1. Introduction

This is the second in a series of three reports requested by the U.S. Congress (under Section 1340 of the Energy Policy Act of 1992) to assess the impact of the Clean Air Act Amendments of 1990 and other Federal policies on natural gas transportation patterns and rates. This report is an interim analysis addressing the impacts of Federal policies on transportation rates and flow patterns from 1988 through 1994. The third report requested under Section 1340 will update the analysis through the year 1997. That report is to be completed by October 2000.

In the first report, *Energy Policy Act Transportation Rate Study, Availability of Data and Studies,* submitted to Congress in October 1993, the Energy Information Administration (EIA) examined the availability of data and other studies that could be used to evaluate the effects of Federal policies. The report found that sufficient information was available to address transportation patterns as EIA collects annual data on State-to-State flows of natural gas. However, this was not the case with transportation rates, and EIA determined that no comprehensive data sources or studies were in place or under development. EIA recommended in the initial report that a data collection effort be undertaken to obtain information on transportation rates. Further action on this effort has been postponed, however, and this analysis was undertaken using currently available information. The decision to defer action on a data collection effort was based on the following. First, transportation rates and arrangements have been changing rapidly during the past 2 years. Second, it was thought that further standardization and easier access to electronic bulletin boards may provide better information than was initially available at the time of the October 1993 assessment. EIA concluded that it would be useful to allow these areas to develop more fully before initiating additional data collection.

EIA is continuing to evaluate and monitor the need for future data collection on the transportation market. The need for additional information will be addressed as part of the triennial review and reclearance of EIA forms used to collect natural gas data. The forms are scheduled to be recleared by December 1996. There will be an extensive public comment period during which the need for this type of information will be discussed with both users of the data and the potential respondents.

Changes in Federal Policy

For the natural gas industry, the past decade has been marked by some of the most significant changes in Federal policy since the Supreme Court Phillips decision in 1954 resulted in the imposition of wellhead price regulation on interstate sales of natural gas. These changes include legislative initiatives as well as regulatory adjustment to changing market conditions. For example:

- The repeal of the Power Plant and Industrial Fuel Use Act in 1987 removed restrictions on the use of natural gas by large industrial consumers and electric utilities. This provided the natural gas industry the opportunity to compete for the expansion of these markets. It also illustrated the developing confidence in the availability of domestic supplies to support expanded use of natural gas.

- More than 30 years after the Phillips decision, the Natural Gas Wellhead Decontrol Act of 1989 removed all price controls on the wellhead sales of natural gas as of January 1, 1993, allowing the price of natural gas to be freely set in the marketplace.

- In 1985, the Federal Energy Regulatory Commission (FERC) began the first of a series of regulatory actions designed to improve the competitiveness of the market. A more competitive market would give customers of the interstate pipeline companies more service options and allow the ultimate consumers to benefit from the deregulation of wellhead prices. By 1993, the operational structure of the interstate transmission industry had been transformed. Prior to these rulings, interstate pipeline companies often acted as both transporters and merchants of natural gas, bundling the sales and transmission of gas into one service. The Restructuring Rule (Order 636 issued in 1992) required that these services be separated and pipeline customers be given the opportunity to contract for onlythe specific services they needed from the pipeline companies. As part of the regulatory restructuring, interstate transportation rates were adjusted as well to allow for more efficient allocation of capacity.

- Environmental and national security concerns have prompted legislation that encourages increased use of natural gas because of its relatively clean-burning characteristics in comparison with other fossil fuels. The Clean Air Act Amendments of 1990 and the Energy Policy Act of 1992 provide opportunities for increased natural gas use in transportation and in the generation of electricity.

Market Response

From 1988 through 1994, the market changed dramatically, both as a result of economic pressures and as a result of the Federal initiatives. Between 1988 and 1994:

- Gas production increased by 10 percent, whereas real wellhead prices and proved reserves declined by 11 and 2 percent, respectively. This demonstrated ability to produce more gas from fewer reserves despite lower real prices provides evidence that improved efficiency and technology have fundamentally altered the gas supply process.

- Gas delivered to consumers increased by 16 percent to reach the highest level since 1974. Much of the increase is related to the increased use of natural gas for electricity generation by nonutility generators.

- Prices to consumers dropped significantly, as customers benefited from declining wellhead prices and lower transmission costs.

Analytical Approach

The report addresses the changes in the industry from the period from 1988 through 1994. The extensive market and complex institutional changes that have taken place interact to such an extent that it is difficult, costly, and perhaps counterproductive to attempt to separate these effects or draw conclusions of the impact of a particular regulatory or legislative change. However, the effects of regulatory restructuring on the market have been pervasive, affecting both transportation rates and flow patterns, throughout this period. The effects of the Clean Air Act Amendments are much less certain. It is likely that the most significant impacts on the market from the amendments will be seen in the future, particularly as the Phase II emission standards become effective.

To capture the interaction among these institutional changes, the report provides a broad discussion of the major influences on transportation flows and rates, discusses in qualitative terms how specific changes, such as the Clean Air Act Amendments of 1990, affect the market and provides some quantification of the overall changes in transportation flows and rates. However, there is no comprehensive source of information on actual transportation rates, and this places limitations on the analysis. Specifically:

- The analysis of rates was based on maximum tariff rates. These rates may not represent the actual rates paid because of discounting which is taking place.

- The restructuring of services under Order 636 has affected the way these services are accounted for in the data. For example, firm transportation service may have included storage services prior to Order 636, but now storage services are priced separately. Thus, only aggregate costs of transmission and distribution services are examined.

The analysis presented in this report draws on a number of public and private information sources. The examination of transportation patterns and aggregate measures of transportation margins relies on data collected by EIA. The interstate pipeline capacity information is drawn from FERC source material. The more detailed examination of transportation rates is based on information collected by FERC as well as private data sources for capacity release information and pipeline rates along selected corridors. All of these data sources are discussed in Chapter 5 of the report.

This chapter has highlighted the extensive changes in the natural gas industry and market at a national level. Much more of the story is at the regional level, as changing market and supply conditions have driven substantial changes in the interstate system. The following chapters present analysis at the regional level as well as more detailed analysis of the changes at the national level. Chapter 2 provides a summary of the Federal laws and policies that have affected rates and interstate transportation flows. The legislative and regulatory changes are discussed in chronological order, beginning with the issuance of Order 436 in 1985. While this Order is outside the time period analyzed in the report, it was the basis for many other regulatory changes that influenced transportation patterns and rates from 1988 through 1994. Chapter 3 addresses the changing patterns of interstate natural gas flows. It includes an analysis of the underlying changes in regional supply availability and demand requirements that are driving the changes in flow patterns. The analysis of the effects of Federal policy on transportation rates is given in Chapter 4. Finally, Chapter 5 presents an update of data collections and other studies that may be applicable to the EPACT requirements.