5. Pennsylvania Coal and Eminent Domain

AFTER WINNING the bid, Texas Eastern prepared to deliver south-western natural gas into the Northeast. Coal and railroad interests, integral parts of the manufactured-gas industry, immediately presented strong opposition to Texas Eastern's plans to both acquire and operate the lines. These industries feared the competitive effects of natural gas on their northeastern coal and coal transportation businesses. Coal and railroad companies opposed natural gas primarily through political rather than economic means. A good portion of their political influence resided in Pennsylvania, through which the Inch Lines crossed, and Pennsylvania had adopted an anti–natural gas stance. Although Pittsburgh and other cities in the western part of the state had access to locally produced natural gas, cities in the eastern section, including Philadelphia, the largest energy-consuming metropolitan area in that part of the state near the path of the Inch Lines, had no natural gas. Texas Eastern's founders planned on quickly extending gas sales beyond Appalachia by breaking into the more lucrative metropolitan markets along the Inch Line route such as Philadelphia and New York City.

Texas Eastern targeted Philadelphia, the closest of these cities to Appalachia, to be its first new market. Philadelphia, like other north-eastern metropolitan regions, relied upon coal and manufactured gas for residential, commercial, and industrial energy. Much of the coal used in the Northeast originated from Pennsylvania coal mines. Through World War II, coal provided about 50 percent of the nation's energy requirements, and about 41 percent of United States coal was mined in Pennsylvania. This figure included about 30 percent of the nation's bituminous
coal, which was used primarily as an industrial fuel, and virtually all the country’s anthracite coal, which was used in the East for home heating.\textsuperscript{1} The coal industry did not want its traditional markets to be eroded by southwestern natural gas.

**EMINENT DOMAIN FOR NATURAL GAS**

Perhaps the greatest single obstacle confronting Texas Eastern’s efforts to deliver gas into Philadelphia and farther eastward was the lack of a federal eminent domain law for natural gas pipelines. Charles Francis, Texas Eastern’s general counsel, recognized this potential problem as early as June 1946 during preparations for the first bid. This complicated Texas Eastern’s plans to sell gas into and beyond Pennsylvania; the state had erected similar obstacles to natural gas and actively enforced them to block natural gas expansion into the state. Congress had earlier considered federal eminent domain legislation for gas pipelines, but it approved such a law only for petroleum lines. In 1941, Congress enacted the so-called Cole Bill, which granted eminent domain powers to petroleum pipelines.\textsuperscript{2} During the congressional debate of the bill, Congressman William Cole (D-MD) added that although “there was a request” for natural gas to be included in the bill, the committee decided that since the FPC already regulated the natural gas industry, the Cole Bill might not be appropriate. Cole added: “I can very easily see where the future of these lines [the proposed war emergency lines] might be better for natural gas than petroleum if tankers are available to supply the needs of the Atlantic coast.”\textsuperscript{3} He did not, however, recognize that the FPC could not grant eminent domain powers; if the lines were converted later to natural gas they might very well require a federal eminent domain statute.

Similar problems confronted Texas Eastern on the state level. Both Pennsylvania and its coal industry had long worked hard against the possibility that the Inch Lines would be used for natural gas transportation into the Northeast. When the Defense Plant Corporation originally contracted for the construction of the lines, it acquired the necessary right-of-way permits from the various relevant states for their operation. The state of Pennsylvania, however, carefully agreed to grant right-of-way easements for the transportation only of petroleum or its by-products across the one-hundred plus streams within the state. In addition, the City of Philadelphia and Board of Commerce and Navigation of Delaware County also specifically limited the use of the pipelines to the transporta-
tion of oil and petroleum products. Pennsylvania governor James Duff, who was formerly the state's attorney general, resolved any doubt about the effect of the right-of-way law on natural gas when he ruled that natural gas was not a petroleum product. Before the Inch Lines could transport natural gas into the state, or even through it, Pennsylvania would have to permit the modification of the original right-of-way agreement.

The state's official position clearly reinforced the interests of coal miners, railroads, and labor unions. These groups adamantly opposed any modification of Pennsylvania's restrictions against natural gas. D. L. Corgan, secretary of the anthracite committee, stated in November 1946 that "use of the pipelines for gas on a permanent basis would be a disastrous blow to Pennsylvania's economy and would throw thousands out of jobs." In addition, a majority of Pennsylvania's congressional delegation had vainly attempted, but failed, to postpone the federal government's policy decision to sell the Inch Lines to the highest bidder. And on several previous occasions, Pennsylvania congressman Francis Meyers attempted to block the sale of the Inch Lines for natural gas transportation.

Texas Eastern therefore faced a series of operational, regulatory, and financial hurdles before it could fully concentrate on selling gas. The Pennsylvania problem aside, Texas Eastern's managers had to form an efficient organization quickly. The company began its corporate existence in a unique position for a gas pipeline company. Normally, before a new pipeline could be built, it would apply for a certificate from the FPC. But Texas Eastern's high bid gave it provisional ownership of the lines before it acquired certification and financing for the line. The WAA mandated that Texas Eastern arrange for the certificate and financing within nine months from the date it issued a letter of intent to sell the lines. The WAA issued this letter on February 25, 1947, after the U.S. Department of Justice approved the sale. The Justice Department was concerned that Texas Eastern and the United Gas Corporation, the largest gas company in the Southwest, might have some special relationship including United Gas control over Texas Eastern's gas purchase policy. Although United Gas president Norris C. McGowen had once had a financial stake in Poe's early effort to bid on the Inch Lines, he later realized that the pipeline company could best serve United Gas as a purchaser of its own gas production. Thus, Texas Eastern attorney J. Ross Gamble informed the Justice Department that his firm had no special or secret arrangements with United Gas.
In the interim between Texas Eastern's winning bid and April 31, the expiration date of Tennessee Gas's lease, the company prepared to operate the Inch Lines. The company's top priority was recruiting a staff; since the firm began its existence essentially as a promotional venture, it would now have to be transformed from what appeared to be a speculative financial venture into an operating regulated public utility.

Only nine days before the bid, on January 30, 1947, Texas Eastern Corporation had officially been incorporated. At the same meeting, the company announced that it would issue 150,000 shares of stock priced at $1 each to as many as thirty-five associates of the group. Subsequently, George and Herman Brown each purchased 21,375 of these shares. George Brown also lent $67,500 for share purchases, in return for a two-year voting proxy, to several of the other twenty-eight actual investors. This gave George Brown alone control over 59 percent of the company's stock. Adding his brother's shares, the Brown brothers controlled 74 percent of the firm's original stock. Chairman of the board George Brown was, therefore, firmly in control of the company.

At the time of bid, E. Holley Poe was president of Texas Eastern. He was indisputably the group's founding member and the man who guided the project through to the winning bid. His management skill, particularly in such a large and then unorganized firm, however, was questionable. The company's organizers, recognizing this, had previously agreed that if the bid was successful, the highly experienced and respected Reginald Hargrove would become president, replacing Poe. In fact, there was an effort to squeeze Poe out of the whole deal, but Poe's friend and fellow founder, Everette DeGolyer, threatened to quit the venture if Poe was not to be included.9 Poe had other problems as well. His founder's share of stock, 10,875 shares, diminished considerably after he turned over one-third of it to Ashland Oil as compensation for an interest in the venture taken much earlier by J. Howard Marshall of Ashland Refining Company.10

Reginald Hargrove, however, was a strong manager who could lead Texas Eastern into the competitive natural gas pipeline industry. Quickly assuming his new role, Hargrove brought with him numerous managers and engineers from United Gas to run the new company. N. C. McGowen did not complain as Hargrove and others including his general counsel, George Naff, and assistant chief engineer, Baxter Goodrich, left his company for Texas Eastern. In return, Texas Eastern promised United Gas a guaranteed market for its gas production and supply. Other new executives at Texas Eastern included Herbert Frensley, secretary and
treasurer, who was a trusted Brown & Root official, and Orville Carpenter, who was an associate of the Browns and previously the executive director of the Texas Unemployment Compensation Commission, as well as associates of George and Herman Brown. Texas Eastern's other personnel came largely from the original field crew of the War Emergency Pipelines.  

As Hargrove worked to put together an operating group, August Belmont of Dillon, Read, began arranging the necessary $120 million in financing for the venture. Dillon, Read was no stranger to financing gas ventures. According to Belmont, the firm was the first to have "gas bonds approved as legitimate investments for life insurance companies."  

Over the course of the following nine months, Belmont arranged for the financing through northeastern life insurance companies. The remainder of the purchase price of the lines was intended to come from a stock offering to be made after the FPC issued the certificate.

Generally, the process of organizing Texas Eastern proceeded smoothly, and the company achieved its first goal when the FPC issued it a temporary certificate on March 21. In addition, the gas firm began to contract for gas sales. As Tennessee Gas was still selling gas through the leased Inch Lines in large Appalachian markets, Texas Eastern representatives did not have to look far for customers; in fact, the FPC required Texas Eastern to continue selling gas to the same Appalachian distribution companies. Texas Eastern also applied for the required permanent certificate of public convenience and necessity, and the FPC scheduled hearings on the application to begin in July 1947.

As Texas Eastern organized and prepared to take possession of the Inch Lines on May 1, the Pennsylvania right-of-way problem emerged as the group's most formidable problem. Poe, however, had always been optimistic. Within days of the winning bid and in response to a newspaper reporter's question about Pennsylvania's seemingly intransigent position against natural gas transportation through the Inch Lines, Poe had remarked that "there has been interstate commerce in this country ever since the Constitution was adopted," and he did not expect Pennsylvania to actually block the interstate transmission of natural gas through the state.  

Poe's statement reflected the confidence of the new Texas Eastern. George Brown was apparently less optimistic when he said, "The speed with which we can reach our maximum planned rate of delivery depends upon how soon right-of-way possession, deeds, and other legal matters can be completed. This may take from eight to 15 months."
In fact, Texas Eastern general counsel Charles Francis had been at work on the right-of-way problem for over a year. Soon after Texas Eastern's founders first organized in early 1946, Francis recognized the potential problem that the lack of a federal eminent domain law could impose on the group's efforts. He identified persons associated with the group's members who might assist Texas Eastern's lobbying efforts. One of them was Frank Andrews, Reginald Hargrove's cousin-in-law, who had connections with both financial and political interests. In particular, Andrews was president of the Hotel New Yorker, which was owned by Manufacturers Trust Company—the firm that later provided Texas Eastern with invaluable loans and financial assistance. Perhaps even more important, Andrews had introduced George Allen to the group the previous summer. Allen, a close adviser of President Truman and director of the RFC, was one of Washington's most celebrated lobbyists. Francis reported to his superior, Judge Elkins:

Mr. Allen . . . is coming here Monday for a conference with Hargrove, Poe, and Andrews. I have generally outlined the form of our bid and the suggested legislation which we lack as a condition to our bid, to wit: a congressional authorization for exercising the power of eminent domain and a permit from the Federal Power Commission to transport gas interstate. . . . I plan on having a talk with Mr. Allen in Washington next week.15

Francis's efforts to obtain a federal eminent domain ruling continued throughout the next year. It is not clear exactly what role Allen played, although one knowledgeable source recalled that Allen was prominently involved in the venture.16

By mid-February 1947, Governor Duff appeared to be wavering in his anti-natural gas stance. He told a news reporter that Pennsylvania was virtually powerless to prohibit the transmission of natural gas through the state. Duff was appropriately sensitive to energy needs in his state, and he did not prohibit those areas of the state already using natural gas from receiving new supplies. Senator Myers (D-PA) was significantly more optimistic about the possibility of keeping natural gas out of Pennsylvania when he noted that the FPC would “never permit the transmission of natural gas to the eastern seaboard.”17

Texas Eastern's interest in the Pennsylvania gas market was tempered by an assortment of other obstacles. One was the reluctance of the state of Louisiana to rescind its ban on the exportation of natural gas from its borders. Another more immediate one was the need to defend itself
against an assortment of attacks by competing bidders. Gardiner Symonds's Tennessee Gas led the way in questioning the validity of Texas Eastern's bid. "I think Gardiner was very upset," recalled a Texas Eastern official, "that we got a bid that was higher than his, and he was god damned if we were going to go and get that away from him." Symonds's aggressiveness was once again evident soon after Texas Eastern won the Inch Lines. General Littlejohn had returned the $100,000 deposit checks to each losing bidder. Tennessee Gas, though, sent its deposit back to the WAA stating that it was returning the deposit in order to keep its bid open in case Texas Eastern's bid proved inadequate. The WAA soon returned Tennessee Gas's deposit again, and this time the company seemed to accept defeat.

Coal and railroad interests also officially protested to the FPC about Texas Eastern's planned use of the Inch Lines to transport natural gas. Attorney Tom J. McGrath, representing eight coal, railroad, and labor organizations including the National Coal Association, Eastern Gas and Fuel Associates (a coal and manufactured-gas company), the United Mine Workers of America, the Chesapeake & Ohio Railway, and several railroad workers labor unions, urged the agency not to grant Texas Eastern a temporary certificate to operate the Inch Lines. McGrath charged that the FPC lacked jurisdiction to grant Texas Eastern a temporary certificate without prior notice and hearing. The FPC, however, asserted its right to do so and worked toward granting such a temporary certificate to Texas Eastern so that it could begin operating the pipelines on May 1, 1947. To this end, the WAA informed Tennessee Gas on March 8 that it would not be renewing its lease of the Inch Lines to Tennessee and that "it is hoped that [you] will cooperate in the delivery of these lines to Texas Eastern Corporation." 

Tennessee Gas found McGrath's efforts to be worthy of its own support, at least in this one very specific case. In letters to the FPC, Tennessee cited McGrath's argument that the FPC lacked jurisdiction to grant a temporary certificate to a new natural gas company without a hearing. Texas Eastern responded that it would simply continue to operate the Inch Lines under the same emergency conditions as Tennessee had operated them. In this sense, then, the Inch Lines were not a brand new company but an existing service.

Tennessee Gas tried a new tactic to thwart Texas Eastern. In an attempt to resolve potential competition outside the regulatory arena, representatives of Texas Eastern and Tennessee Gas met on March 3. Gardiner
Symonds and three others represented Tennessee Gas while R. H. Hargrove and Charles Francis represented Texas Eastern. They discussed their understanding of potential conflicts. Hargrove stated that Texas Eastern could not finance its purchase of the Inch Lines without first signing long-term contracts with customers in the northeastern states. This meant selling gas into and east of Appalachia. Hargrove suggested that Texas Eastern might sell 250 mcmf/d in an eastern area such as Brooklyn and 200 mcmf/d in the Pittsburgh area, and he hoped that this would not disturb Tennessee Gas. A representative of Tennessee Gas responded that his company would oppose through all legal means any move by Texas Eastern into its own current service area. Hargrove replied that Texas Eastern would then be forced to oppose any expansion of Tennessee Gas's facilities.21

Discussion continued and the participants made several different proposals aimed at dividing the northeastern markets between their companies, but the meeting ended with no clear resolution to share markets. Tennessee Gas and Texas Eastern gave up the idea of privately negotiating the division of particular markets between themselves. From this point forward, the two companies competed for market share primarily through the regulatory process and conducted the bulk of their negotiations for market area expansion within the confines of the FPC certification process to be played out in upcoming hearings.

While Tennessee Gas and Texas Eastern squabbled over their rights to particular market areas, the severe winter of 1947 emphasized the need for increased fuel supplies for the Northeast. During the week of February 10, Pittsburgh newspapers reported that diminishing supplies of industrial gas resulted in 50,000 temporary local layoffs. On February 12, Tennessee Gas's pipeline suffered a break, further aggravating the shortage in the Pittsburgh area.22 The great demand for natural gas in Appalachia and the Northeast was in fact much larger than any single pipeline company could supply. A new prospective competitor entered the fray when the Memphis Natural Gas Company indicated its interest in building a 24-inch line connecting Texas and the Pittsburgh area for $63 million. But this proposal never progressed beyond the planning stages.

The controversy surrounding the ownership of the Inch Lines was lost to many northeasterners, who cared only about access to fuel to run their businesses or heat their schools and homes. The WAA received praise from editorial writers and others glad to know that the Inch Lines would finally and permanently transport natural gas to the fuel-short North-
east. Conversely, coal interests continued to oppose the introduction of natural gas, particularly for industrial use, in the region. Tom McGrath remained on the offensive, proposing that natural gas should be restricted to cooking and heating. McGrath remained concerned that natural gas would be used to displace the industrial coal-burning market. He opposed natural gas use for steam generation and endorsed its use only in current market areas. McGrath noted that natural gas sold through pipelines had displaced 50 million tons of coal a year involving 32,000 worker days and about half as many railroad worker days.

After the FPC scheduled hearings on Texas Eastern’s permanent certificate application, the agency notified all potential interested parties that it would be holding public hearings in consideration of Texas Eastern’s application. To Texas Eastern’s consternation, the Pennsylvania Public Utility Commission responded immediately on May 6 with a petition to intervene in the hearings. In a cover letter, J. A. Walter, acting secretary of the Pennsylvania PUC, stated that “the Pennsylvania Commission is of the opinion that the total deliverable capacity of the transmission lines comprehended within the above application should be restricted to Western Pennsylvania and that delivery therefrom should not extend eastwardly beyond the Pittsburgh area.” The PUC’s position was an unwanted potential obstacle to Texas Eastern because the PUC had authority to regulate the service, rates, and charges of natural gas operations in the state.

George Brown responded to the PUC’s action in a speech given to the American Society of Civil Engineers in Houston in late May. Brown argued that Pennsylvania had created “a barrier against the use of the Big Inch and Little Big Inch lines in gas transmission.” Brown suggested that by being forced to compete for markets with natural gas, the coal interests might be motivated to bring improvements to its industry. “Probably some day,” Brown said sarcastically, “the coal industry will praise us for stimulating it to more efficiency.”

The upcoming FPC hearings for Texas Eastern’s certificate of public convenience and necessity promised to become a significant battleground on which Texas Eastern would seek permission to market natural gas to eastern markets embedded in manufactured-gas territory. Coal and railroad interests could be expected to marshal an all-out effort to oppose Texas Eastern, which would need to present a strong case that the Northeast desperately needed natural gas. Thus, preparations to prove this need before the FPC went forward at Texas Eastern, various agencies, and companies wanting gas.
But as Texas Eastern prepared to pursue its interests before a federal regulatory agency, the coal industry’s strong political influence in Pennsylvania threatened its progress at the state level. Pennsylvania’s restrictive right-of-way laws blocked any attempt to build new gas pipelines through the state or market gas to the existing manufactured-gas utilities in eastern Pennsylvania. Texas Eastern’s promoters realized that their company’s success rested upon access via the Inch Lines to the large metropolitan markets east of Appalachia. Without access to the large utilities and industrial consumers in Philadelphia and New York, Texas Eastern’s gas sales would fall well below levels necessary to generate funds to pay for operations and service the company debt.

As this would place the company in financial jeopardy, several of the insurance companies with which Texas Eastern negotiated for financing indicated to Charles Francis that they might withdraw from participation, in the absence of federal powers of eminent domain. Francis responded by lobbying for congressional passage of a federal eminent domain statute for natural gas pipelines. He worked with several politicians to prepare appropriate bills from Texas Eastern’s perspective. In early April, Senator Edward H. Moore (R-OK) introduced such a bill, S. 1028. His co-introducers were Senators Thomas Connally (D-TX), O’Mahoney (D-WY), and Arthur Stewart (D-TN). In the House, Representative Schwabe (OK) introduced a similar bill, H.R. 2956. According to Francis, he and Vinson, Elkins, Weems & Francis attorney David Searles, among others, drafted the bill.

The eminent domain bill was only one of several highly controversial amendments proposed in 1947 to the Natural Gas Act of 1938. Perhaps for this reason, the bill received less attention than it might have if it had been proposed alone. During April and May, the Committee on Interstate and Foreign Commerce held hearings on five separate proposed amendments. These included the Rizley amendment (H.R. 2185), which was designed to limit the power of the FPC and explicitly exempt gathering, production, and local distribution from FPC regulation. The Dolliver bill (H.R. 2569), designed to increase the powers of the FPC, was supported by coal and railroad companies that believed a more powerful FPC would inevitably place more restrictions on natural gas to the benefit of coal and coal-transporting railroads.

Some opposition to the eminent domain bill did filter through the acrimonious debate on the Rizley and Dolliver bills. Tom McGrath, the forever present elder statesman of the anti-natural gas lobby, represented at these hearings the National Coal Association, consisting of 85 percent
of the nation's bituminous coal production; Eastern Gas & Fuel Associates, a large bituminous coal producer; and the Chesapeake & Ohio Railway Company, the nation's largest transporter of bituminous coal. McGrath indicated that he did not understand at the opening of the hearing that the eminent domain bill would be discussed. Being unprepared to mount an effective opposition, McGrath stated briefly that the issue needed much further discussion, especially in regard to the bill's possible violation of state's rights.30

In the press, the Oil and Gas Journal remarked that although no natural gas pipelines had yet had difficulty in attaining rights-of-way, some proposed emergency oil pipelines had experienced such difficulties during the war years and these restrictions were resolved by the Cole Bill. The article noted that if Texas Eastern received an FPC certificate to transport gas through Pennsylvania and the eminent domain bill also passed, "Texas Eastern would have power to compel the state to give it an easement for gas also."31 With federal powers of eminent domain, no state government could permanently stand in the company's way.

Francis also discussed the necessity of the eminent domain bill with August Belmont. Francis reported that "it is highly important for us to see that the present Congress adopts the Eminent Domain Statute, which I have been pushing. . . . I think a federal statute is highly important, if not almost essential, in straightening out our right of way difficulties."32 The eminent domain bill moved through Congress during June without the expected opposition.

Meanwhile, Texas Eastern prepared to take possession of the Inch Lines, which it did on May 1, 1947, from Tennessee Gas. Although Gardiner Symonds remained angry over losing the bid, he had no choice but to relinquish the lines, and Texas Eastern agreed to pay Tennessee Gas approximately $240,000 to cover Tennessee Gas's expenses in its efforts to transmit natural gas through the petroleum lines. The transfer took place in a conference call involving Texas Eastern, Tennessee Gas, and War Assets Administration personnel. The crews actually operating the line did not change and many continued working for Texas Eastern.

As of May 1, Texas Eastern also instituted its first gas purchase policy. It announced it would pay $0.08 per mcf on a twenty-year contract and $0.065 on a five-year contract. Sellers would have to prove a 150 percent reserve for the life of the contract.

The company also commenced negotiations for gas sales contracts with the Philadelphia Electric Company and the Philadelphia Gas Works
Company. Although Reginald Hargrove had told Gardiner Symonds during their conference in early March that Texas Eastern intended on contracting for gas sales to utilities in Pittsburgh, Texas Eastern now publicly indicated that Philadelphia would be its first market east of Appalachia. Philadelphia was on the outskirts of Appalachia and close to the paths of the Big Inch and the Little Big Inch. Philadelphia was the third-largest city in the United States with a strong manufacturing base. Wholly dependent on manufactured gas, it offered an obvious opportunity for Texas Eastern.

PHILADELPHIA GAS DISTRIBUTORS

The city had two major utility systems, the Philadelphia Electric Company and the Philadelphia Gas Works Company. Although both sold manufactured gas in the Philadelphia area, the manufactured fuel became increasingly more expensive during and immediately after World War II, and both utilities were eager to contract natural gas supplies. Both utilities intended to use new natural gas supplies to produce mixed gas, since Texas Eastern alone could not provide enough natural gas to justify an immediate and complete conversion to the new fuel.

The Philadelphia Gas Works Company was a municipal gas works operating under a franchise agreement with the city since 1898. The company operated under the supervision of the Philadelphia Gas Commission, a five-man body, one of whom was an official of the company; the others were city officials or public designees. The company manufactured carbureted water gas and coal gas in two plants, purchased certain by-product coke oven gas from the Philadelphia Coke Company, and distributed and sold this gas to some 500,000 customers in Philadelphia. The company also operated the Northern Liberties Gas Company in a section of Philadelphia with 4,000 customers; these two companies were the sole suppliers of gas service in the city limits of Philadelphia. The Gas Works distributed mixed gas, largely made up of carbureted water gas, with a 530-Btu content to its customers.\(^{33}\)

The Philadelphia Electric Company sold both electricity and gas in the Philadelphia metropolitan area. It provided electricity to customers in the city and surrounding areas and manufactured gas to areas outside the city limits. The Philadelphia Electric Company had been engaged in the manufactured-gas business since the early twentieth century. During the late 1920s, the company’s gas sales to suburban customers began to
decline as electricity captured the lighting market, but consumers continued to use gas for both cooking and heating. Demand for gas heating slowly increased, and the utility enlarged its small manufactured-gas production capacity by reforming the manufactured gas with refinery oil. By 1929 the company increased its gas sales to a total of 868 home heating customers. Its customer base increased gradually from 2,149 in 1935 to 3,085 by 1940, but this represented a very slow growth rate compared to the increase in home electricity consumption. The financial constraints of the depression had limited the growth of the manufactured-gas business. Beginning in 1939, however, manufactured-gas use grew, due primarily to the increased energy demands of the war-related industries as wartime energy-use restrictions reduced the ability of utility companies to expand service for nonessential customers. Industrial gas sales, including those for war production, multiplied fivefold while total gas sales increased from 44 to 74 mcf/d. However, Philadelphia Electric's overall position regarding gas use was typical of other utilities in the area. The company's management felt ambivalent about its relatively small and stagnant manufactured-gas business, which had barely grown in the previous decade. Systemwide gas sales of the previous ten years increased by only 6 percent, while electric sales increased more than 85 percent.

In August 1944, the War Production Board lifted its restrictions on Philadelphia Electric and other gas distribution companies. The restrictions had required the distributors to provide service only to those customers who were considered hardship cases by the War Production Board. Lifting of restrictions was followed by a surge in gas-heating installations. In 1945, prospective customers swamped the company with orders for gas service, straining its production and transmission capabilities. The company's Chester gas plants underwent a renewed expansion to increase capacity by 12 percent and new mains were laid as well.

After the war, gas heating became widely popular. In 1946, Philadelphia Electric alone had 9,000 orders for gas installations. But during that year, the company could not come close to meeting the demand. In fact, it installed only 1,721 new connections out of its total 9,000 orders. The primary limiting factor was the lack of available gas supply. The Philadelphia Electric Company depended upon manufactured gas, and substantially increasing the company's manufactured-gas output required a significant capital investment in its gas-manufacturing facilities. Even the recent 10 mmcf/d increase in manufacturing capacity at the Chester gas plant did not begin to make up for the new demand.
The Philadelphia utilities could easily present a strong customer demand for natural gas service. Texas Eastern’s attorneys worked closely with representatives of the utilities to prepare and coordinate their upcoming FPC testimony regarding the demand for gas. Also, by the end of the month, Texas Eastern and the Philadelphia Electric Company and the Philadelphia Gas Works agreed to the general form for proposed gas sales contracts. Both the City of Philadelphia and the Philadelphia Gas Commission then petitioned the FPC to intervene in Texas Eastern’s upcoming hearings in support of the sale of natural gas in Philadelphia.

The city’s petition stated that Philadelphia owned and controlled the Philadelphia Gas Works under an operating agreement. The city valued the Gas Works at “in excess of $100,000,000 and [it] is engaged in furnishing gas for domestic heating, cooking, lighting and manufacturing provided to inhabitants of a city of more than two million people . . . [and] provides service to approximately 500,000 gas consumers in the city of Philadelphia, sales currently running 30,000,000,000 cubic feet of gas per year.” The petition also maintained that the city had “a constantly increasing demand for gas resulting from the construction of new and additional housing.” The Philadelphia Gas Works proposed to use natural gas to offset the present need to construct additional manufactured-gas facilities, “the financing of which under present conditions being doubtful.” The gas companies realized that the tremendous expense of constructing additional manufactured-gas plants would raise the price consumers would pay for gas. But simply purchasing natural gas from a pipeline cost only the price of the gas, one-time charges for building a line to connect with Texas Eastern, and the cost of adjusting customer appliances.

The city’s petition also noted that the Philadelphia Gas Works Company and the City of Philadelphia had negotiated a gas sales agreement with Texas Eastern. But before this sale could go forward, the Philadelphia Gas Commission had to recommend the transaction to the city council, which would then have to pass an ordinance approving the sale. The petition stated that the city council was currently in the process of approving an ordinance to allow Texas Eastern to sell natural gas to the Gas Works. Philadelphia’s clear support of natural gas purchases by its utilities provided Texas Eastern with a substantial case in favor of its overall operating plans to be presented at the upcoming FPC hearings.

The Philadelphia Gas Commission likewise petitioned the FPC to intervene in the hearings and support Texas Eastern’s gas sales agreement.
with the Philadelphia Gas Works. This petition repeated that of the City of Philadelphia and noted that on June 24, 1947, it approved by resolution the sale of natural gas by Texas Eastern to the Philadelphia Gas Works.

TEXAS EASTERN’S CERTIFICATE HEARINGS

The FPC hearings for Texas Eastern’s certificate began on July 7, 1947, attracting a panoply of support and opposition from forty-eight intervenors.\(^{38}\) The majority of the intervenors were supporters of Texas Eastern’s certificate, most of which had contracted to receive gas from Texas Eastern, or hoped to do so; these companies represented a demand for natural gas that Texas Eastern alone could not fill. These firms included the New York State Natural Gas Commission, East Ohio Gas Company, Equitable Gas Company, Philadelphia Electric Company, and the Philadelphia Gas Works. The opposing intervenors included the usual assortment of coal, railroad, and labor interests as well as the competing natural gas companies of Tennessee Gas, Panhandle Eastern, and the unbuilt Transcontinental Gas.

On the second day of the hearings, the Commonwealth of Pennsylvania intervened in the hearings and indicated an important change in its position. Deputy Attorney General John C. Phillips spoke in favor of natural gas importation, noting that a shortage of gas now existed in Philadelphia as well as Appalachia. The commonwealth desired to assure the state that it would have an adequate supply of the fuel, and it now supported Texas Eastern’s sales agreements with the two Philadelphia utilities. This position was in sharp contrast to the commonwealth’s vigorous opposition to natural gas imports voiced less than a year earlier. The continuing gas shortage in the state had helped to convince officials to temper their earlier defense of coal and acquire a more positive view of the importation of natural gas. State officials had come to appreciate that new and developing industries might be interested in locating in areas of the state with access to natural gas.\(^{39}\)

Legal counsel represented Texas Eastern as well as each intervenor. These lawyers had the power to question and cross-examine each other during the course of the hearings. David T. Searles of Vinson, Elkins, Weems & Francis along with J. Ross Gamble, R. Clyde Hargrove, Charles I. Francis, and Jack E. Head represented Texas Eastern.\(^{40}\) In many respects the hearings developed into a battle between David Searles and the bespectacled long-time coal grandee Tom J. McGrath. During these
hearings, McGrath represented on his own or in conjunction with other attorneys the Anthracite Institute, Baltimore and Ohio Railroad (and other eastern railroads), the Chesapeake & Ohio Railway Company, Eastern Gas and Fuel Associates, Eastern States Retail Solid Fuel Conference, the National Coal Association, and the United Mine Workers.

Searles, as Texas Eastern's lead attorney in the hearings, explained in his opening statement to the FPC the basis of the company's application. Texas Eastern's case included substantial detail about marketing, engineering, accounting, gas supply, finances, and management. Much of the hearing was a tedious and perfunctory exercise in presenting masses of data designed to prove to the FPC's satisfaction that Texas Eastern was a competent organization staffed by experienced personnel—drawn from the well-established United Gas Corporation and the War Emergency Pipeline—with adequate supply for its proposed markets.

Searles raised two closely related issues that were the heart of Texas Eastern's problems: its interest in contracting gas sales to Philadelphia and acquiring federal rights-of-way for its natural gas pipeline. Searles introduced these issues by testifying that in addition to a projected delivery of 340 mmcf/d of natural gas to the Appalachian region, the company planned to sell 80 mmcf/d to two utility companies in Philadelphia, leaving an excess of 13 mmcf/d for sales flexibility. Texas Eastern strongly desired to break into the Philadelphia market, which was among the largest on the East Coast. The company's gas sales contracts with the Philadelphia Electric Company and Philadelphia Gas Works Company were more arguments in favor of natural gas sales into eastern Pennsylvania.

Texas Eastern's most powerful and not so secret weapon, the eminent domain bill introduced to the House by Representative Schwabe in early April, was gradually making its way from committee to the House floor. Finally, on July 25, 1947, the statute became an amendment to the Natural Gas Act of 1938 when President Truman affixed his signature to it. It is not entirely clear why only limited opposition to this bill was presented to Congress, but it is evident that the strong demand for natural gas in the Northeast persuaded authorities to support rather than oppose the eminent domain amendment. For the first time, natural gas companies had the support of federal eminent domain powers to counter any obstacles that states or railroads might try to impose on them.

With this issue finally removed from the table, Texas Eastern could at last move on beyond Appalachia into Philadelphia and the Northeast.
This was not simply a matter of an expansive company wanting to increase its sales and profits. The company had real fears that delays in shipping gas to markets along the Inch Lines might have ramifications for its rate base. It was not clear if the FPC would allow the company to include in its rate base the costs of any portions of the lines not put to use in transporting gas, such as those portions extending east beyond Appalachia to New York. Texas Eastern required no answer to such a question; from the company's point of view, it was past time to move on to the major cities of the East.

Stripped of the right-of-way issue, intervenors from the coal industry introduced a new issue into the FPC hearings. They argued that Texas Eastern should be forced to limit its sales to the fuel-short Appalachian region. By convincing the FPC of the pressing need there for all the gas available to Texas Eastern, they sought to limit the company's expansion into the much larger traditional coal markets to the east. These intervenors focused on the company's plans to extend service to Philadelphia, objecting to this prospective "diversion" of gas from the Appalachian region to areas not affected by energy shortages where natural gas would compete with coal for large residential and industrial markets.

McGrath pressed Reginald Hargrove on this point during the hearings. McGrath asked Hargrove, "If the Commission should see fit to condition the certificate in this case so as to require deliveries to be made in the Appalachian area or west thereof, do I understand that you would not accept such a certificate?" Hargrove responded smartly: "I haven't stated that, Mr. McGrath. What I did say was that if such a condition was imposed in a certificate, it would make a reconsideration of the whole matter necessary, and I don't know that it would be feasible in any event, but I do know that in the short time remaining between now and November 25th it would be practically an impossible undertaking to recast the entire project along those lines."

McGrath then asked Hargrove if Texas Eastern would continue to operate the pipelines under the terms of its lease through May 1, 1948, if it did not receive a certificate for sales east of Appalachia. Hargrove responded that although the WAA had authority to extend the November 25 deadline for the complete financing of the Inch Lines, "I do not think that if the certificate were delayed to the point that we could not complete our deal by November 25, some of the same interests that are urging there is no need for the certificate to be issued promptly would urge the Administrator not to extend it, and I don't want to be put in that dilemma if I can avoid it."
Although Texas Eastern's underwriters and the company itself desired entry into the markets for natural gas east of Appalachia, a number of intervenors in Appalachia and westward testified that they should also receive some of Texas Eastern's supply. Some communities desired natural gas so fervently that they sent representatives to the hearing to request that the FPC allocate gas to them from other pipelines not even involved in the hearings. Bloomington, Illinois, was one such community. Although located 200 miles from the Inch Lines, Bloomington requested a natural gas supply from Panhandle Eastern Pipe Line Company to replace its existing manufactured-gas service. The commission responded by requesting the city to come back when Panhandle Eastern's sales were under consideration. It did, however, grant requests from several intervenors for small amounts of gas.

The FPC noted that the gas shortage in Appalachia and the surrounding area would probably continue into the next winter. A portion of this area was supplied by Panhandle Eastern Pipe Line, which estimated that distributors in its service area required 518 mmcf/d. Since Panhandle Eastern's own capacity was 425 mmcf/d, a significant shortage existed. The FPC required Texas Eastern to supply 20 mmcf/d in displacement gas to the Panhandle area through April 30, 1948. The commission also reserved the right to require Texas Eastern to do the same the following winter if the shortage continued.

Despite difficulties in meeting existing demand, Panhandle Eastern—whose primary markets were in Illinois, Indiana, and Michigan—intervened against Texas Eastern's gas sales in the Appalachian area for fear of losing some of its own markets to the new pipeline company. Tennessee Gas Transmission Company presented the same objection to Texas Eastern's certificate application. Noting, however, that "the positions of the Tennessee Gas Transmission Company and Panhandle Eastern Pipe Line Company were not made entirely clear on the record," the commission stated that "we are not persuaded that the certificate herein authorized constitutes any impairment of the markets of these intervenors." Such seemingly token opposition posed no problem to a company whose system extended well beyond the systems of both Tennessee Gas and Panhandle Eastern.

Furthermore, Pennsylvania's once adamant opposition to the Inch Lines disintegrated entirely. On Thursday, September 23, Texas Eastern attorney J. Ross Gamble telegraphed Francis: "John Phillips advises that Governor has executed the right of way permits." The next day, Governor
Duff announced that he would fully support the importation of natural gas into Philadelphia. Duff had previously stated that his decision on supporting the introduction of natural gas into Philadelphia would depend on the city's interest in receiving natural gas. After receiving hundreds of letters of support for natural gas, Duff directed his representatives to advise the FPC that the state "vigorously urges' approval of transmission of the fuel to the city." Hudson W. Reed, president of the Gas Works, echoed the sentiment of the people living in Philadelphia who desired natural gas. Reed reported that "over the past fifteen years there has been a growing demand on the part of both old and new owners of automatic heat, and builders have found that it was extremely difficult, if not impossible, to sell homes with coal heating systems. As a result, they first used oil and subsequently gas in order to provide the automatic heat that their new home purchases demand."

The Gas Works noted that the refinery oil it used in the manufactured-gas process was becoming scarce and much more expensive. Citing a $609,000 increase in its oil costs through the first nine months of 1947, the Gas Works stated that without natural gas to replace the oil in the manufactured-gas process, substantial rate increases would be inevitable. Also, Frederic D. Garman, president of the Philadelphia city council, telegraphed the governor: "The program of building new homes for veterans and others in Philadelphia, as well as our industry, will be adversely affected if Philadelphia does not receive the natural gas it has contracted for. We are counting on your help."

With Philadelphia's demonstration of a clear need and demand for natural gas, Tom McGrath tried a new strategy. He argued that Texas Eastern had not proved that it had contracted for the necessary supply of natural gas to meet its sales contracts. McGrath also tried to show that Dillon, Reed & Company's commitment to finance the deal was dependent upon Texas Eastern's ability to contract for reserves. However, McGrath's new arguments proved unconvincing. The Gulf Coast region had tremendous quantities of gas and Texas Eastern had presented its supply contracts and financing ability convincingly.

On October 10, 1947, the FPC granted a permanent certificate to Texas Eastern. The FPC order did not limit the market area in which the company could sell natural gas. The FPC stated that there was no "logical justification for providing unlimited gas service in the so-called Appalachian area and at the same time denying service to the Eastern Pennsylvania area." However, the Pennsylvania service was not scheduled to
begin until October 1, 1948, when various pipelines connecting Texas Eastern's pipeline to the utilities were scheduled for completion. In the interim, the commission allowed Texas Eastern to use the two 20-inch sections of the Big Inch and Little Big Inch extending from Skippack Junction to Linden, New Jersey, for gas storage of approximately 60 mmcf of gas, which was to be reserved for emergency use in Philadelphia. Anticipating such a ruling, the Philadelphia city council had previously approved an allocation of $7.5 million for improvements and a pipeline extension from the Gas Works to meet Texas Eastern's pipeline system.

Confronting a certified Texas Eastern, some coal men, now acting more like good businessmen, moderated their stance against natural gas. James Williams, president of the Pennsylvania Retail Coal Merchants Association, explained that “there has been an erroneous impression that we are strictly coal dealers. In reality we are fuel dealers, dealing in coal, coke, oil and when natural gas comes along, we will deal in that too.”49 However, other coal industry representatives continued their fight against the introduction of natural gas and stated their intention to meet with the governor about their position.

FINANCING THE WINNING BID

Texas Eastern faced one more hurdle: financing. To complete its purchase of the pipelines, Texas Eastern had to pay the government $143,127,000 by November 25. Under the direction of August Belmont, Texas Eastern planned to sell $120 million in bonds and approximately $32 million in stock. The stock was to be sold to investors at $9.50 per share. This represented a potential bonanza for the original purchasers of Texas Eastern's first 150,000-share issue. These founding stockholders purchased shares for $1.00 each during early 1947 before the company had submitted its bid to the WAA. After the successful bid, the company split each of the founding stockholders' shares seven times, which meant their original shares were effectively purchased for about $0.14 each while on the open market Texas Eastern shares would be sold for $9.50 each.

Although the SEC unanimously approved Texas Eastern's stock issue plan, several newspapers reported the deal and Texas Eastern suffered its first dose of negative publicity. One headline read, “Texas Eastern Transmission Stockholders Stand to Make $9,825,000 for $150,000 [investment].” The controversy increased when one founding stock-
holder, J. Ross Gamble, stated his intention to sell his original shares costing $2,500 for $166,250. The gist of the bad press was that twenty-eight individuals had purchased a $143 million pipeline with only $150,000 and reaped enormous profits at the same time.

To minimize the bad press, August Belmont and C. Douglas Dillon held a series of press conferences to answer reporters' questions about the transaction. Belmont spent the rest of the week discussing the financing with reporters and editors from Time, Newsweek, the New York Times, and other journals. This highly public debate over high finance was later repeated with more subtlety in two opposing articles in the prestigious Harvard Business Review.50

Belmont's close work with the group had earned him an invitation earlier in May to join the Texas Eastern board of directors, which he did. Without realizing it, Belmont had joined the board in violation of the Natural Gas Act, which prohibited persons profiting from the sale of securities to be officers or directors of the company issuing the security. Apparently, neither Dillon, Read nor its law firm of Shearman & Sterling caught the glaring mistake for weeks. Just prior to completing the financing for Texas Eastern, recalled Belmont, a Dillon, Read executive requested Shearman & Sterling to review again the legality of Belmont's relationship with Texas Eastern. This time, the provision of the act prohibiting the relationship was discovered and Belmont resigned immediately after being informed; once again, the entire Inch Lines deal nearly fell through. Later, though, a lawsuit was filed against Belmont and Dillon, Read for being in violation of the Natural Gas Act. As it began to appear that this slip might reopen the entire Inch Lines transaction to federal inspection, Fred Eaton, managing partner of Shearman & Sterling, explained personally both to the FPC and the U.S. attorney general that his firm had given Belmont the "go ahead" to join and that Belmont had left the board "within one minute" after the mistake was discovered.51

The public controversy over intrigue, political entrepreneurship, and dramatic profits gradually blew over, leaving Texas Eastern positioned to close its purchase of the Inch Lines on November 14, 1947. This proved to be a complex closing with 150 representatives of the various parties involved in the transaction. In the end, George Brown, Reginald Hargrove, and Harvey Gibson of Manufacturers Trust gave a check in the amount of $143,127,000 to Robert Littlejohn of the WAA. When General Robert Littlejohn retired one week later as WAA administrator, he showed President Truman Texas Eastern's $143,127,000 check. Truman, who had
made the entire venture possible by signing the federal eminent domain bill, complimented Littlejohn on his success at the WAA and remarked that Littlejohn had shown him "the biggest check I have ever seen." From vital conduits of petroleum for the Allied war machine to war surplus property, the Inch Lines were now beginning a third life as one of the nation's most important natural gas pipelines (see table 5.1).

SELLING NATURAL GAS TO PHILADELPHIA

Although Texas Eastern successfully purchased the Inch Lines and acquired permission to sell gas in Philadelphia, the Philadelphia problem now took a different form. The severe winter of 1947–48 prompted Texas Eastern's proposed Philadelphia customers to request early gas service. In mid-January 1948, the Philadelphia Gas Works, feeling a severe demand on its existing manufactured-gas facilities, requested emergency gas deliveries to begin on February 9.

In response, Texas Eastern attorney J. Ross Gamble sent Charles Francis a copy of the Gas Works' application and noted that "it may well be that the Power Commission will dispose of it [the application] at an early date. It would therefore seem desirable for Texas Eastern to make up its mind as to the position it desires to take, at the earliest possible moment." The company did not have excess gas deliverability and was not even meeting contracted demand.

Two weeks later, Gamble telegraphed David T. Searles of Vinson, Elkins, Weems & Francis that the FPC, late the previous night, had set
a hearing on the Gas Works application for February 9. The notice of
hearing indicated that after the Gas Works had filed its request for
emergency service, other current customers had intervened in the case as
well. The proposed hearing set off a mad scramble among customers and
other companies interested in gas service. Fearing that the FPC might
divert its own gas supplied by Texas Eastern, the Public Utilities Com-
misson of Ohio, the Ohio Fuel Gas Company, the Manufacturers Light
and Heat Company, United Natural Gas Company, and Equitable Gas
Company, among others, filed informal protests with the FPC to prevent
Texas Eastern from diverting any existing gas sales volume to the Gas
Works. However, seeing an opportunity to get gas itself, the New York
Public Service Commission and the Iroquois Gas Corporation, gas
companies doing business in western New York, petitioned to intervene
and requested the excess gas.

R. H. Hargrove immediately telegraphed back to Gamble that “we
will require a minimum of two weeks to take necessary steps to be in
position to deliver gas to Philadelphia Gas Works in the event we are
ordered so to do. Believe it would be well for you to clear this up in
informal discussion.”53 Gamble confirmed to Hargrove that he had
notified the chairman of the commission, the supervising commissioner,
and commission counsel of Texas Eastern’s position. But an attorney for
the Gas Works discussed his client’s gas needs with Gamble on February 6
and stated that they were now requesting 4,300 mcf/d for the balance of
the winter, presumably because 700 mcf/d of Texas Eastern’s total 5,000
mcf/d dedicated for emergencies had already been granted to the Waynes-
burg Home Gas Company. On February 20, the FPC denied the Phila-
delphia Gas Works application. The agency seemed content in this case to
wait for the emergency shortage to disappear before shuffling gas to other
needy customers.54 Confusion continued over exactly when Texas East-
er would be prepared to deliver gas on a regular basis to both Phila-
delphia utilities. On June 1, 1948, the Philadelphia Gas Works filed an
additional petition with the FPC for a declaratory order to remove
uncertainty over Texas Eastern’s ability to deliver gas to it under terms of
the original contract.55

Texas Eastern responded ten days later. The company supported its
original proposed service date to the utility by quoting from one of the
utility’s own letters in which Hudson Reed, president of the Gas Works,
wrote that the utility “is entitled to receive natural gas from Texas Eastern
Transmission Corporation on July 1, 1948 or as soon thereafter as Texas

116
Eastern's deliverability reaches 340,000,000 cubic feet." Texas Eastern also noted that it should not have to cease deliveries of gas to its current customers in order to supply gas to the Gas Works.

Finally, on September 17, 1948, Texas Eastern began delivering natural gas to Philadelphia Electric. The utility received its first supply of gas at its Tilghman Street gas plant and used it for reforming and enriching its current manufactured-gas production. After Texas Eastern began supplying natural gas to the utility, Philadelphia Electric's president, Horace P. Liversidge, said, "In view of the large number of customers applying for gas heating services, the supply of natural gas to Philadelphia Electric will permit it to increase its capacity and bring nearer the time when all applicants for gas services may be accepted and adequately supplied." The company actively pursued that goal.

In 1951, Philadelphia Electric began converting its gas system to natural gas. After conducting many studies, the company decided to convert its gas distribution system to mixed gas, a combination of low-Btu manufactured gas and high-Btu natural gas. The company made this decision for several reasons. First, it could not be certain that any contracted supply of natural gas would be always available, but its manufactured-gas plants could be producing gas continually. Second, the manufactured-gas plants could be kept in the utility's rate base only if they were actually producing manufactured gas. However, the switch to mixed gas indicated that a conversion to straight natural gas would come in the future. To produce mixed gas, the gas works raised the heating content of manufactured gas, typically about 530 Btu, to 820 Btu with the addition of natural gas, which has an average heating content of about 1,020 Btu.

Philadelphia Electric did not have to make adjustments in its transmission or distribution system to accept mixed gas, but it did have to adjust all its customers' gas-burning appliances to accept the higher burning Btu gas. The company hired a field force of 400 men to go door-to-door to make the necessary adjustments to each of the utility's residential consumers' gas appliances so that the appliances would accept the higher-Btu gas. Some 170,000 customers required 380,000 adjustments for a wide variety of appliances. The field workers adjusted 220 different types of gas ranges, 160 water heaters, and 100 house heaters, not including commercial or industrial gas appliances. The increasing demand for natural gas led Philadelphia Electric and the city's other utilities to contract for more gas from Texas Eastern and other pipeline companies. This conversion process foreshadowed much larger ones to come in the Northeast.
Pennsylvania Coal and Eminent Domain

Table 5.2. Gas Sales of Utilities in Pennsylvania, 1941–1959
(millions of therms)

<table>
<thead>
<tr>
<th>Year</th>
<th>Natural Gas</th>
<th>Manufactured Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1941</td>
<td>1,332</td>
<td>183</td>
</tr>
<tr>
<td>1943</td>
<td>1,615</td>
<td>223</td>
</tr>
<tr>
<td>1945</td>
<td>1,485</td>
<td>240</td>
</tr>
<tr>
<td>1947</td>
<td>1,752</td>
<td>290</td>
</tr>
<tr>
<td>1949</td>
<td>1,876</td>
<td>326</td>
</tr>
<tr>
<td>1951</td>
<td>2,619</td>
<td>125</td>
</tr>
<tr>
<td>1953</td>
<td>2,753</td>
<td>24</td>
</tr>
<tr>
<td>1955</td>
<td>3,241</td>
<td>16</td>
</tr>
<tr>
<td>1957</td>
<td>3,673</td>
<td>8</td>
</tr>
<tr>
<td>1959</td>
<td>4,110</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: A therm is equivalent to 100,000 Btu.

By the end of the decade, the manufactured-gas business in Philadelphia had virtually disappeared. Although Texas Eastern was the first major pipeline to sell Texas and Louisiana gas into Philadelphia, others constructed later delivered natural gas to the local utilities by the mid-1950s. Still, the 57 mmcf/d received by the company was not sufficient to eliminate manufactured gas from the company’s operations. The company would not convert its system to straight natural gas until the end of the decade. By the mid-1950s, it was clear that manufactured-gas consumption in Pennsylvania was on a permanent decline (see table 5.2). However, these statistics also show that natural gas was rapidly finding new markets; the increase in natural gas sales far outpaced the decrease in manufactured-gas sales.

The Big and Little Big Inch Lines provided Texas Eastern with a path to Philadelphia, which became the first major northeastern city east of Appalachia to convert to southwestern natural gas supply. The Inch Lines represented a ready-made pipeline system capable of transporting southwestern gas to Philadelphia and beyond. An assortment of competitors, including natural gas, oil, coal, and railroad interests, entered the fray. Coal and railroad companies most vociferously opposed the natural gas Inch Lines, but they could not prevent them from delivering a more efficient fuel to beckoning markets.

Political entrepreneurship facilitated this economic process. The primary question revolved around the efficacy of introducing natural gas
into the coal-rich and coal-dependent northeastern states. Both sides of the debate hired lobbyists, some of whom occupied high positions in government. The lobbyists' function was to help determine which fuel would prevail and which group of entrepreneurs would profit from industry expansion. Lobbying occurred in federal, state, and local agencies, all of which had to approve gas transmission before gas could flow. Ultimately, the lobbying function was secondary. The key to the process of change was natural gas's clear superiority over manufactured gas and coal. Once natural gas was available at a competitive price, its victory in the marketplace was assured. Natural gas's first assault on manufactured gas paved the way for other pipeline ventures to reach more deeply into the Northeast.