The Natural Gas Industry in Transition

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Citation Information

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The Natural Gas Industry in Transition

presented by

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based on research supported by

IntraWest Bank of Denver - Energy Banking Group
NATURAL GAS PRICES
AND
THE ECONOMIC PROBLEMS
OF DEREGULATION

Fall 1982

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Project Sponsored By

IntraWest

IntraWest Bank of Denver
Energy Banking Group

INTRODUCTION

President Reagan promised, during his campaign for the Presidency, that he would push for early total
deregulation of natural gas. During the fall of 1981, further discussion of the possibility of deregulation sur­
faced. In fact, Rep. Gramm (D-Texas) has introduced into Congress several bills which define a comprehensive
natural gas decontrol process. The question of price behavior under decontrol must be considered as part
of the financial analysis of any natural gas related project. This report is intended to be a comprehensive,
detailed survey of available literature on gas deregulation, emphasizing the price effects of various schemes.

The first section of this report deals with economic theory, providing a background for discussion of price
deregulation. Included in this section are brief discussions of profit maximization as a goal for the firm, the
marginal cost/marginal revenue nexus, income transfers, and the equity problem.

A short history of the regulation of natural gas is covered in the second section of the report. Included
are historical reasons for regulation, a discussion of the Natural Gas Act of 1938, and a brief analysis of
interstate/intrastate problems. This section closes with a brief discussion of the background of the Natural

The fourth section is a major part of this report. The main provisions of the NGPA are discussed here,
with emphasis on wellhead price controls since those prices most directly affect decisions made by the
sponsor of this project, the IntraWest Bank of Denver - Energy Banking Group. Incremental pricing and
other provisions of interest to the sponsor will be briefly discussed. This section is included in order that
the reader be familiar with current policy so that proposed changes may be better understood.

After examining the major provisions of NGPA, the report reviews the evident effects of NGPA as of the
spring of 1982. Both price effects and supply effects are considered. This discussion is based on secondary,
published data.

Since the objective of the study is determination of price and supply effects of total deregulation of natural
gas, it is important to know what the experts are predicting. Section six is a summary of published discus­sion
of the effects of total deregulation.

Finally, the last section summarizes this report and lists the conclusions which are drawn from the literature
search.
OUTLINE

I. Introduction--economics and history

A. Economics of (natural gas) regulation

1. Definitions (see diagrams on next pages)
   a. Consumer surplus
   b. Producer surplus
   c. Welfare

\[
\text{Welfare} = \text{Producer Surplus} + \text{Consumer Surplus} + \text{Government Revenue} + \text{External Effects}
\]

2. Effects of regulation on welfare
   a. Price ceiling
      1) Consumer effect
      2) Producer effect
   b. Price floor
      1) Consumer effect
      2) Producer effect
   c. Unit tax
      1) Consumer effect
      2) Producer effect
      3) Government revenue
Welfare

Welfare Effect of Price Ceiling
Welfare Effect of Price Floor

Welfare Effect of Unit Tax
B. Brief history of natural gas regulation in the U.S.

1. Natural Gas Act (1938) (PL 75-688)


   a. Title I - see diagram next page

   b. Title II
Title I Maximum Ceiling Price Categories For Onshore Lower-48 Natural Gas Above 15,000 Feet

NGPA ENACTED
11/9/78

1/1/85 7/1/87

PRODUCTION FROM OLD INTERSTATE GAS RESERVES
RES: 98.4 TCF (1/1/77) PROD: 11.4 TCF/YR (1976)

Old Interstate Wells
Committed on or After 2/19/77
Development Wells for Interstate Property
Committed on or After 2/19/77

Development and Extension Wells for Interstate Property
Committed on or After 2/19/77

PRODUCTION FROM NEW RESERVES

News Pools & "New Onshore Wells"
Discovered After 2/19/77
Development and Extension Wells for Interstate Property
Committed on or After 2/19/77

PRODUCTION FROM OLD INTRASTATE AND UNCOMMITTED GAS RESERVES
RES: 85.8 TCF (1/1/77) PROD: 7.94 TCF/YR (1976)

Old Interstate Wells
Committed Prior to 2/19/77

Old Wells for Old Gas
Committed on or After 2/29/77

Note: Stripper wells and high cost gas omitted.

II. The role of natural gas in the United States energy mix
   A. The current energy mix
      1. Quantities consumed

      2. Relative quantities consumed (gas compared to total consumption)

   B. Trends in the energy mix
      1. Total energy consumption trends
      2. Gas consumption trends relative to total consumption

   C. The current situation in the gas market
      1. Supply trends

      2. Demand trends

      3. Issues raised by the change from shortages and curtailments to a buyers' market

III. Nature of the future gas market
   A. Supply estimates
      1. Reserves
      2. Resources

   B. Demand estimates

   C. Alternative sources of gas
      1. Unconventional sources

      2. Synthetic gas
3. LNG imports

D. Price estimates under various scenarios
   (see diagram on next page)

E. Implications of forecasts on affected groups
   1. Producers
   2. Pipeline companies
   3. Consumers
   4. Federal Budget
Crude Oil vs. Natural Gas Alternatives ($ per million Btu)

- Crude Oil
- Crude Oil (80%)
- NGPA
- NGPA Extended
- Phased Decontrol
- Immediate Decontrol