW DEMAND & LOW SUPPLY
- 10% COLDER THAN NORMAL
- WITH A 50% CANADIAN IMPORT REDUCTION

22:37 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1020	1020	1.00	4875	4875	1.00	1467	1467	1.00	81	81	1.00	10655	10655	1.00	1935	1935	1.00	1279	1279	1.00	1039	1039	1.00	2865	2865	1.00	25215	25216	1.00
Commercial	501	501	1.00	2289	2289	1.00	866	866	1.00	148	148	1.00	5641	5641	1.00	1158	1158	1.00	768	768	1.00	641	641	1.00	1382	1382	1.00	13392	13394	1.00
Industrial	164	164	1.00	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18522	18524	1.00
Electric	13	13	1.00	398	398	1.00	17	17	1.00	520	849	.61	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6522	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1702	1703	1.00	9261	9262	1.00	3459	3460	1.00	988	1317	.75	21777	21779	1.00	13896	13897	1.00	5930	5931	1.00	2207	2208	1.00	8006	8007	1.00	67232	67564	1.00
SUPPLIES																														
Production	0	0	.00	485	485	1.00	539	539	1.00	29	29	1.00	1054	1054	1.00	21862	21862	1.00	18314	22066	.83	2694	2694	1.00	1225	1225	1.00	46203	49955	.92
Imports	25	25	1.00	100	100	1.00	0	0	.00	0	0	.00	410	410	1.00	0	0	.00	0	0	.00	555	555	1.00	1235	1235	1.00	2324	2325	1.00
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	547	548	1.00
Storage	0	0	.00	4018	4019	1.00	1363	1368	1.00	0	0	.00	7698	9749	.79	3889	3889	1.00	0	2948	.00	0	846	.00	1186	3357	.35	18156	26178	.69
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	161	162	1.00	4603	4604	1.00	1902	1907	1.00	29	29	1.00	9164	11213	.82	26162	26162	1.00	18314	25014	.73	3248	4095	.79	3646	5817	.63	67232	79006	.85
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1541	1615	.95	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1541	1615	.95
From IC	0	0	.00	1624	2612	.62	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1624	2612	.62
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4575	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5343	6498	.82
From IIIA	0	0	.00	0	0	.00	2414	4645	.52	959	959	1.00	10959	15580	.70	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14332	21184	.68
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1145	1377	.83	0	0	.00	0	0	.00	0	0	.00	108	114	.95	1253	1491	.84
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1541	1615	.95	6199	7191	.86	3182	6564	.48	959	959	1.00	17956	22809	.79	2066	2066	1.00	0	0	.00	213	475	.45	4535	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1541	1615	.95	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1541	1615	.95
To IB	0	0	.00	0	0	.00	1624	2612	.62	0	0	.00	4575	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6199	7191	.86
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2414	4645	.52	0	0	.00	0	0	.00	0	0	.00	3182	6564	.48
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10959	15580	.70	5852	5852	1.00	1145	1377	.83	0	0	.00	17956	22809	.79
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	108	114	.95	0	0	.00	4535	4541	1.00
Total PL Out	0	0	.00	1541	1615	.95	1624	2612	.62	0	0	.00	5343	6498	.82	14332	21184	.68	12383	12383	1.00	1253	1491	.84	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 63 - JAN AVG DAY 1992 - LOW DEMAND & HIGH SUPPLY
- 10% COLDER THAN NORMAL
- WITH A 25% CANADIAN IMPORT REDUCTION

22:40 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1020	1020	1.00	4875	4875	1.00	1467	1467	1.00	81	81	1.00	10655	10655	1.00	1935	1935	1.00	1279	1279	1.00	1039	1039	1.00	2865	2865	1.00	25215	25216	1.00
Commercial	501	501	1.00	2289	2289	1.00	866	866	1.00	148	148	1.00	5641	5641	1.00	1158	1158	1.00	768	768	1.00	641	641	1.00	1382	1382	1.00	13392	13394	1.00
Industrial	164	164	1.00	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18522	18524	1.00
Electric	13	13	1.00	398	398	1.00	17	17	1.00	521	849	.61	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6521	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1702	1703	1.00	9261	9262	1.00	3459	3460	1.00	988	1317	.75	21777	21779	1.00	13896	13897	1.00	5930	5931	1.00	2207	2208	1.00	8006	8007	1.00	67232	67564	1.00
SUPPLIES																														
Production	0	0	.00	542	542	1.00	599	599	1.00	29	29	1.00	1193	1193	1.00	24760	24760	1.00	18314	25011	.73	3053	3053	1.00	1396	1396	1.00	49886	56583	.88
Imports	37	37	1.00	150	150	1.00	0	0	.00	0	0	.00	615	615	1.00	300	300	1.00	0	0	.00	434	832	.52	1852	1852	1.00	3388	3787	.89
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	547	548	1.00
Storage	0	0	.00	4019	4019	1.00	1367	1368	1.00	0	0	.00	3741	9749	.38	3889	3889	1.00	0	2948	.00	0	846	.00	392	3357	.12	13409	26178	.51
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	174	174	1.00	4710	4711	1.00	1966	1967	1.00	29	29	1.00	5551	11557	.48	29359	29359	1.00	18314	27959	.66	3486	4732	.74	3640	6606	.55	67232	87096	.77
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1528	1615	.95	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1528	1615	.95
From IC	0	0	.00	1501	2612	.57	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1501	2612	.57
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4578	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5346	6498	.82
From IIIA	0	0	.00	0	0	.00	2227	4645	.48	959	959	1.00	14342	15580	.92	0	0	.00	0	0	.00	0	0	.00	0	0	.00	17528	21184	.83
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1528	1615	.95	6079	7191	.85	2995	6564	.46	959	959	1.00	21571	22809	.95	2066	2066	1.00	0	0	.00	213	475	.45	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1528	1615	.95	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1528	1615	.95
To IB	0	0	.00	0	0	.00	1501	2612	.57	0	0	.00	4578	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6079	7191	.85
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2227	4645	.48	0	0	.00	0	0	.00	0	0	.00	2995	6564	.46
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14342	15580	.92	5852	5852	1.00	1377	1377	1.00	0	0	.00	21571	22809	.95
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1528	1615	.95	1501	2612	.57	0	0	.00	5346	6498	.82	17528	21184	.83	12383	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 64 - JAN AVG DAY 1992 - LOW DEMAND & HIGH SUPPLY
- 10% COLDER THAN NORMAL
- WITH A 50% CANADIAN IMPORT REDUCTION

22:43 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1020	1020	1.00	4875	4875	1.00	1467	1467	1.00	81	81	1.00	10655	10655	1.00	1935	1935	1.00	1279	1279	1.00	1039	1039	1.00	2865	2865	1.00	25215	25216	1.00
Commercial	501	501	1.00	2289	2289	1.00	866	866	1.00	148	148	1.00	5641	5641	1.00	1158	1158	1.00	768	768	1.00	641	641	1.00	1382	1382	1.00	13392	13394	1.00
Industrial	164	164	1.00	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18522	18524	1.00
Electric	13	13	1.00	398	398	1.00	17	17	1.00	521	849	.61	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6521	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1702	1703	1.00	9261	9262	1.00	3459	3460	1.00	988	1317	.75	21777	21779	1.00	13896	13897	1.00	5930	5931	1.00	2207	2208	1.00	8006	8007	1.00	67232	67564	1.00
SUPPLIES																														
Production	0	0	.00	542	542	1.00	599	599	1.00	29	29	1.00	1193	1193	1.00	24760	24760	1.00	18314	25011	.73	3053	3053	1.00	1396	1396	1.00	49886	56583	.88
Imports	25	25	1.00	100	100	1.00	0	0	.00	0	0	.00	410	410	1.00	300	300	1.00	0	0	.00	434	555	.78	1235	1235	1.00	2503	2625	.95
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	547	548	1.00
Storage	0	0	.00	4019	4019	1.00	1367	1368	1.00	0	0	.00	4009	9749	.41	3889	3889	1.00	0	2948	.00	0	846	.00	1010	3357	.30	14294	26178	.55
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	161	162	1.00	4660	4661	1.00	1966	1967	1.00	29	29	1.00	5613	11352	.49	29359	29359	1.00	18314	27959	.66	3486	4454	.78	3640	5988	.61	67232	85934	.78
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1541	1615	.95	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1541	1615	.95
From IC	0	0	.00	1563	2612	.60	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1563	2612	.60
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4578	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5346	6498	.82
From IIIA	0	0	.00	0	0	.00	2289	4645	.49	959	959	1.00	14280	15580	.92	0	0	.00	0	0	.00	0	0	.00	0	0	.00	17528	21184	.83
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1541	1615	.95	6141	7191	.85	3057	6564	.47	959	959	1.00	21509	22809	.94	2066	2066	1.00	0	0	.00	213	475	.45	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1541	1615	.95	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1541	1615	.95
To IB	0	0	.00	0	0	.00	1563	2612	.60	0	0	.00	4578	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6141	7191	.85
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2289	4645	.49	0	0	.00	0	0	.00	0	0	.00	3057	6564	.47
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14280	15580	.92	5852	5852	1.00	1377	1377	1.00	0	0	.00	21509	22809	.94
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1541	1615	.95	1563	2612	.60	0	0	.00	5346	6498	.82	17528	21184	.83	12383	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 65 - JAN AVG DAY 1992 - HIGH DEMAND & LOW SUPPLY
- NO LNG

00:49 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1200	1200	1.00	5198	5198	1.00	1311	1311	1.00	74	74	1.00	10347	10347	1.00	1904	1904	1.00	1279	1279	1.00	850	850	1.00	2732	2732	1.00	24895	24895	1.00
Commercial	302	302	1.00	1820	1820	1.00	631	631	1.00	112	112	1.00	5367	5367	1.00	1646	1646	1.00	945	945	1.00	634	634	1.00	1209	1209	1.00	12665	12666	1.00
Industrial	160	287	.56	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21863	21992	.99
Electric	0	47	.00	800	800	1.00	15	15	1.00	543	720	.75	891	891	1.00	2879	2880	1.00	1185	1185	1.00	53	53	1.00	1662	1662	1.00	8028	8253	.97
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1665	1839	.91	10336	10337	1.00	3055	3056	1.00	989	1167	.85	22584	22584	1.00	15268	15270	1.00	6731	6731	1.00	2448	2448	1.00	8039	8039	1.00	71118	71471	1.00
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45027	45027	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	525	1110	.47	2470	2470	1.00	4065	4650	.87
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	4822	4823	1.00	16	1642	.01	0	0	.00	9484	11699	.81	4667	4667	1.00	3036	3538	.86	0	1016	.00	0	4029	.00	22026	31413	.70
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	50	50	1.00	5519	5519	1.00	555	2180	.25	30	30	1.00	11373	13588	.84	27076	27076	1.00	19081	19584	.97	3749	5350	.70	3682	7711	.48	71118	81090	.88
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	1980	2612	.76	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1980	2612	.76
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4452	4579	.97	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5220	6498	.80
From IIIA	0	0	.00	0	0	.00	3713	4645	.80	959	959	1.00	9201	15580	.59	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13873	21184	.65
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4417	4427	1.00	12350	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	6432	7191	.89	4481	6564	.68	959	959	1.00	16430	22809	.72	2066	2066	1.00	0	0	.00	190	475	.40	4531	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	1980	2612	.76	0	0	.00	4452	4579	.97	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6432	7191	.89
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3713	4645	.80	0	0	.00	0	0	.00	0	0	.00	4481	6564	.68
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	9201	15580	.59	5852	5852	1.00	1377	1377	1.00	0	0	.00	16430	22809	.72
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4417	4427	1.00	114	114	1.00	0	0	.00	4531	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	1980	2612	.76	0	0	.00	5220	6498	.80	13873	21184	.65	12350	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 66 - JAN AVG DAY 1992 - HIGH DEMAND & HIGH SUPPLY
- NO LNG

22:48 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1200	1200	1.00	5198	5198	1.00	1311	1311	1.00	74	74	1.00	10347	10347	1.00	1904	1904	1.00	1279	1279	1.00	850	850	1.00	2732	2732	1.00	24893	24895	1.00
Commercial	302	302	1.00	1820	1820	1.00	631	631	1.00	112	112	1.00	5367	5367	1.00	1646	1646	1.00	945	945	1.00	634	634	1.00	1209	1209	1.00	12664	12666	1.00
Industrial	160	287	.56	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21864	21992	.99
Electric	0	47	.00	800	800	1.00	15	15	1.00	543	720	.75	891	891	1.00	2880	2880	1.00	1185	1185	1.00	53	53	1.00	1662	1662	1.00	8030	8253	.97
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3664	3665	1.00
Total Demand	1665	1839	.91	10336	10337	1.00	3055	3056	1.00	989	1167	.85	22583	22584	1.00	15270	15270	1.00	6730	6731	1.00	2447	2448	1.00	8039	8039	1.00	71118	71471	1.00
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	18187	18187	1.00	3654	3654	1.00	1381	1381	1.00	50996	50997	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	95	1110	.09	2470	2470	1.00	3935	4950	.79
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	4822	4823	1.00	16	1642	.01	0	0	.00	5955	11699	.51	4667	4667	1.00	725	3538	.20	0	1016	.00	0	4029	.00	16186	31413	.52
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	50	50	1.00	5577	5578	1.00	614	2240	.27	30	30	1.00	7985	13729	.58	30346	30346	1.00	18912	21725	.87	3749	5780	.65	3851	7880	.49	71118	87360	.81
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2604	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2604	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	3769	4579	.82	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4537	6498	.70
From IIIA	0	0	.00	0	0	.00	4277	4645	.92	959	959	1.00	11906	15580	.76	0	0	.00	0	0	.00	0	0	.00	0	0	.00	17142	21184	.81
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4248	4427	.96	12181	12383	.98
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	6373	7191	.89	5045	6564	.77	959	959	1.00	19135	22809	.84	2066	2066	1.00	0	0	.00	190	475	.40	4362	4541	.96			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2604	2612	1.00	0	0	.00	3769	4579	.82	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6373	7191	.89
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	4277	4645	.92	0	0	.00	0	0	.00	0	0	.00	5045	6564	.77
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	11906	15580	.76	5852	5852	1.00	1377	1377	1.00	0	0	.00	19135	22809	.84
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4248	4427	.96	114	114	1.00	0	0	.00	4362	4541	.96
Total PL Out	0	0	.00	1615	1615	1.00	2604	2612	1.00	0	0	.00	4537	6498	.70	17142	21184	.81	12181	12383	.98	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 67 - JAN AVG DAY 1992 - LOW DEMAND & LOW SUPPLY
- NO LNG

22:50 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	938	938	1.00	4496	4496	1.00	1357	1357	1.00	76	76	1.00	9789	9789	1.00	1793	1793	1.00	1178	1178	1.00	954	954	1.00	2668	2668	1.00	23244	23249	1.00
Commercial	465	465	1.00	2125	2125	1.00	808	808	1.00	143	143	1.00	5194	5194	1.00	1087	1087	1.00	721	721	1.00	591	591	1.00	1307	1307	1.00	12440	12441	1.00
Industrial	164	164	1.00	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18522	18524	1.00
Electric	13	13	1.00	398	398	1.00	17	17	1.00	531	849	.63	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6533	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1584	1585	1.00	8718	8719	1.00	3291	3292	1.00	989	1307	.76	20461	20466	1.00	13683	13684	1.00	5782	5783	1.00	2072	2073	1.00	7734	7735	1.00	64321	64644	1.00
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45027	45027	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	150	1110	.14	2470	2470	1.00	3689	4650	.79
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	4821	4823	1.00	4	1642	.00	0	0	.00	4324	11699	.37	4666	4667	1.00	1783	3538	.50	0	1016	.00	0	4029	.00	15603	31413	.50
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	50	50	1.00	5518	5519	1.00	542	2180	.25	30	30	1.00	6217	13588	.46	27076	27076	1.00	17829	19584	.91	3374	5350	.63	3682	7711	.48	64321	81090	.79
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1535	1615	.95	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1535	1615	.95
From IC	0	0	.00	2607	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2607	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	2128	4579	.46	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2896	6498	.45
From IIIA	0	0	.00	0	0	.00	4589	4645	.99	959	959	1.00	9910	15580	.64	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15458	21184	.73
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4113	4427	.93	12046	12383	.97
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1535	1615	.95	4735	7191	.66	5357	6564	.82	959	959	1.00	17139	22809	.75	2066	2066	1.00	0	0	.00	190	475	.40	4227	4541	.93			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1535	1615	.95	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1535	1615	.95
To IB	0	0	.00	0	0	.00	2607	2612	1.00	0	0	.00	2128	4579	.46	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4735	7191	.66
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	4589	4645	.99	0	0	.00	0	0	.00	0	0	.00	5357	6564	.82
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	9910	15580	.64	5852	5852	1.00	1377	1377	1.00	0	0	.00	17139	22809	.75
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4113	4427	.93	114	114	1.00	0	0	.00	4227	4541	.93
Total PL Out	0	0	.00	1535	1615	.95	2607	2612	1.00	0	0	.00	2896	6498	.45	15458	21184	.73	12046	12383	.97	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 68 - JAN AVG DAY 1992 - LOW DEMAND & HIGH SUPPLY
- NO LNG

22:53 D1-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	938	938	1.00	4496	4496	1.00	1357	1357	1.00	76	76	1.00	9789	9789	1.00	1793	1793	1.00	1178	1178	1.00	954	954	1.00	2668	2668	1.00	23244	23249	1.00
Commercial	465	465	1.00	2125	2125	1.00	808	808	1.00	143	143	1.00	5194	5194	1.00	1087	1087	1.00	721	721	1.00	591	591	1.00	1307	1307	1.00	12440	12441	1.00
Industrial	164	164	1.00	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18523	18524	1.00
Electric	13	13	1.00	398	398	1.00	17	17	1.00	532	849	.63	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6532	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1584	1585	1.00	8718	8719	1.00	3291	3292	1.00	989	1307	.76	20461	20466	1.00	13683	13684	1.00	5782	5783	1.00	2072	2073	1.00	7734	7735	1.00	64321	64644	1.00
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	18143	18187	1.00	3374	3654	.92	1381	1381	1.00	50672	50997	.99
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	0	1110	.00	1987	2470	.80	3356	4950	.68
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	4821	4823	1.00	806	1642	.49	0	0	.00	-4	11699	.00	4665	4667	1.00	0	3538	.00	0	1016	.00	0	4029	.00	10292	31413	.33
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	50	50	1.00	5576	5578	1.00	1404	2240	.63	30	30	1.00	2029	13729	.15	30344	30346	1.00	18143	21725	.84	3374	5780	.58	3368	7880	.43	64321	87360	.74
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1535	1615	.95	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1535	1615	.95
From IC	0	0	.00	1071	2612	.41	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1071	2612	.41
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	3606	4579	.79	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4374	6498	.67
From IIIA	0	0	.00	0	0	.00	2191	4645	.47	959	959	1.00	15577	15580	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	18727	21184	.88
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1535	1615	.95	4677	7191	.65	2959	6564	.45	959	959	1.00	22806	22809	1.00	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1535	1615	.95	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1535	1615	.95
To IB	0	0	.00	0	0	.00	1071	2612	.41	0	0	.00	3606	4579	.79	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4677	7191	.65
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2191	4645	.47	0	0	.00	0	0	.00	0	0	.00	2959	6564	.45
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15577	15580	1.00	5852	5852	1.00	1377	1377	1.00	0	0	.00	22806	22809	1.00
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1535	1615	.95	1071	2612	.41	0	0	.00	4374	6498	.67	18727	21184	.88	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 69 - JAN PK DAY 1992 - HIGH DEMAND & LOW SUPPLY
- NO LNG

22:55 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	2052	2052	1.00	9715	9715	1.00	3065	3065	1.00	209	209	1.00	18972	18972	1.00	3788	3788	1.00	2169	2169	1.00	1635	1635	1.00	5017	5017	1.00	46611	46621	1.00
Commercial	268	516	.52	3402	3402	1.00	1475	1475	1.00	316	316	1.00	9841	9841	1.00	3274	3274	1.00	1603	1603	1.00	1220	1220	1.00	2220	2220	1.00	23625	23866	1.00
Industrial	0	287	.00	2430	2430	1.00	975	984	.99	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21562	21992	.98
Electric	0	47	.00	673	800	.84	0	15	.00	252	720	.35	726	891	.81	1096	2880	.38	1185	1185	1.00	44	53	.83	1662	1662	1.00	5774	8253	.70
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3664	3665	1.00
Total Demand	2323	2905	.80	16309	16435	.99	5629	5653	1.00	1037	1505	.69	35517	35682	1.00	16998	18782	.91	8278	8279	1.00	3809	3818	1.00	11335	11335	1.00	101238	104398	.97
SUPPLIES																														
Production	0	0	.00	447	447	1.00	485	485	1.00	27	27	1.00	962	962	1.00	20169	20169	1.00	14441	14441	1.00	2902	2902	1.00	1091	1091	1.00	40524	40524	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	1110	1110	1.00	2470	2470	1.00	4649	4650	1.00
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	8038	8038	1.00	2736	2736	1.00	0	0	.00	19499	19499	1.00	7778	7778	1.00	5897	5897	1.00	1163	1693	.69	4134	6715	.62	49244	52356	.94
Peak Shaving	573	573	1.00	2249	2249	1.00	1390	1390	1.00	0	0	.00	2224	2224	1.00	383	383	1.00	0	0	.00	0	109	.00	0	850	.00	6818	7778	.88
Total Supply	623	623	1.00	10934	10934	1.00	4610	4611	1.00	27	27	1.00	23504	23505	1.00	28329	28330	1.00	20338	20338	1.00	5175	5814	.89	7694	11126	.69	101238	105308	.96
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	2434	2750	.89	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2434	2750	.89
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4642	4820	.96	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5450	6840	.80
From IIIA	0	0	.00	0	0	.00	2645	4890	.54	1010	1010	1.00	9852	16400	.60	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13507	22300	.61
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	20	40	.50	3704	4660	.79	12059	13035	.93
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1450	1450	1.00	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1570	1570	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	7076	7570	.93	3453	6910	.50	1010	1010	1.00	17462	24010	.73	2175	2175	1.00	0	0	.00	204	500	.41	3824	4780	.80			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	2434	2750	.89	0	0	.00	4642	4820	.96	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7076	7570	.93
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	2645	4890	.54	0	0	.00	0	0	.00	0	0	.00	3453	6910	.50
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	9852	16400	.60	6160	6160	1.00	1450	1450	1.00	0	0	.00	17462	24010	.73
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	20	40	.50	0	0	.00	184	460	.40	204	500	.41
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3704	4660	.79	120	120	1.00	0	0	.00	3824	4780	.80
Total PL Out	0	0	.00	1700	1700	1.00	2434	2750	.89	0	0	.00	5450	6840	.80	13507	22300	.61	12059	13035	.93	1570	1570	1.00	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 70 - JAN PK DAY 1992 - HIGH DEMAND & HIGH SUPPLY
- NO LNG

23:04 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	2052	2052	1.00	9715	9715	1.00	3065	3065	1.00	209	209	1.00	18972	18972	1.00	3788	3788	1.00	2169	2169	1.00	1635	1635	1.00	5017	5017	1.00	46611	46621	1.00
Commercial	268	516	.52	3402	3402	1.00	1475	1475	1.00	316	316	1.00	9841	9841	1.00	3274	3274	1.00	1603	1603	1.00	1220	1220	1.00	2220	2220	1.00	23627	23866	1.00
Industrial	0	287	.00	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21693	21992	.99
Electric	0	47	.00	799	800	1.00	15	15	1.00	252	720	.35	891	891	1.00	2880	2880	1.00	1185	1185	1.00	43	53	.81	1662	1662	1.00	7738	8253	.94
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3664	3665	1.00
Total Demand	2323	2905	.80	16435	16435	1.00	5653	5653	1.00	1037	1505	.69	35682	35682	1.00	18782	18782	1.00	8278	8279	1.00	3808	3818	1.00	11335	11335	1.00	103336	104398	.99
SUPPLIES																														
Production	0	0	.00	500	500	1.00	539	539	1.00	27	27	1.00	1089	1089	1.00	22842	22842	1.00	16368	16368	1.00	3289	3289	1.00	1243	1243	1.00	45897	45897	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	1110	1110	1.00	2470	2470	1.00	4949	4950	1.00
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	8038	8038	1.00	2736	2736	1.00	0	0	.00	19499	19499	1.00	7778	7778	1.00	4945	5897	.84	756	1693	.45	3026	6715	.45	46777	52356	.89
Peak Shaving	573	573	1.00	2249	2249	1.00	676	1390	.49	0	0	.00	2214	2224	1.00	0	383	.00	0	0	.00	0	109	.00	0	850	.00	5711	7778	.73
Total Supply	623	623	1.00	10986	10986	1.00	3950	4664	.85	27	27	1.00	23621	23631	1.00	30920	31303	.99	21313	22265	.96	5154	6201	.83	6739	11278	.60	103336	110981	.93
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	2744	2750	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2744	2750	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4405	4820	.91	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5213	6840	.76
From IIIA	0	0	.00	0	0	.00	3639	4890	.74	1010	1010	1.00	9664	16400	.59	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14313	22300	.64
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	40	40	1.00	4660	4660	1.00	13035	13035	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1450	1450	1.00	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1570	1570	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	7149	7570	.94	4447	6910	.64	1010	1010	1.00	17274	24010	.72	2175	2175	1.00	0	0	.00	224	500	.45	4780	4780	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	2744	2750	1.00	0	0	.00	4405	4820	.91	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7149	7570	.94
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	3639	4890	.74	0	0	.00	0	0	.00	0	0	.00	4447	6910	.64
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	9664	16400	.59	6160	6160	1.00	1450	1450	1.00	0	0	.00	17274	24010	.72
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	40	40	1.00	0	0	.00	184	460	.40	224	500	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4660	4660	1.00	120	120	1.00	0	0	.00	4780	4780	1.00
Total PL Out	0	0	.00	1700	1700	1.00	2744	2750	1.00	0	0	.00	5213	6840	.76	14313	22300	.64	13035	13035	1.00	1570	1570	1.00	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 71 - JAN PK DAY 1992 - LOW DEMAND & LOW SUPPLY
- NO LNG

23:08 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1553	1553	1.00	7989	7989	1.00	3111	3111	1.00	207	207	1.00	17544	17544	1.00	3752	3752	1.00	2003	2003	1.00	1671	1671	1.00	4797	4797	1.00	42623	42627	1.00
Commercial	764	770	.99	3776	3776	1.00	1852	1852	1.00	390	390	1.00	9309	9309	1.00	2275	2275	1.00	1226	1226	1.00	1035	1035	1.00	2350	2350	1.00	22974	22983	1.00
Industrial	0	164	.00	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18357	18524	.99
Electric	0	13	.00	396	398	.99	16	17	.94	201	849	.24	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2050	2051	1.00	6192	6850	.90
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	2322	2504	.93	13861	13863	1.00	6089	6090	1.00	1037	1686	.62	32334	32336	1.00	16830	16831	1.00	7112	7113	1.00	3233	3233	1.00	10905	10906	1.00	93728	94564	.99
SUPPLIES																														
Production	0	0	.00	447	447	1.00	485	485	1.00	27	27	1.00	962	962	1.00	20169	20169	1.00	14441	14441	1.00	2902	2902	1.00	1091	1091	1.00	40524	40524	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	1110	1110	1.00	2470	2470	1.00	4649	4650	1.00
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	8037	8038	1.00	2736	2736	1.00	0	0	.00	19499	19499	1.00	7778	7778	1.00	5706	5897	.97	567	1693	.33	2749	6715	.41	47069	52356	.90
Peak Shaving	573	573	1.00	911	2249	.41	0	1390	.00	0	0	.00	0	2224	.00	0	383	.00	0	0	.00	0	109	.00	0	850	.00	1484	7778	.19
Total Supply	622	623	1.00	9595	10934	.88	3220	4611	.70	27	27	1.00	21278	23505	.91	27946	28330	.99	20147	20338	.99	4579	5814	.79	6309	11126	.57	93728	105308	.89
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	1578	2750	.57	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1578	2750	.57
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4388	4820	.91	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5196	6840	.76
From IIIA	0	0	.00	0	0	.00	3639	4890	.74	1010	1010	1.00	8642	16400	.53	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13291	22300	.60
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	40	40	1.00	4660	4660	1.00	13035	13035	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1449	1450	1.00	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1569	1570	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	5966	7570	.79	4447	6910	.64	1010	1010	1.00	16251	24010	.68	2175	2175	1.00	0	0	.00	224	500	.45	4780	4780	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	1578	2750	.57	0	0	.00	4388	4820	.91	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5966	7570	.79
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	3639	4890	.74	0	0	.00	0	0	.00	0	0	.00	4447	6910	.64
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	8642	16400	.53	6160	6160	1.00	1449	1450	1.00	0	0	.00	16251	24010	.68
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	40	40	1.00	0	0	.00	184	460	.40	224	500	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4660	4660	1.00	120	120	1.00	0	0	.00	4780	4780	1.00
Total PL Out	0	0	.00	1700	1700	1.00	1578	2750	.57	0	0	.00	5196	6840	.76	13291	22300	.60	13035	13035	1.00	1569	1570	1.00	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 72 - JAN PK DAY 1992 - LOW DEMAND & HIGH SUPPLY
- NO LNG

23:13 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1553	1553	1.00	7989	7989	1.00	3111	3111	1.00	207	207	1.00	17544	17544	1.00	3752	3752	1.00	2003	2003	1.00	1671	1671	1.00	4797	4797	1.00	42623	42627	1.00
Commercial	765	770	.99	3776	3776	1.00	1852	1852	1.00	390	390	1.00	9309	9309	1.00	2275	2275	1.00	1226	1226	1.00	1035	1035	1.00	2350	2350	1.00	22975	22983	1.00
Industrial	0	164	.00	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18359	18524	.99
Electric	0	13	.00	396	398	.99	16	17	.94	200	849	.24	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2050	2051	1.00	6191	6850	.90
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	2323	2504	.93	13861	13863	1.00	6089	6090	1.00	1037	1686	.62	32334	32336	1.00	16830	16831	1.00	7113	7113	1.00	3233	3233	1.00	10905	10906	1.00	93729	94564	.99
SUPPLIES																														
Production	0	0	.00	500	500	1.00	539	539	1.00	27	27	1.00	1089	1089	1.00	22842	22842	1.00	16368	16368	1.00	3289	3289	1.00	1243	1243	1.00	45897	45897	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	1110	1110	1.00	2470	2470	1.00	4949	4950	1.00
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	8037	8038	1.00	2735	2736	1.00	0	0	.00	17382	19499	.89	7778	7778	1.00	3779	5897	.64	0	1693	.00	2597	6715	.39	42309	52356	.81
Peak Shaving	573	573	1.00	0	2249	.00	0	1390	.00	0	0	.00	0	2224	.00	0	383	.00	0	0	.00	0	109	.00	0	850	.00	573	7778	.07
Total Supply	623	623	1.00	8736	10986	.80	3274	4664	.70	27	27	1.00	19291	23631	.82	30919	31303	.99	20147	22265	.90	4398	6201	.71	6309	11278	.56	93729	110981	.84
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
From IC	0	0	.00	2244	2750	.82	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2244	2750	.82
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4580	4820	.95	808	2020	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5388	6840	.79
From IIIA	0	0	.00	0	0	.00	4252	4890	.87	1010	1010	1.00	11002	16400	.67	0	0	.00	0	0	.00	0	0	.00	0	0	.00	16264	22300	.73
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6160	6160	1.00	2175	2175	1.00	0	0	.00	40	40	1.00	4660	4660	1.00	13035	13035	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1269	1450	.88	0	0	.00	0	0	.00	0	0	.00	120	120	1.00	1389	1570	.88
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	184	460	.40	0	0	.00	184	460	.40
Total PL In	1700	1700	1.00	6824	7570	.90	5060	6910	.73	1010	1010	1.00	18431	24010	.77	2175	2175	1.00	0	0	.00	224	500	.45	4780	4780	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1700	1700	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1700	1700	1.00
To IB	0	0	.00	0	0	.00	2244	2750	.82	0	0	.00	4580	4820	.95	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6824	7570	.90
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	808	2020	.40	4252	4890	.87	0	0	.00	0	0	.00	0	0	.00	5060	6910	.73
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00	0	0	.00	0	0	.00	0	0	.00	1010	1010	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	11002	16400	.67	6160	6160	1.00	1269	1450	.88	0	0	.00	18431	24010	.77
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2175	2175	1.00	0	0	.00	0	0	.00	2175	2175	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	40	40	1.00	0	0	.00	184	460	.40	224	500	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4660	4660	1.00	120	120	1.00	0	0	.00	4780	4780	1.00
Total PL Out	0	0	.00	1700	1700	1.00	2244	2750	.82	0	0	.00	5388	6840	.79	16264	22300	.73	13035	13035	1.00	1389	1570	.88	184	460	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 73 - JAN AVG DAY 1992 - HIGH DEMAND & LOW SUPPLY
- 20% COLDER THAN NORMAL
- NO LNG

23:22 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1409	1409	1.00	6073	6073	1.00	1534	1534	1.00	84	84	1.00	12176	12176	1.00	2206	2206	1.00	1497	1497	1.00	1001	1001	1.00	3136	3136	1.00	29110	29116	1.00
Commercial	253	348	.73	2103	2103	1.00	723	723	1.00	119	119	1.00	6290	6290	1.00	1861	1861	1.00	1069	1069	1.00	741	741	1.00	1348	1348	1.00	14508	14602	1.00
Industrial	0	287	.00	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21478	21992	.98
Electric	0	47	.00	400	800	.50	15	15	1.00	525	720	.73	659	891	.74	2609	2880	.91	1185	1185	1.00	53	53	1.00	1662	1662	1.00	7335	8253	.89
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3664	3665	1.00
Total Demand	1665	2094	.80	11094	11495	.97	3370	3371	1.00	989	1184	.84	25102	25336	.99	15516	15787	.98	7072	7073	1.00	2705	2706	1.00	8581	8582	1.00	76098	77628	.98
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45027	45027	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	783	1110	.71	2470	2470	1.00	4322	4650	.93
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	4822	4823	1.00	1641	1642	1.00	0	0	.00	11699	11699	1.00	4667	4667	1.00	3387	3538	.96	0	1016	.00	533	4029	.13	26748	31413	.85
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	50	50	1.00	5519	5519	1.00	2180	2180	1.00	30	30	1.00	13586	13588	1.00	27076	27076	1.00	19433	19584	.99	4007	5350	.75	4215	7711	.55	76098	81090	.94
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4578	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5346	6498	.82
From IIIA	0	0	.00	0	0	.00	3035	4645	.65	959	959	1.00	9633	15580	.62	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13627	21184	.64
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	7190	7191	1.00	3803	6564	.58	959	959	1.00	16862	22809	.74	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4578	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7190	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3035	4645	.65	0	0	.00	0	0	.00	0	0	.00	3803	6564	.58
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	9633	15580	.62	5852	5852	1.00	1377	1377	1.00	0	0	.00	16862	22809	.74
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	5346	6498	.82	13627	21184	.64	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 74 - JAN AVG DAY 1992 - HIGH DEMAND & HIGH SUPPLY
- 20% COLDER THAN NORMAL
- NO LNG

23:26 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1409	1409	1.00	6073	6073	1.00	1534	1534	1.00	84	84	1.00	12176	12176	1.00	2206	2206	1.00	1497	1497	1.00	1001	1001	1.00	3136	3136	1.00	29110	29116	1.00
Commercial	253	348	.73	2103	2103	1.00	723	723	1.00	119	119	1.00	6290	6290	1.00	1861	1861	1.00	1069	1069	1.00	741	741	1.00	1348	1348	1.00	14508	14602	1.00
Industrial	0	287	.00	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21666	21992	.99
Electric	0	47	.00	459	800	.57	15	15	1.00	525	720	.73	891	891	1.00	2880	2880	1.00	1185	1185	1.00	53	53	1.00	1662	1662	1.00	7710	8253	.93
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3664	3665	1.00
Total Demand	1665	2094	.80	11153	11495	.97	3370	3371	1.00	989	1184	.84	25334	25336	1.00	15787	15787	1.00	7072	7073	1.00	2705	2706	1.00	8581	8582	1.00	76660	77628	.99
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	18187	18187	1.00	3654	3654	1.00	1381	1381	1.00	50996	50997	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	353	1110	.32	2470	2470	1.00	4192	4950	.85
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	4822	4823	1.00	1457	1642	.89	0	0	.00	8914	11699	.76	4667	4667	1.00	1246	3538	.35	0	1016	.00	364	4029	.09	21471	31413	.68
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	50	50	1.00	5577	5578	1.00	2055	2240	.92	30	30	1.00	10944	13729	.80	30346	30346	1.00	19433	21725	.89	4007	5780	.69	4215	7880	.53	76660	87360	.88
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4578	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5346	6498	.82
From IIIA	0	0	.00	0	0	.00	3160	4645	.68	959	959	1.00	12507	15580	.80	0	0	.00	0	0	.00	0	0	.00	0	0	.00	16626	21184	.78
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	7190	7191	1.00	3928	6564	.60	959	959	1.00	19736	22809	.87	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4578	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7190	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3160	4645	.68	0	0	.00	0	0	.00	0	0	.00	3928	6564	.60
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	12507	15580	.80	5852	5852	1.00	1377	1377	1.00	0	0	.00	19736	22809	.87
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	5346	6498	.82	16626	21184	.78	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 75 - JAN AVG DAY 1992 - LOW DEMAND & LOW SUPPLY
- 20% COLDER THAN NORMAL
- NO LNG

23:29 01-06-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1101	1101	1.00	5253	5253	1.00	1583	1583	1.00	86	86	1.00	11520	11520	1.00	2077	2077	1.00	1379	1379	1.00	1124	1124	1.00	3063	3063	1.00	27183	27186	1.00
Commercial	536	536	1.00	2454	2454	1.00	925	925	1.00	152	152	1.00	6088	6088	1.00	1229	1229	1.00	816	816	1.00	691	691	1.00	1457	1457	1.00	14341	14348	1.00
Industrial	23	164	.14	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18322	18524	.99
Electric	0	13	.00	397	398	1.00	17	17	1.00	512	849	.60	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6503	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1664	1819	.92	9804	9805	1.00	3634	3635	1.00	989	1326	.75	23025	23091	1.00	14109	14110	1.00	6078	6079	1.00	2342	2343	1.00	8279	8280	1.00	69930	70488	.99
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45027	45027	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	420	1110	.38	2470	2470	1.00	3959	4650	.85
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	4822	4823	1.00	1596	1642	.97	0	0	.00	7168	11699	.61	4667	4667	1.00	2393	3538	.68	0	1016	.00	231	4029	.06	20943	31413	.67
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	50	50	1.00	5518	5519	1.00	2135	2180	.98	30	30	1.00	9122	13588	.67	27076	27076	1.00	18438	19584	.94	3644	5350	.68	3913	7711	.51	69930	81090	.86
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.DD	1365	2612	.52	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1365	2612	.52
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4536	4579	.99	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5304	6498	.82
From IIIA	0	0	.00	0	0	.00	2097	4645	.45	959	959	1.00	11977	15580	.77	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15033	21184	.71
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	5901	7191	.82	2865	6564	.44	959	959	1.00	19206	22809	.84	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	1365	2612	.52	0	0	.00	4536	4579	.99	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5901	7191	.82
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2097	4645	.45	0	0	.00	0	0	.00	0	0	.00	2865	6564	.44
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	11977	15580	.77	5852	5852	1.00	1377	1377	1.00	0	0	.00	19206	22809	.84
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	1365	2612	.52	0	0	.00	5304	6498	.82	15033	21184	.71	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 76 - JAN AVG DAY 1992 - LOW DEMAND & HIGH SUPPLY
- 20% COLDER THAN NORMAL
- NO LNG

00:52 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1101	1101	1.00	5253	5253	1.00	1583	1583	1.00	86	86	1.00	11520	11520	1.00	2077	2077	1.00	1379	1379	1.00	1124	1124	1.00	3063	3063	1.00	27186	27186	1.00
Commercial	536	536	1.00	2454	2454	1.00	925	925	1.00	152	152	1.00	6088	6088	1.00	1229	1229	1.00	816	816	1.00	691	691	1.00	1457	1457	1.00	14345	14348	1.00
Industrial	23	164	.14	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18339	18524	.99
Electric	0	13	.00	398	398	1.00	17	17	1.00	512	849	.60	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6501	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	1665	1819	.92	9805	9805	1.00	3635	3635	1.00	989	1326	.75	23046	23091	1.00	14109	14110	1.00	6079	6079	1.00	2343	2343	1.00	8280	8280	1.00	69953	70488	.99
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	18187	18187	1.00	3644	3654	1.00	1381	1381	1.00	50986	50997	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	0	1110	.00	2470	2470	1.00	3840	4950	.78
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	4822	4823	1.00	761	1642	.46	0	0	.00	4519	11699	.39	4666	4667	1.00	252	3538	.07	0	1016	.00	62	4029	.02	15126	31413	.48
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	50	50	1.00	5577	5578	1.00	1359	2240	.61	30	30	1.00	6593	13729	.48	30346	30346	1.00	18439	21725	.85	3644	5780	.63	3913	7880	.50	69953	87360	.80
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	1310	2612	.50	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1310	2612	.50
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4532	4579	.99	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5300	6498	.82
From IIIA	0	0	.00	0	0	.00	2818	4645	.61	959	959	1.00	14524	15580	.93	0	0	.00	0	0	.00	0	0	.00	0	0	.00	18301	21184	.86
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	5842	7191	.81	3586	6564	.55	959	959	1.00	21753	22809	.95	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	1310	2612	.50	0	0	.00	4532	4579	.99	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5842	7191	.81
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	2818	4645	.61	0	0	.00	0	0	.00	0	0	.00	3586	6564	.55
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14524	15580	.93	5852	5852	1.00	1377	1377	1.00	0	0	.00	21753	22809	.95
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	1310	2612	.50	0	0	.00	5300	6498	.82	18301	21184	.86	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 77 - JAN AVG DAY 1992 - HIGH DEMAND & LOW SUPPLY
- 10% COLDER THAN NORMAL
- NO LNG

00:53 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1304	1304	1.00	5636	5636	1.00	1423	1423	1.00	79	79	1.00	11262	11262	1.00	2055	2055	1.00	1388	1388	1.00	925	925	1.00	2934	2934	1.00	27006	27006	1.00
Commercial	325	325	1.00	1962	1962	1.00	677	677	1.00	115	115	1.00	5828	5828	1.00	1754	1754	1.00	1007	1007	1.00	687	687	1.00	1279	1279	1.00	13632	13634	1.00
Industrial	33	287	.11	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21729	21992	.99
Electric	0	47	.00	164	800	.20	8	15	.53	271	720	.38	447	891	.50	1319	2880	.46	1185	1185	1.00	53	53	1.00	1662	1662	1.00	5116	8253	.62
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1665	1966	.85	10280	10917	.94	3206	3214	1.00	725	1175	.62	23515	23960	.98	13968	15529	.90	6902	6902	1.00	2575	2576	1.00	8310	8311	1.00	71149	74550	.95
SUPPLIES																														
Production	0	0	.00	485	485	1.00	539	539	1.00	29	29	1.00	1054	1054	1.00	21862	21862	1.00	19285	22066	.87	2694	2694	1.00	1225	1225	1.00	47174	49955	.94
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	1110	1110	1.00	2470	2470	1.00	4649	4650	1.00
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	4019	4019	1.00	1368	1368	1.00	0	0	.00	9749	9749	1.00	3889	3889	1.00	0	2948	.00	45	846	.05	255	3357	.08	19325	26178	.74
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	50	50	1.00	4704	4704	1.00	1907	1907	1.00	29	29	1.00	11623	11623	1.00	25751	25751	1.00	19285	25014	.77	3848	4650	.83	3950	7052	.56	71149	80783	.88
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3144	4645	.68	696	959	.73	10009	15580	.64	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13849	21184	.65
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	108	114	.95	1485	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	7191	7191	1.00	3912	6564	.60	696	959	.73	17238	22809	.76	2066	2066	1.00	0	0	.00	213	475	.45	4535	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3144	4645	.68	0	0	.00	0	0	.00	0	0	.00	3912	6564	.60
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	696	959	.73	0	0	.00	0	0	.00	0	0	.00	696	959	.73
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10009	15580	.64	5852	5852	1.00	1377	1377	1.00	0	0	.00	17238	22809	.76
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	108	114	.95	0	0	.00	4535	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	5347	6498	.82	13849	21184	.65	12383	12383	1.00	1485	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 78 - JAN AVG DAY 1992 - HIGH DEMAND & HIGH SUPPLY
- 10% COLDER THAN NORMAL
- NO LNG

01:04 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1304	1304	1.00	5636	5636	1.00	1423	1423	1.00	79	79	1.00	11262	11262	1.00	2055	2055	1.00	1388	1388	1.00	925	925	1.00	2934	2934	1.00	27006	27006	1.00
Commercial	325	325	1.00	1962	1962	1.00	677	677	1.00	115	115	1.00	5828	5828	1.00	1754	1754	1.00	1007	1007	1.00	687	687	1.00	1279	1279	1.00	13633	13634	1.00
Industrial	33	287	.11	2430	2430	1.00	984	984	1.00	208	208	1.00	5617	5617	1.00	7123	7123	1.00	2342	2342	1.00	822	822	1.00	2179	2179	1.00	21733	21992	.99
Electric	0	47	.00	220	800	.28	15	15	1.00	534	720	.74	891	891	1.00	2879	2880	1.00	1185	1185	1.00	53	53	1.00	1659	1662	1.00	7441	8253	.90
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1664	1966	.85	10337	10917	.95	3214	3214	1.00	988	1175	.84	23960	23960	1.00	15528	15529	1.00	6902	6902	1.00	2575	2576	1.00	8308	8311	1.00	73479	74550	.99
SUPPLIES																														
Production	0	0	.00	542	542	1.00	599	599	1.00	29	29	1.00	1193	1193	1.00	24760	24760	1.00	19285	25011	.77	3053	3053	1.00	1396	1396	1.00	50857	56583	.90
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	801	1110	.72	2470	2470	1.00	4641	4950	.94
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	4019	4019	1.00	1355	1368	.99	0	0	.00	8641	9749	.89	3889	3889	1.00	0	2948	.00	0	846	.00	79	3357	.02	17983	26178	.69
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	50	50	1.00	4761	4761	1.00	1954	1967	.99	29	29	1.00	10654	11762	.91	28948	28948	1.00	19285	27959	.69	3854	5009	.77	3944	7223	.55	73482	87711	.84
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3104	4645	.67	959	959	1.00	11423	15580	.73	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15486	21184	.73
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	7191	7191	1.00	3872	6564	.59	959	959	1.00	18652	22809	.82	2066	2066	1.00	0	0	.00	213	475	.45	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3104	4645	.67	0	0	.00	0	0	.00	0	0	.00	3872	6564	.59
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	11423	15580	.73	5852	5852	1.00	1377	1377	1.00	0	0	.00	18652	22809	.82
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2612	2612	1.00	0	0	.00	5347	6498	.82	15486	21184	.73	12383	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 79 - JAN AVG DAY 1992 - LOW DEMAND & LOW SUPPLY
- 10% COLDER THAN NORMAL
- NO LNG

01:06 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1020	1020	1.00	4875	4875	1.00	1467	1467	1.00	81	81	1.00	10655	10655	1.00	1935	1935	1.00	1279	1279	1.00	1039	1039	1.00	2865	2865	1.00	25216	25216	1.00
Commercial	501	501	1.00	2289	2289	1.00	866	866	1.00	148	148	1.00	5641	5641	1.00	1158	1158	1.00	768	768	1.00	641	641	1.00	1382	1382	1.00	13392	13394	1.00
Industrial	139	164	.85	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18498	18524	1.00
Electric	0	13	.00	398	398	1.00	17	17	1.00	521	849	.61	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6508	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	1665	1703	.98	9261	9262	1.00	3459	3460	1.00	988	1317	.75	21777	21779	1.00	13896	13897	1.00	5931	5931	1.00	2208	2208	1.00	8006	8007	1.00	67195	67564	.99
SUPPLIES																														
Production	0	0	.00	485	485	1.00	539	539	1.00	29	29	1.00	1054	1054	1.00	21862	21862	1.00	18314	22066	.83	2694	2694	1.00	1225	1225	1.00	46203	49955	.92
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	787	1110	.71	2421	2470	.98	4278	4650	.92
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	4019	4019	1.00	123	1368	.09	0	0	.00	8680	9749	.89	3889	3889	1.00	0	2948	.00	0	846	.00	0	3357	.00	16713	26178	.64
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	50	50	1.00	4704	4704	1.00	662	1907	.35	29	29	1.00	10556	11623	.91	25751	25751	1.00	18314	25014	.73	3481	4650	.75	3646	7052	.52	67195	80783	.83
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	1831	2612	.70	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1831	2612	.70
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4342	4579	.95	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5110	6498	.79
From IIIA	0	0	.00	0	0	.00	3860	4645	.83	959	959	1.00	9101	15580	.58	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13920	21184	.66
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	108	114	.95	1485	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	6173	7191	.86	4628	6564	.71	959	959	1.00	16330	22809	.72	2066	2066	1.00	0	0	.00	213	475	.45	4535	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	1831	2612	.70	0	0	.00	4342	4579	.95	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6173	7191	.86
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3860	4645	.83	0	0	.00	0	0	.00	0	0	.00	4628	6564	.71
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	9101	15580	.58	5852	5852	1.00	1377	1377	1.00	0	0	.00	16330	22809	.72
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	108	114	.95	0	0	.00	4535	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	1831	2612	.70	0	0	.00	5110	6498	.79	13920	21184	.66	12383	12383	1.00	1485	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 80 - JAN AVG DAY 1992 - LOW DEMAND & HIGH SUPPLY
- 10% COLDER THAN NORMAL
- NO LNG

01:08 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1020	1020	1.00	4875	4875	1.00	1467	1467	1.00	81	81	1.00	10655	10655	1.00	1935	1935	1.00	1279	1279	1.00	1039	1039	1.00	2865	2865	1.00	25216	25216	1.00
Commercial	501	501	1.00	2289	2289	1.00	866	866	1.00	148	148	1.00	5641	5641	1.00	1158	1158	1.00	768	768	1.00	641	641	1.00	1382	1382	1.00	13392	13394	1.00
Industrial	139	164	.85	1575	1575	1.00	997	997	1.00	211	211	1.00	5039	5039	1.00	6771	6771	1.00	1918	1918	1.00	287	287	1.00	1562	1562	1.00	18493	18524	1.00
Electric	0	13	.00	398	398	1.00	17	17	1.00	521	849	.61	121	121	1.00	2465	2465	1.00	905	905	1.00	31	31	1.00	2051	2051	1.00	6508	6850	.95
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3580	3580	1.00
Total Demand	1665	1703	.98	9261	9262	1.00	3459	3460	1.00	988	1317	.75	21773	21779	1.00	13896	13897	1.00	5931	5931	1.00	2208	2208	1.00	8006	8007	1.00	67191	67564	.99
SUPPLIES																														
Production	0	0	.00	542	542	1.00	599	599	1.00	29	29	1.00	1193	1193	1.00	24760	24760	1.00	18314	25011	.73	3053	3053	1.00	1396	1396	1.00	49886	56583	.88
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	428	1110	.39	2250	2470	.91	4048	4950	.82
Base Load LNG	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Storage	0	0	.00	4019	4019	1.00	1145	1368	.84	0	0	.00	4198	9749	.43	3889	3889	1.00	0	2948	.00	0	846	.00	0	3357	.00	13256	26178	.51
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	50	50	1.00	4761	4761	1.00	1744	1967	.89	29	29	1.00	6217	11762	.53	28948	28948	1.00	18314	27959	.66	3481	5009	.69	3646	7223	.50	67191	87711	.77
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
From IC	0	0	.00	2394	2612	.92	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2394	2612	.92
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	3722	4579	.81	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4490	6498	.69
From IIIA	0	0	.00	0	0	.00	3342	4645	.72	959	959	1.00	12816	15580	.82	0	0	.00	0	0	.00	0	0	.00	0	0	.00	17117	21184	.81
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	38	38	1.00	4427	4427	1.00	12383	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	108	114	.95	1485	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1615	1615	1.00	6116	7191	.85	4110	6564	.63	959	959	1.00	20045	22809	.88	2066	2066	1.00	0	0	.00	213	475	.45	4535	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1615	1615	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1615	1615	1.00
To IB	0	0	.00	0	0	.00	2394	2612	.92	0	0	.00	3722	4579	.81	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6116	7191	.85
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3342	4645	.72	0	0	.00	0	0	.00	0	0	.00	4110	6564	.63
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	12816	15580	.82	5852	5852	1.00	1377	1377	1.00	0	0	.00	20045	22809	.88
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	38	38	1.00	0	0	.00	175	437	.40	213	475	.45
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	108	114	.95	0	0	.00	4535	4541	1.00
Total PL Out	0	0	.00	1615	1615	1.00	2394	2612	.92	0	0	.00	4490	6498	.69	17117	21184	.81	12383	12383	1.00	1485	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 81 - MARCH AVG DAY 1988 - STORAGE AT 20% OF PEAK CAPACITY

02:23 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	770	770	1.00	3960	3960	1.00	1169	1169	1.00	67	67	1.00	8099	8099	1.00	1418	1418	1.00	982	982	1.00	708	708	1.00	1892	1892	1.00	19065	19065	1.00
Commercial	378	378	1.00	1872	1872	1.00	643	643	1.00	128	128	1.00	4061	4061	1.00	948	948	1.00	584	584	1.00	479	479	1.00	1136	1136	1.00	10226	10229	1.00
Industrial	171	171	1.00	1354	1354	1.00	1062	1075	.99	267	267	1.00	4513	4513	1.00	6603	6603	1.00	1962	1962	1.00	310	310	1.00	1774	1774	1.00	18011	18029	1.00
Electric	8	11	.73	435	435	1.00	0	4	.00	372	372	1.00	94	94	1.00	2826	2826	1.00	764	764	1.00	14	14	1.00	1931	1931	1.00	6451	6451	1.00
Fuel	37	37	1.00	235	235	1.00	104	104	1.00	26	26	1.00	531	531	1.00	1969	1969	1.00	912	912	1.00	158	158	1.00	253	253	1.00	4225	4225	1.00
Total Demand	1364	1367	1.00	7856	7856	1.00	2977	2995	.99	860	860	1.00	17298	17298	1.00	13763	13764	1.00	5204	5204	1.00	1668	1669	1.00	6986	6986	1.00	57979	57999	1.00
SUPPLIES																														
Production	0	0	.00	581	581	1.00	387	387	1.00	0	0	.00	1452	1452	1.00	28226	28226	1.00	15128	15129	1.00	2548	2548	1.00	1097	1097	1.00	49418	49419	1.00
Imports	50	50	1.00	142	142	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	422	1110	.38	2470	2470	1.00	3903	4592	.85
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	137	137	1.00
Storage	0	0	.00	1607	1607	1.00	0	547	.00	0	0	.00	196	3899	.05	1555	1555	1.00	1179	1179	1.00	0	339	.00	0	1343	.00	4537	10470	.43
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	2329	2330	1.00	387	934	.41	0	0	.00	2467	6171	.40	29780	29781	1.00	16307	16308	1.00	2970	3997	.74	3566	4909	.73	57996	64618	.90
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1177	1615	.73	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1177	1615	.73
From IC	0	0	.00	2605	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2605	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4099	4579	.90	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4867	6498	.75
From IIIA	0	0	.00	0	0	.00	4445	4645	.96	860	959	.90	12467	15580	.80	0	0	.00	0	0	.00	0	0	.00	0	0	.00	17772	21184	.84
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	1756	2066	.85	0	0	.00	15	38	.39	3480	4427	.79	11103	12383	.90
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1177	1615	.73	6704	7191	.93	5213	6564	.79	860	959	.90	19696	22809	.86	1756	2066	.85	0	0	.00	190	475	.40	3594	4541	.79			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1177	1615	.73	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1177	1615	.73
To IB	0	0	.00	0	0	.00	2605	2612	1.00	0	0	.00	4099	4579	.90	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6704	7191	.93
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	4445	4645	.96	0	0	.00	0	0	.00	0	0	.00	5213	6564	.79
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	860	959	.90	0	0	.00	0	0	.00	0	0	.00	860	959	.90
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	12467	15580	.80	5852	5852	1.00	1377	1377	1.00	0	0	.00	19696	22809	.86
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1756	2066	.85	0	0	.00	0	0	.00	1756	2066	.85
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3480	4427	.79	114	114	1.00	0	0	.00	3594	4541	.79
Total PL Out	0	0	.00	1177	1615	.73	2605	2612	1.00	0	0	.00	4867	6498	.75	17772	21184	.84	11103	12383	.90	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 82 - MARCH AVG DAY 1988 - STORAGE AT 20% OF PEAK CAPACITY
- 20% COLDER THAN NORMAL

02:24 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	897	897	1.00	4588	4588	1.00	1352	1352	1.00	73	73	1.00	9453	9453	1.00	1603	1603	1.00	1134	1134	1.00	830	830	1.00	2149	2149	1.00	22078	22078	1.00
Commercial	431	431	1.00	2138	2138	1.00	723	723	1.00	132	132	1.00	4714	4714	1.00	1039	1039	1.00	646	646	1.00	556	556	1.00	1251	1251	1.00	11629	11630	1.00
Industrial	157	171	.92	1225	1354	.90	1075	1075	1.00	267	267	1.00	4513	4513	1.00	6603	6603	1.00	1962	1962	1.00	310	310	1.00	1774	1774	1.00	17881	18029	.99
Electric	0	11	.00	0	435	.00	4	4	1.00	372	372	1.00	94	94	1.00	2825	2826	1.00	764	764	1.00	13	14	.93	1931	1931	1.00	6007	6451	.93
Fuel	37	37	1.00	235	235	1.00	104	104	1.00	26	26	1.00	531	531	1.00	1969	1969	1.00	912	912	1.00	158	158	1.00	253	253	1.00	4225	4225	1.00
Total Demand	1522	1547	.98	8185	8750	.94	3257	3257	1.00	869	869	1.00	19303	19305	1.00	14039	14040	1.00	5417	5417	1.00	1867	1867	1.00	7357	7357	1.00	61821	62413	.99
SUPPLIES																														
Production	0	0	.00	581	581	1.00	387	387	1.00	0	0	.00	1452	1452	1.00	28226	28226	1.00	15129	15129	1.00	2548	2548	1.00	1097	1097	1.00	49419	49419	1.00
Imports	50	50	1.00	142	142	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	620	1110	.56	2470	2470	1.00	4102	4592	.89
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	137	137	1.00
Storage	0	0	.00	1607	1607	1.00	547	547	1.00	0	0	.00	3274	3899	.84	1555	1555	1.00	1179	1179	1.00	0	339	.00	0	1343	.00	8164	10470	.78
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	2330	2330	1.00	934	934	1.00	0	0	.00	5547	6171	.90	29780	29781	1.00	16307	16308	1.00	3168	3997	.79	3566	4909	.73	61822	64618	.96
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1336	1615	.83	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1336	1615	.83
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	4169	4645	.90	869	959	.91	11873	15580	.76	0	0	.00	0	0	.00	0	0	.00	0	0	.00	16911	21184	.80
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	1171	2066	.57	0	0	.00	15	38	.39	3852	4427	.87	10890	12383	.88
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1336	1615	.83	7191	7191	1.00	4937	6564	.75	869	959	.91	19102	22809	.84	1171	2066	.57	0	0	.00	190	475	.40	3966	4541	.87			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1336	1615	.83	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1336	1615	.83
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	4169	4645	.90	0	0	.00	0	0	.00	0	0	.00	4937	6564	.75
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	869	959	.91	0	0	.00	0	0	.00	0	0	.00	869	959	.91
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	11873	15580	.76	5852	5852	1.00	1377	1377	1.00	0	0	.00	19102	22809	.84
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1171	2066	.57	0	0	.00	0	0	.00	1171	2066	.57
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3852	4427	.87	114	114	1.00	0	0	.00	3966	4541	.87
Total PL Out	0	0	.00	1336	1615	.83	2612	2612	1.00	0	0	.00	5347	6498	.82	16911	21184	.80	10890	12383	.88	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 83 - MARCH AVG DAY 1992 - LOW DEMAND & HIGH SUPPLY
- STORAGE AT 20% OF PEAK CAPACITY

01:34 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	729	729	1.00	3422	3422	1.00	910	910	1.00	43	43	1.00	6922	6922	1.00	1072	1072	1.00	768	768	1.00	740	740	1.00	2169	2169	1.00	16773	16775	1.00
Commercial	374	374	1.00	1658	1658	1.00	583	583	1.00	114	114	1.00	3713	3713	1.00	727	727	1.00	528	528	1.00	465	465	1.00	1116	1116	1.00	9278	9279	1.00
Industrial	185	185	1.00	1478	1478	1.00	1038	1038	1.00	165	165	1.00	4161	4161	1.00	5854	5854	1.00	1528	1528	1.00	233	233	1.00	1373	1373	1.00	16014	16015	1.00
Electric	49	49	1.00	601	601	1.00	15	15	1.00	640	1010	.63	98	98	1.00	2300	2300	1.00	758	758	1.00	26	26	1.00	1802	1802	1.00	6288	6659	.94
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1342	1342	1.00	7284	7284	1.00	2658	2658	1.00	989	1360	.73	15215	15217	1.00	11520	11520	1.00	4643	4643	1.00	1674	1674	1.00	6607	6607	1.00	51935	52308	.99
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	17002	18187	.93	2975	3654	.81	1381	1381	1.00	49132	50997	.96
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	243	300	.81	0	0	.00	0	1110	.00	860	2470	.35	2172	4950	.44
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	411	.00	0	0	.00	0	0	.00	0	0	.00	136	548	.25
Storage	0	0	.00	493	1607	.31	0	547	.00	0	0	.00	-2	3899	.00	0	1555	.00	0	1179	.00	0	339	.00	0	1343	.00	493	10470	.05
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	186	187	1.00	1248	2362	.53	598	1145	.52	30	30	1.00	2029	5929	.34	25622	27646	.93	17002	19366	.88	2975	5103	.58	2241	5194	.43	51935	66965	.78
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1156	1615	.72	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1156	1615	.72
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3904	4645	.84	959	959	1.00	11304	15580	.73	0	0	.00	0	0	.00	0	0	.00	0	0	.00	16167	21184	.76
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5851	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12359	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1156	1615	.72	7191	7191	1.00	4672	6564	.71	959	959	1.00	18532	22809	.81	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1156	1615	.72	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1156	1615	.72
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3904	4645	.84	0	0	.00	0	0	.00	0	0	.00	4672	6564	.71
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	11304	15580	.73	5851	5852	1.00	1377	1377	1.00	0	0	.00	18532	22809	.81
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1156	1615	.72	2612	2612	1.00	0	0	.00	5347	6498	.82	16167	21184	.76	12359	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 84 - MARCH AVG DAY 1992 - LOW DEMAND & HIGH SUPPLY
- STORAGE AT 20% OF PEAK CAPACITY
- 20% COLDER THAN NORMAL

01:36 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	850	850	1.00	3965	3965	1.00	1052	1052	1.00	47	47	1.00	8079	8079	1.00	1212	1212	1.00	887	887	1.00	867	867	1.00	2464	2464	1.00	19421	19423	1.00
Commercial	427	427	1.00	1894	1894	1.00	655	655	1.00	117	117	1.00	4311	4311	1.00	797	797	1.00	584	584	1.00	540	540	1.00	1229	1229	1.00	10552	10554	1.00
Industrial	185	185	1.00	1478	1478	1.00	1038	1038	1.00	165	165	1.00	4161	4161	1.00	5854	5854	1.00	1528	1528	1.00	233	233	1.00	1373	1373	1.00	16014	16015	1.00
Electric	49	49	1.00	601	601	1.00	15	15	1.00	633	1010	.63	98	98	1.00	2300	2300	1.00	758	758	1.00	26	26	1.00	1802	1802	1.00	6281	6659	.94
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1515	1516	1.00	8062	8063	1.00	2872	2873	1.00	989	1367	.72	16969	16972	1.00	11730	11731	1.00	4818	4818	1.00	1875	1876	1.00	7014	7015	1.00	55850	56231	.99
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25379	25380	1.00	17178	18187	.94	3177	3654	.87	1381	1381	1.00	49509	50997	.97
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	0	1110	.00	1267	2470	.51	2637	4950	.53
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	547	548	1.00
Storage	0	0	.00	1602	1607	1.00	0	547	.00	0	0	.00	-2	3899	.00	1555	1555	1.00	0	1179	.00	0	339	.00	0	1343	.00	3156	10470	.30
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	186	187	1.00	2356	2362	1.00	598	1145	.52	30	30	1.00	2029	5929	.34	27645	27646	1.00	17177	19366	.89	3177	5103	.62	2648	5194	.51	55850	66965	.83
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1329	1615	.82	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1329	1615	.82
From IC	0	0	.00	2456	2612	.94	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2456	2612	.94
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3963	4645	.85	959	959	1.00	13058	15580	.84	0	0	.00	0	0	.00	0	0	.00	0	0	.00	17980	21184	.85
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5851	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12359	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1329	1615	.82	7035	7191	.98	4731	6564	.72	959	959	1.00	20286	22809	.89	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1329	1615	.82	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1329	1615	.82
To IB	0	0	.00	0	0	.00	2456	2612	.94	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7035	7191	.98
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3963	4645	.85	0	0	.00	0	0	.00	0	0	.00	4731	6564	.72
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13058	15580	.84	5851	5852	1.00	1377	1377	1.00	0	0	.00	20286	22809	.89
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1329	1615	.82	2456	2612	.94	0	0	.00	5347	6498	.82	17980	21184	.85	12359	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 85 - MARCH AVG DAY 1992 - LOW DEMAND & LOW SUPPLY
- STORAGE AT 20% OF PEAK CAPACITY

01:39 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	729	729	1.00	3422	3422	1.00	910	910	1.00	43	43	1.00	6922	6922	1.00	1072	1072	1.00	768	768	1.00	740	740	1.00	2169	2169	1.00	16773	16775	1.00
Commercial	374	374	1.00	1658	1658	1.00	583	583	1.00	114	114	1.00	3713	3713	1.00	727	727	1.00	528	528	1.00	465	465	1.00	1116	1116	1.00	9278	9279	1.00
Industrial	185	185	1.00	1478	1478	1.00	1038	1038	1.00	165	165	1.00	4161	4161	1.00	5854	5854	1.00	1528	1528	1.00	233	233	1.00	1373	1373	1.00	16014	16015	1.00
Electric	49	49	1.00	601	601	1.00	15	15	1.00	640	1010	.63	98	98	1.00	2300	2300	1.00	758	758	1.00	26	26	1.00	1802	1802	1.00	6288	6659	.94
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1342	1342	1.00	7284	7284	1.00	2658	2658	1.00	989	1360	.73	15215	15217	1.00	11520	11520	1.00	4643	4643	1.00	1674	1674	1.00	6607	6607	1.00	51935	52308	.99
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16045	16046	1.00	2975	3224	.92	1212	1212	1.00	44777	45027	.99
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	0	1110	.00	1987	2470	.80	3056	4650	.66
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	547	548	1.00
Storage	0	0	.00	1607	1607	1.00	0	547	.00	0	0	.00	390	3899	.10	1555	1555	1.00	0	1179	.00	0	339	.00	0	1343	.00	3553	10470	.34
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	186	187	1.00	2303	2304	1.00	538	1085	.50	30	30	1.00	2280	5788	.39	24375	24376	1.00	16045	17225	.93	2975	4673	.64	3198	5025	.64	51935	60695	.86
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1156	1615	.72	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1156	1615	.72
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	3524	4579	.77	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4292	6498	.66
From IIIA	0	0	.00	0	0	.00	3964	4645	.85	959	959	1.00	9997	15580	.64	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14920	21184	.70
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	3469	4427	.78	11402	12383	.92
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1156	1615	.72	6136	7191	.85	4732	6564	.72	959	959	1.00	17226	22809	.76	2066	2066	1.00	0	0	.00	190	475	.40	3583	4541	.79			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1156	1615	.72	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1156	1615	.72
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	3524	4579	.77	0	0	.00	0	0	.00	0	0	.00	0	0	.00	6136	7191	.85
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3964	4645	.85	0	0	.00	0	0	.00	0	0	.00	4732	6564	.72
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	9997	15580	.64	5852	5852	1.00	1377	1377	1.00	0	0	.00	17226	22809	.76
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3469	4427	.78	114	114	1.00	0	0	.00	3583	4541	.79
Total PL Out	0	0	.00	1156	1615	.72	2612	2612	1.00	0	0	.00	4292	6498	.66	14920	21184	.70	11402	12383	.92	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 86 - MARCH AVG DAY 1992 - LOW DEMAND & LOW SUPPLY
- STORAGE AT 20% OF PEAK CAPACITY
- 20% COLDER THAN NORMAL

01:42 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 10			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	850	850	1.00	3965	3965	1.00	1052	1052	1.00	47	47	1.00	8079	8079	1.00	1212	1212	1.00	887	887	1.00	867	867	1.00	2464	2464	1.00	19421	19423	1.00
Commercial	427	427	1.00	1894	1894	1.00	655	655	1.00	117	117	1.00	4311	4311	1.00	797	797	1.00	584	584	1.00	540	540	1.00	1229	1229	1.00	10552	10554	1.00
Industrial	185	185	1.00	1478	1478	1.00	1038	1038	1.00	165	165	1.00	4161	4161	1.00	5854	5854	1.00	1528	1528	1.00	233	233	1.00	1373	1373	1.00	16014	16015	1.00
Electric	49	49	1.00	601	601	1.00	15	15	1.00	632	1010	.63	98	98	1.00	2300	2300	1.00	758	758	1.00	26	26	1.00	1802	1802	1.00	6282	6659	.94
Fuel	5	5	1.00	125	125	1.00	113	113	1.00	28	28	1.00	323	323	1.00	1568	1568	1.00	1061	1061	1.00	210	210	1.00	147	147	1.00	3579	3580	1.00
Total Demand	1515	1516	1.00	8062	8063	1.00	2872	2873	1.00	989	1367	.72	16969	16972	1.00	11730	11731	1.00	4818	4818	1.00	1875	1876	1.00	7014	7015	1.00	55850	56231	.99
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16045	16046	1.00	3177	3224	.99	1212	1212	1.00	44979	45027	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	0	1110	.00	2470	2470	1.00	3539	4650	.76
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	547	548	1.00
Storage	0	0	.00	1607	1607	1.00	547	547	1.00	0	0	.00	2973	3899	.76	1555	1555	1.00	99	1179	.08	0	339	.00	0	1343	.00	6784	10470	.65
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	186	187	1.00	2304	2304	1.00	1085	1085	1.00	30	30	1.00	4864	5788	.84	24375	24376	1.00	16144	17225	.94	3177	4673	.68	3682	5025	.73	55850	60695	.92
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1329	1615	.82	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1329	1615	.82
From IC	0	0	.00	2509	2612	.96	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2509	2612	.96
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3528	4645	.76	959	959	1.00	10223	15580	.66	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14710	21184	.69
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5851	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	3394	4427	.77	11326	12383	.91
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1329	1615	.82	7088	7191	.99	4296	6564	.65	959	959	1.00	17451	22809	.77	2066	2066	1.00	0	0	.00	190	475	.40	3508	4541	.77			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1329	1615	.82	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1329	1615	.82
To IB	0	0	.00	0	0	.00	2509	2612	.96	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7088	7191	.99
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3528	4645	.76	0	0	.00	0	0	.00	0	0	.00	4296	6564	.65
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10223	15580	.66	5851	5852	1.00	1377	1377	1.00	0	0	.00	17451	22809	.77
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3394	4427	.77	114	114	1.00	0	0	.00	3508	4541	.77
Total PL Out	0	0	.00	1329	1615	.82	2509	2612	.96	0	0	.00	5347	6498	.82	14710	21184	.69	11326	12383	.91	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 87 - MARCH AVG DAY 1992 - HIGH DEMAND & LOW SUPPLY
- STORAGE AT 20% OF PEAK CAPACITY

02:25 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	933	933	1.00	3957	3957	1.00	882	882	1.00	41	41	1.00	7316	7316	1.00	1138	1138	1.00	834	834	1.00	659	659	1.00	2222	2222	1.00	17982	17982	1.00
Commercial	243	243	1.00	1421	1421	1.00	455	455	1.00	89	89	1.00	3837	3837	1.00	1101	1101	1.00	692	692	1.00	499	499	1.00	1033	1033	1.00	9369	9369	1.00
Industrial	323	323	1.00	2281	2281	1.00	1025	1025	1.00	162	162	1.00	4639	4639	1.00	6158	6158	1.00	1867	1867	1.00	668	668	1.00	1914	1914	1.00	19034	19037	1.00
Electric	56	178	.31	377	1208	.31	13	13	1.00	644	857	.75	725	725	1.00	2688	2688	1.00	992	992	1.00	44	44	1.00	1460	1460	1.00	7001	8165	.86
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1557	1679	.93	8124	8955	.91	2490	2490	1.00	989	1202	.82	16878	16878	1.00	12801	12802	1.00	5364	5364	1.00	1958	1958	1.00	6885	6885	1.00	57051	58218	.98
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45027	45027	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	36	1110	.03	2470	2470	1.00	3575	4650	.77
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	1607	1607	1.00	547	547	1.00	0	0	.00	3674	3899	.94	1555	1555	1.00	516	1179	.44	0	339	.00	0	1343	.00	7900	10470	.75
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	2304	2304	1.00	1085	1085	1.00	30	30	1.00	5563	5788	.96	24376	24376	1.00	16562	17225	.96	3260	4673	.70	3682	5025	.73	57051	60695	.94
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1371	1615	.85	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1371	1615	.85
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3249	4645	.70	959	959	1.00	9431	15580	.61	0	0	.00	0	0	.00	0	0	.00	0	0	.00	13639	21184	.64
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	3264	4427	.74	11197	12383	.90
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1371	1615	.85	7191	7191	1.00	4017	6564	.61	959	959	1.00	16660	22809	.73	2066	2066	1.00	0	0	.00	190	475	.40	3378	4541	.74			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1371	1615	.85	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1371	1615	.85
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3249	4645	.70	0	0	.00	0	0	.00	0	0	.00	4017	6564	.61
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	9431	15580	.61	5852	5852	1.00	1377	1377	1.00	0	0	.00	16660	22809	.73
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3264	4427	.74	114	114	1.00	0	0	.00	3378	4541	.74
Total PL Out	0	0	.00	1371	1615	.85	2612	2612	1.00	0	0	.00	5347	6498	.82	13639	21184	.64	11197	12383	.90	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 88 - MARCH AVG DAY 1992 - HIGH DEMAND & LOW SUPPLY
- STORAGE AT 20% OF PEAK CAPACITY
- 20% COLDER THAN NORMAL

02:32 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1087	1087	1.00	4584	4584	1.00	1020	1020	1.00	45	45	1.00	8539	8539	1.00	1287	1287	1.00	963	963	1.00	772	772	1.00	2524	2524	1.00	20821	20821	1.00
Commercial	277	277	1.00	1623	1623	1.00	512	512	1.00	92	92	1.00	4454	4454	1.00	1207	1207	1.00	765	765	1.00	579	579	1.00	1137	1137	1.00	10645	10646	1.00
Industrial	251	323	.78	1769	2281	.78	1025	1025	1.00	162	162	1.00	4639	4639	1.00	6158	6158	1.00	1867	1867	1.00	668	668	1.00	1914	1914	1.00	18433	19037	.97
Electric	0	178	.00	0	1208	.00	5	13	.38	381	857	.44	337	725	.46	1275	2688	.47	992	992	1.00	44	44	1.00	1460	1460	1.00	4513	8165	.55
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1617	1868	.87	8065	9785	.82	2677	2685	1.00	732	1209	.61	18331	18719	.98	11643	13057	.89	5567	5567	1.00	2152	2152	1.00	7292	7292	1.00	58078	62334	.93
SUPPLIES																														
Production	0	0	.00	497	497	1.00	539	539	1.00	30	30	1.00	1069	1069	1.00	22410	22410	1.00	16046	16046	1.00	3224	3224	1.00	1212	1212	1.00	45027	45027	1.00
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	0	0	.00	0	0	.00	229	1110	.21	2470	2470	1.00	3769	4650	.81
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	1607	1607	1.00	547	547	1.00	0	0	.00	3899	3899	1.00	1555	1555	1.00	1125	1179	.95	0	339	.00	0	1343	.00	8734	10470	.83
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	2304	2304	1.00	1085	1085	1.00	30	30	1.00	5788	5788	1.00	24376	24376	1.00	17171	17225	1.00	3453	4673	.74	3682	5025	.73	58078	60695	.96
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1430	1615	.89	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1430	1615	.89
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3437	4645	.74	702	959	.73	10660	15580	.68	0	0	.00	0	0	.00	0	0	.00	0	0	.00	14799	21184	.70
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	3670	4427	.83	11603	12383	.94
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1430	1615	.89	7191	7191	1.00	4205	6564	.64	702	959	.73	17889	22809	.78	2066	2066	1.00	0	0	.00	190	475	.40	3784	4541	.83			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1430	1615	.89	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1430	1615	.89
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3437	4645	.74	0	0	.00	0	0	.00	0	0	.00	4205	6564	.64
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	702	959	.73	0	0	.00	0	0	.00	0	0	.00	702	959	.73
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	10660	15580	.68	5852	5852	1.00	1377	1377	1.00	0	0	.00	17889	22809	.78
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	3670	4427	.83	114	114	1.00	0	0	.00	3784	4541	.83
Total PL Out	0	0	.00	1430	1615	.89	2612	2612	1.00	0	0	.00	5347	6498	.82	14799	21184	.70	11603	12383	.94	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 89 - MARCH AVG DAY 1992 - HIGH DEMAND & HIGH SUPPLY
- STORAGE AT 20% OF PEAK CAPACITY

02:42 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	933	933	1.00	3957	3957	1.00	882	882	1.00	41	41	1.00	7316	7316	1.00	1138	1138	1.00	834	834	1.00	659	659	1.00	2222	2222	1.00	17982	17982	1.00
Commercial	243	243	1.00	1421	1421	1.00	455	455	1.00	89	89	1.00	3837	3837	1.00	1101	1101	1.00	692	692	1.00	499	499	1.00	1033	1033	1.00	9369	9369	1.00
Industrial	323	323	1.00	2281	2281	1.00	1025	1025	1.00	162	162	1.00	4639	4639	1.00	6158	6158	1.00	1867	1867	1.00	668	668	1.00	1914	1914	1.00	19034	19037	1.00
Electric	63	178	.35	430	1208	.36	13	13	1.00	644	857	.75	725	725	1.00	2688	2688	1.00	992	992	1.00	44	44	1.00	1460	1460	1.00	7022	8165	.86
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1563	1679	.93	8177	8955	.91	2490	2490	1.00	989	1202	.82	16841	16878	1.00	12802	12802	1.00	5364	5364	1.00	1958	1958	1.00	6885	6885	1.00	57073	58218	.98
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	17725	18187	.97	3260	3654	.89	1381	1381	1.00	50140	50997	.98
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	0	1110	.00	1138	2470	.46	2507	4950	.51
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	1607	1607	1.00	230	547	.42	0	0	.00	484	3899	.12	1555	1555	1.00	0	1179	.00	0	339	.00	0	1343	.00	3914	10470	.37
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	2362	2362	1.00	828	1145	.72	30	30	1.00	2551	5929	.43	27646	27646	1.00	17724	19366	.92	3260	5103	.64	2519	5194	.49	57110	66965	.85
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1377	1615	.85	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1615	.85
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3507	4645	.76	959	959	1.00	12444	15580	.80	0	0	.00	0	0	.00	0	0	.00	0	0	.00	16910	21184	.80
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1377	1615	.85	7191	7191	1.00	4275	6564	.65	959	959	1.00	19673	22809	.86	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1377	1615	.85	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1615	.85
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3507	4645	.76	0	0	.00	0	0	.00	0	0	.00	4275	6564	.65
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	12444	15580	.80	5852	5852	1.00	1377	1377	1.00	0	0	.00	19673	22809	.86
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1377	1615	.85	2612	2612	1.00	0	0	.00	5347	6498	.82	16910	21184	.80	12360	12383	1.00	1491	1491	1.00	175	437	.40			

National Petroleum Council - Inter-PADD Flow Analysis

CASE 90 - MARCH AVG DAY 1992 - HIGH DEMAND & HIGH SUPPLY
- STORAGE AT 20% OF PEAK CAPACITY
- 20% COLDER THAN NORMAL

02:49 01-07-89

	PADD IA			PADD IB			PADD IC			PADD 1D			PADD II			PADD IIIA			PADD IIIB			PADD IV			PADD V			PADD TOTALS		
	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio	Used	Avail	Ratio
	MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd		MMcfd	MMcfd	
DEMAND																														
Residential	1087	1087	1.00	4584	4584	1.00	1020	1020	1.00	45	45	1.00	8539	8539	1.00	1287	1287	1.00	963	963	1.00	772	772	1.00	2524	2524	1.00	20821	20821	1.00
Commercial	277	277	1.00	1623	1623	1.00	512	512	1.00	92	92	1.00	4454	4454	1.00	1207	1207	1.00	765	765	1.00	579	579	1.00	1137	1137	1.00	10645	10646	1.00
Industrial	258	323	.80	1821	2281	.80	1025	1025	1.00	162	162	1.00	4639	4639	1.00	6158	6158	1.00	1867	1867	1.00	668	668	1.00	1914	1914	1.00	18508	19037	.97
Electric	0	178	.00	0	1208	.00	13	13	1.00	638	857	.74	725	725	1.00	2688	2688	1.00	992	992	1.00	44	44	1.00	1460	1460	1.00	6559	8165	.80
Fuel	3	3	1.00	89	89	1.00	115	115	1.00	53	53	1.00	362	362	1.00	1717	1717	1.00	980	980	1.00	89	89	1.00	257	257	1.00	3665	3665	1.00
Total Demand	1624	1868	.87	8116	9785	.83	2685	2685	1.00	989	1209	.82	18716	18719	1.00	13056	13057	1.00	5567	5567	1.00	2152	2152	1.00	7292	7292	1.00	60200	62334	.97
SUPPLIES																														
Production	0	0	.00	555	555	1.00	599	599	1.00	30	30	1.00	1210	1210	1.00	25380	25380	1.00	17927	18187	.99	3453	3654	.94	1381	1381	1.00	50536	50997	.99
Imports	50	50	1.00	200	200	1.00	0	0	.00	0	0	.00	820	820	1.00	300	300	1.00	0	0	.00	0	1110	.00	1544	2470	.63	2914	4950	.59
Base Load LNG	137	137	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	411	411	1.00	0	0	.00	0	0	.00	0	0	.00	548	548	1.00
Storage	0	0	.00	1607	1607	1.00	367	547	.67	0	0	.00	2669	3899	.68	1555	1555	1.00	0	1179	.00	0	339	.00	0	1343	.00	6201	10470	.59
Peak Shaving	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
Total Supply	187	187	1.00	2362	2362	1.00	965	1145	.84	30	30	1.00	4701	5929	.79	27646	27646	1.00	17927	19366	.93	3453	5103	.68	2925	5194	.56	60200	66965	.90
PIPELINE FLOW IN																														
From IA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From IB	1438	1615	.89	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1438	1615	.89
From IC	0	0	.00	2612	2612	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2612	2612	1.00
From ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
From II	0	0	.00	4579	4579	1.00	768	1919	.40	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5347	6498	.82
From IIIA	0	0	.00	0	0	.00	3564	4645	.77	959	959	1.00	12132	15580	.78	0	0	.00	0	0	.00	0	0	.00	0	0	.00	16655	21184	.79
From IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	5852	5852	1.00	2066	2066	1.00	0	0	.00	15	38	.39	4427	4427	1.00	12360	12383	1.00
From IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1377	1377	1.00	0	0	.00	0	0	.00	0	0	.00	114	114	1.00	1491	1491	1.00
From V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	175	437	.40	0	0	.00	175	437	.40
Total PL In	1438	1615	.89	7191	7191	1.00	4332	6564	.66	959	959	1.00	19361	22809	.85	2066	2066	1.00	0	0	.00	190	475	.40	4541	4541	1.00			
PIPELINE FLOW OUT																														
To IA	0	0	.00	1438	1615	.89	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	1438	1615	.89
To IB	0	0	.00	0	0	.00	2612	2612	1.00	0	0	.00	4579	4579	1.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	7191	7191	1.00
To IC	0	0	.00	0	0	.00	0	0	.00	0	0	.00	768	1919	.40	3564	4645	.77	0	0	.00	0	0	.00	0	0	.00	4332	6564	.66
To ID	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00	0	0	.00	0	0	.00	0	0	.00	959	959	1.00
To II	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	12132	15580	.78	5852	5852	1.00	1377	1377	1.00	0	0	.00	19361	22809	.85
To IIIA	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	2066	2066	1.00	0	0	.00	0	0	.00	2066	2066	1.00
To IIIB	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00
To IV	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	15	38	.39	0	0	.00	175	437	.40	190	475	.40
To V	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	0	0	.00	4427	4427	1.00	114	114	1.00	0	0	.00	4541	4541	1.00
Total PL Out	0	0	.00	1438	1615	.89	2612	2612	1.00	0	0	.00	5347	6498	.82	16655	21184	.79	12360	12383	1.00	1491	1491	1.00	175	437	.40			

APPENDIX I

GLOSSARY

APPENDIX I

GLOSSARY

barrel -- the standard unit of liquid volume in the petroleum industry; equal to 42 U.S. gallons.

BCF -- billion cubic feet. Equals 1,000,000 MCF or 1,000 MMCF.

boiler fuel -- fuels suitable for the generation of steam in large industrial or electric utility boilers. Natural gas, residual oil, coal, and uranium are the dominant boiler fuels.

BTU -- British thermal unit. The standard measurement for heat in the U.S. gas industry. One BTU raises the temperature of one pound of water by one degree Fahrenheit from 58.5 to 59.5 degrees under standard pressure of 30 inches of mercury. Natural gas of "pipeline quality" contains about 1,000 BTU per cubic foot.

burner tip -- signifying delivery to the final customer. A burner-tip price, for example, is the price charged the end-user.

capacity -- the maximum amount of gas that can be produced, transported, stored, distributed, or utilized in a given period of time under design conditions.

cogeneration -- the simultaneous production of electricity and useful heat. The heat is usually in the form of steam or hot water. Cogeneration usually refers to using heat that is often wasted when an industry or utility generates electricity. Cogeneration can save up to 30 percent of the fuel that would otherwise be needed to produce given amounts of heat and electricity independently.

common carrier -- a transporter obliged by law to provide service to all interested parties without discrimination to the limit of its capacity. In the United States, most oil pipelines are required to operate as common carriers, but gas pipelines are primarily private carriers and secondarily contract carriers.

contract carrier -- a transporter that voluntarily provides its service on a contractual basis for other parties.

cubic foot -- the most common unit of measurement of gas volume. The amount of gas required to fill a volume of one cubic foot under stated conditions of temperature, pressure, and water vapor.

daily peak -- the maximum volume of gas delivered in any one day.

deliverability -- the amount of gas that a pipeline or producer is able to deliver, limited either by the terms of its supply contracts or its own plant capacity.

demand charge -- a customer charge for utility service that reflects the extent to which a particular customer chooses to purchase a right to draw a certain maximum volume of gas at any time during the year. Customers who purchase gas on an "interruptible" basis do not, therefore, pay a demand charge.

design day capability -- the daily volumetric capacity of a pipeline or storage facility based on one specific set of flowing parameters (i.e., operating pressures, temperature, efficiency, and fluid properties) that depicts the normal operating conditions for each portion of the system being analyzed.

direct purchase -- transaction in which an end-user may purchase gas directly from a producer or pipeline. The phrase generally refers to a user bypassing the local distributing company, or at least one level of supplier.

dual-fuel capability -- The ability of an energy consumer (large industrial and electric-utility customers) to utilize two kinds of fuel.

EOR -- enhanced oil recovery. A secondary recovery method whereby steam is injected into a reservoir to extend the oil-producing capability of the formation.

FERC -- Federal Energy Regulatory Commission, the federal agency that regulates interstate gas pipelines and interstate gas sales under the Natural Gas Act. FERC is considered an independent regulatory agency responsible primarily to Congress, but is housed in the Department of Energy.

firm service -- gas that is sold with a guarantee for delivery. Customers generally pay more for firm gas than for "interruptible" gas, which the utility may curtail at its discretion without liability.

FPC -- Federal Power Commission, the predecessor to FERC.

gathering systems -- pipelines owned and operated by gas producers that are considered an integral part of gas production (rather than transmission) and are therefore usually exempt from state and federal utility regulation.

infill drilling -- wells drilled to fill in between established producing wells to increase production.

interruptible service -- gas that is sold without a guarantee for delivery. Gas utilities curtail their interruptible customers in order to adjust to seasonal shortfalls in supply or plant capacity.

LNG -- liquefied natural gas. Natural gas becomes a liquid at a temperature of -258°F and may be stored and transported in the liquid state, thereby occupying 1/625 of the space that it requires at ambient temperatures and pressures.

load factor -- the amount of gas delivered on a distribution system. The ratio of average to peak-day are calculated over the course of an entire year. It is considered wise utility management for a company to strive for a high load factor (as close to "one" as possible).

local distribution company (LDC) -- the local service company that primarily sells gas to an end-user through its smaller diameter pipeline network. Residential customers are highly dependent on LDCs.

loop -- the construction of a pipeline parallel to an existing line to increase the capacity of the system.

MCF -- thousand cubic feet. One MCF has a heating value of approximately one million BTUs.

market clearing price -- the price at which supply and demand are in balance with respect to a particular commodity at a particular time. The price is low enough to ensure that all supplies available can be sold.

minimum bill -- a clause in a gas contract that commits the downstream purchaser (usually a distribution company) to pay not less than a specified amount in the event that a large capital project temporarily or permanently ceases to function.

off-peak -- the period during a day, week, month, or year when the load being delivered by a gas system is not at or near the maximum volume delivered by that system for the corresponding period of time.

open access -- a phrase used in reference to an interstate pipeline choosing to provide transportation under a FERC Order 436 program. The pipeline must provide that service to anyone who wants it, as long as the capacity is available.

PGA -- purchased gas adjustment. A utility can automatically adjust its customer rates to reflect an increase (or a decrease) in gas purchase costs without first petitioning the regulatory body for approval. At the federal level, PGAs allow for automatic tariff adjustments twice a year, while some states allow PGA adjustment monthly.

PUC -- a state public utility commission.

peak day -- on an annual basis, the day of highest customer demand.

peak shaving -- the use of fuels and equipment to generate or manufacture gas to supplement the normal supply of pipeline gas during the seasonal periods of greatest customer demand.

private carrier -- a transporter that owns the commodity it carries.

quad -- abbreviation for quadrillion BTUs for natural gas, roughly one TCF.

rate base -- the value established by a regulatory authority upon which a utility is permitted to earn a specified rate of return.

reserves -- the proportion of the resource (oil or gas) that is commercial under current economic conditions with current technology. "Proved" reserves are in known reservoirs and believed to be recoverable with the highest degree of confidence. "Probable" reserves are the additional resources associated with known reserves that are expected (in the statistical sense) to be recoverable. "Possible" reserves are those resources, outside the vicinity of known reservoirs, that are expected to be recoverable. "Ultimate recoverable resources" are the sum of proved, probable, and possible.

reserve capacity -- capacity in excess of that required to carry peak load.

reserves-to-production ratio (R/P) (Reserve Life Index) -- the ratio of remaining recoverable reserves to the current annual rate of production. For a gas pipeline, the R/P ratio is the ratio of dedicated gas reserves to the current rate of annual sales of dedicated gas reserves. An R/P ratio of 20, therefore, means that sufficient gas remains for a field to continue producing, or for a pipeline to continue delivering, gas for 20 years.

residual oil -- the heavier hydrocarbons contained in crude oil that have higher boiling points in the distillation process. Because of its impurities and sulfur content, these "bottoms" (sometimes called graded, e.g., No. 6 fuel oil) are burned primarily in larger boilers such as electric-utility and industrial boilers.

shut-in gas -- a situation in which production is restrained either by order of a state conservation authority or because the producer is unable to find a buyer at an acceptable price.

spot market -- commodity transactions whereby participants make buy-and-sell commitments of relatively short duration, in contrast to the "contract" market in which transactions are long term.

take-or-pay -- a contractual obligation to pay for a certain threshold quantity of gas whether or not the buyer finds it possible (or beneficial) to take full delivery.

TCF -- trillion cubic feet. Equals 1,000 BCF.

unbundled service -- Process where pipelines offer and charge rates based on costs for each service separately, e.g., the gas commodity, transportation (firm or interruptible), peak shaving, storage, etc. Unbundling enables customers to see the true costs.

WACOG -- weighted average cost of gas purchased by interstate pipelines and projected in their PGA filings.

BIBLIOGRAPHY

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American Gas Association. The Gas Energy Supply Outlook, 1987-2010, 1987.

American Gas Association. Gas Facts - 1987, 1988.

American Gas Association. The Outlook for Gas Demand in New Markets: 1986-2010, 1986.

American Gas Association. Survey of Underground Gas Storage Facilities in the United States and Canada, 1988.

American Gas Association. Total Energy Resource Analysis 88-1, January 15, 1988.

American Gas Association, American Petroleum Institute, and Canadian Petroleum Institute (published jointly). Reserves of Crude Oil, Natural Gas Liquids and Natural Gas in the United States and Canada as of December 31, 1979, 1980.

Arthur Anderson and Company. Natural Gas Trends, 1987-88 Ed., Cambridge Energy Research Associates, 1987.

Associated Gas Distributors v. FERC. 824 F.2 1981 (D.C. Cir. 1987).

Consolidated Edison Company of New York v. FERC. 823 F.2d 630 (D.C. Cir. 1987).

Data Resources, Inc. 1992 DRI Projection, Data Resources, ECONTROL0288.

Energy Information Administration. Monthly Energy Review, (various issues), Washington, D.C.

Energy Information Administration. Natural Gas Annual 1987, Volumes I and II, October 1988, Washington, D.C.

Energy Information Administration. Natural Gas Monthly, (various issues), Washington, D.C.

Energy Information Administration. U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, 1987 Annual Report, Washington, D.C., October 1988.

Gas Research Institute. 1989-1993 Research & Development Plan, June 1988.

Maryland People's Counsel v. FERC. 768 F.2d 450, 452 (D.C. Cir. 1985).

National Petroleum Council. Petroleum Storage and Transportation Capacities, 1979.

National Petroleum Council. Factors Affecting U.S. Oil & Gas Outlook, 1987.

National Rates for Jurisdictional Sales of Natural Gas, Opinion 770 and 770-A, 56 F.P.C. 1975 (1976).

Tussing, Arlon R. and Connie K. Barlow. The Natural Gas Industry: Evolution, Structure, and Economics, Ballinger Publishing Company, 1984.

U.S. Congress, Natural Gas Policy Act Amendments of 1983. Senate Report 98-205, 98th Cong., 1st Sess., 29 July, 1983, 10.

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