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# Economic Impact of the Natural Gas Sector on Tennessee

Prepared for the Tennessee Gas Association

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## Introduction

This report, prepared on behalf of the Tennessee Gas Association (TGA), is the first to document the economic impact of the natural gas sector on the Tennessee economy. While Tennessee has abundant natural resources, it does not have sufficient fossil fuels or other energy sources to fully fuel the state economy and support economic development. As a result, the state must import energy sources, including natural gas, from outside the state. Ensuring adequate, stable, and competitively-priced energy sources today requires a diverse energy portfolio that includes natural gas. Natural gas is used extensively across the state by residential, commercial, and agricultural consumers as well as the manufacturing sector that produces goods for export outside the state. It is also essential to baseload power generation on the part of the Tennessee Valley Authority (TVA).

While natural gas is brought into the state via a system of interstate pipelines, it is the responsibility of local distributors to convey gas to final consumers through their own distribution networks. These distributors, most of which are members of the TGA, are essential to the maintenance of natural gas flows to final consumers. TGA member employment totaled 5,276 in 2023, with payroll and nonpayroll spending having a significant economic impact. (A complete list of members is provided in the Appendix.) Because some of the utilities that are members of TGA provide other services, like water and electricity, *local natural gas distribution* is measured here using public data confined solely to natural gas distribution and gas marketing in the state. This figure is 1,979 for 2022. Other natural gas-related sectors, discussed more fully below, are extraction and pipeline distribution, accounting for 13 jobs and 456, respectively. Together, there are 2,448 natural-gas related jobs in the state.

As natural gas supports extensive user applications across the state, the jobs, payroll spending and investment activities of TGA members as well as firms in the extraction and pipeline distribution sectors, create additional economic benefits that are the focus here. The workers live in our local communities and spend their paychecks locally, boosting employment, income, sales tax collections and so on. Investment activities of TGA also enhance local economic activity through the creation of construction jobs. Together these impacts spread across the state.

This report estimates the impacts of natural gas extraction, local distribution, and pipeline distribution on the state economy. While the report does not capture the impacts and benefits of natural gas use, there is a discussion of natural gas use in power generation and to support manufacturing. The local natural gas distribution impacts of TGA members are significant. The estimates presented below indicate that gas marketers and TGA's local natural gas distribution activities support 7,166 jobs in the state, through direct employment, as well as through business supply chains and the ripple effects of the spending multiplier. Total income supported by local natural gas distribution is \$298.4 million and the impact on state gross domestic product (GDP) is

\$352.6 million. For the entire natural gas sector—extraction, local distribution and pipeline distribution—the total employment impact is 8,594, the income impact is \$394.7 million, and the state GDP impact is \$466.3 million.

The economic impacts of the natural gas sector are discussed and documented more fully in the sections that follow. The discussion begins with background information on natural gas use and applications, the state’s natural gas extractive capacity, and the interstate network that moves natural gas into the state. Subsequent sections detail the economic impacts of the natural gas sector on the state in terms of employment, income, and state GDP. Also discussed is the importance of natural gas to industry and centralized power generation. The spotlight on industry is especially important since it is a major source of job creation and tax base expansion for the state and local communities. Tennessee’s manufacturers are major consumers of natural gas and it is essential to their competitive operations.

## Natural Gas Uses in Tennessee

Natural gas enjoys a broad pattern of use across the state within the residential, commercial, manufacturing, and agricultural sectors, as well as emerging use in the transportation sector. Where supplies are available to final consumers, natural gas offers a competitive and highly-efficient alternative to other sources of energy including electricity. Centralized electricity generation requires *baseload* capacity and natural gas meets this need as well. Because natural gas is acquired in competitive markets, it provides competitive pressure on prices across alternative energy sources. This helps sustain lower prices for all consumers, regardless of the energy source. Moreover, the price of natural gas per MMBTU is lower than electricity or natural gas.<sup>1</sup>

Natural gas provides energy system resiliency not only because it is an energy alternative, but also because the pipeline system of distribution provides insurance against many adverse shocks and weather events. Even if electricity is not available, natural gas supplies may still flow through the distribution network. Safety is enhanced by supplying natural gas through an underground pipeline network. Unlike the movement of electricity over traditional wires which leads to energy losses, very little natural gas is lost through its distribution across the pipeline network.

In some applications in the manufacturing sector, natural gas is essential because of its thermal efficiency in specific energy-intensive production applications. In other instances, natural gas is used as an actual input to the production of goods like chemicals. Residential and commercial consumers benefit from the energy choice option that is created for space heating, water heating, food preparation and other applications by having both electricity and natural gas available. For

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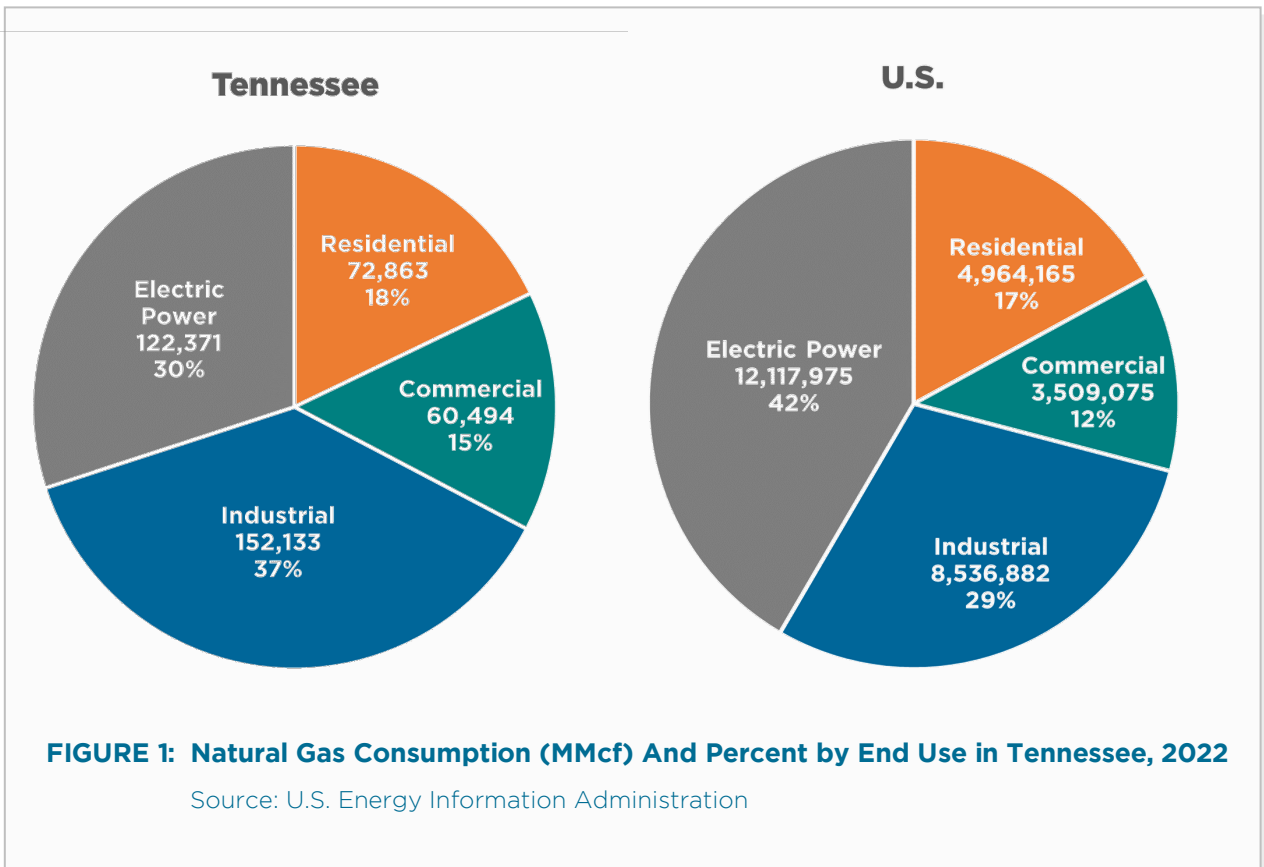
<sup>1</sup> For a comparison of costs, see <https://www.mtng.com/fuel-cost-comparison/>

some farmers, including those raising poultry, natural gas is a cost-effective means of space heating. While the use of natural gas in the transportation sector is small and largely confined to large trucks, it produces significantly less pollution than diesel and gasoline in such applications.

Centralized power generation by entities like TVA has seen increased reliance on natural gas as coal is being phased out and renewable energy sources increase their share of the generation portfolio. Natural gas offers a lower environmental footprint than coal, can meet baseload power demand unlike many renewable energy sources and can be dispatched more quickly than sources like nuclear power. However, this use of natural gas may limit uses by others because of the increasingly constrained pipeline networks serving Tennessee.

### Natural Gas Consumption Patterns

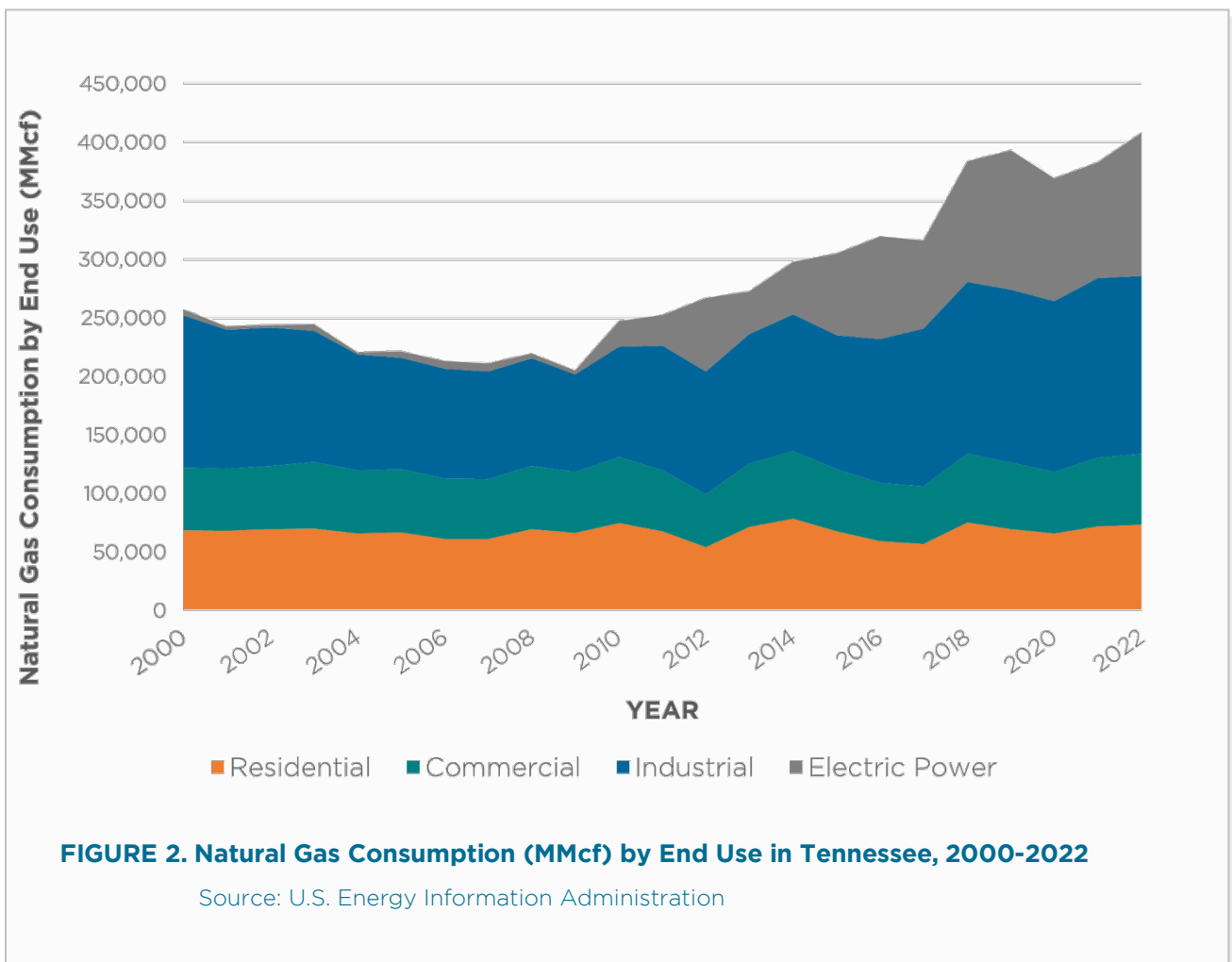
In 2022, the largest natural gas user sector in Tennessee was industry, i.e., durable goods and nondurable goods manufacturing. As shown in **Figure 1**, manufacturing (“industrial”) accounted for 37 percent of all the natural gas consumed in the state, followed by the electric power sector at 30 percent. The fracking boom (which contributed to increased supplies and downward pressure on prices) and environmental concerns have together contributed to these sectoral increases in natural gas use. The nation’s use of natural gas for electricity production stood at 42 percent of the total while manufacturing uses accounted for 29 percent of use in 2022. The



difference in manufacturing’s use of natural gas between the U.S. and Tennessee (29 percent versus 37 percent) is especially pronounced because the state’s manufacturing sector accounts for a larger share of the state economy compared to the U.S.

Note that natural gas use for vehicles is not shown in the figure because it accounts for such a small share of overall use in Tennessee (just 1,456 MMcf in 2022). However, use in Tennessee was twice as large a share of overall use compared to the U.S. Overall use by the transportation sector is likely to grow with most emerging applications tied to large commercial trucks. Usage by trucks is important to Tennessee because of the extensive network of wholesalers across the state that supports the manufacturing sector.

Trends in natural gas use in Tennessee over time are shown in **Figure 2**. Since 2000, the volume of natural gas consumed by the residential and commercial sectors has remained largely the same. Use for electric power generation and in industry began trending up in the late 2000s. For perspective, since 2010, natural gas use in power generation has climbed 452.3 percent while use in industry has grown 61.3 percent.



While power generation and manufacturing applications account for about two-thirds of the natural gas used in Tennessee, the largest *number* of end users are in the residential and commercial sectors. This reflects the energy intensity and scope required for manufacturing and power generation. For example, in 2022, average annual consumption per manufacturing consumer was 58,490 Mcf while the average per commercial user was just 434 Mcf. In the same year, there were 1,223,216 residential customers and 139,275 commercial customers compared to 2,601 manufacturing customers.<sup>2</sup>

Between 2010 and 2022, the number of residential consumers was up 12.7 percent, and the number of commercial customers was up 8.9 percent; the number of manufacturing customers was down 3.7 percent. At the same time, average consumption per manufacturing customer *rose* 67.6 percent from 34,908 Mcf to 58,490 Mcf while average use in the other two sectors (residential and commercial) was largely the same. The U.S. saw manufacturing natural gas use grow at a slower rate of 25.1 percent between 2010 and 2022.

## Natural Gas Distribution

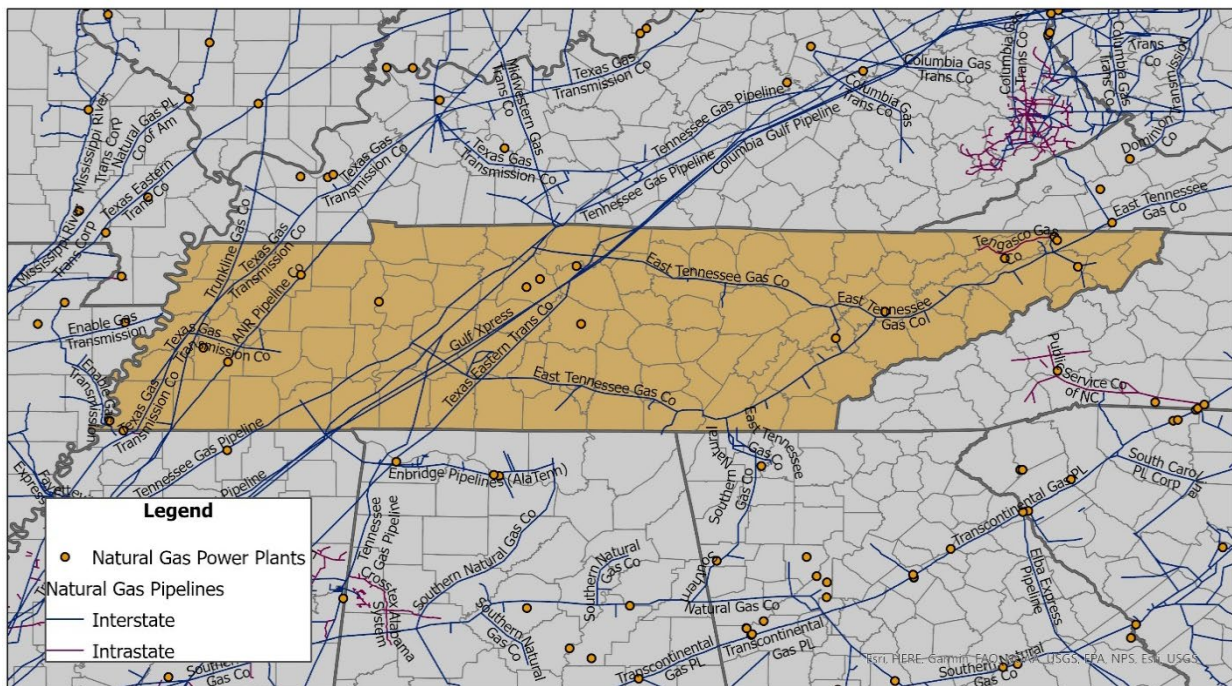
Local distributors receive their natural gas supplies through a system of interstate and intrastate pipelines. Since Tennessee produces very small quantities of natural gas, supplies are generally sourced from outside the state for in-state use. The larger components of the overall distribution network are shown in **Figure 3**. The primary interstate pipelines run through western and middle Tennessee connecting to reserves both south and north of the state. Note that there are no major north-south interstate lines in the eastern portion of the state and the interstate pipelines further east are heavily subscribed (e.g. Transcontinental Pipeline). The interstate pipelines serve consumers across a large number of states so there is always competition for supplies to meet in-state demand in Tennessee.

Because of strong demand and some constraints on the network (notably the absence of a major interstate pipeline), supplies in eastern Tennessee are constrained while middle and west Tennessee are facing tighter and tighter supply capacity constraints. The pressures come from outside the state as other regions seek to utilize more natural gas. Increased centralized power generation also puts pressure on increasingly scarce supplies. The supply constraints need to be eliminated or relaxed to ensure that all customer classes can receive the natural gas that they need in the future, especially job-creating manufacturers.

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<sup>2</sup> U.S. Energy Information Administration.

An important feature of the major interstate and intrastate pipelines is that they serve as an open highway for the transmission of gas. Local distribution companies either purchase their gas directly or through marketers in highly competitive national and regional markets and then pay a fee (or *tariff*) to move gas through the network. In general, the greater the distance from source, the greater is the fee for transportation services. The cost to local distributors in Tennessee for natural gas acquisition is very similar to the average price paid by other utilities across the U.S.



**FIGURE 3: Natural Gas Pipelines with Operators in Tennessee and Natural Gas Power Plants**

Source: U.S. Energy Information Administration, Energy Infrastructure and Resource Maps

Not shown in Figure 3 is the complex network of pipelines that connect and serve local consumers. These pipelines are built and maintained by local distributors under federal and state oversight. Maintenance of these facilities is essential to ensuring supply resiliency and safety.<sup>3</sup> Pipelines represent the largest capital costs confronting local distributors. Their construction and maintenance not only ensures the flow of gas but also yields benefits to local communities through job, income and tax base expansion.

<sup>3</sup> The Tennessee Public Utility Commission has oversight over pipeline safety in the state.  
<https://www.tn.gov/tpuc/divisions/gas-pipeline-safety-division.html>

Business establishments that engage in the movement of natural gas are included in two broad sectors. The first, *natural gas distribution*, refers to firms that operate local distribution systems and sell gas to final consumers, as well as gas marketers and brokers.<sup>4</sup> This sector would generally include business entities that are a member of the TGA. The second, *pipeline transportation*, includes pumping, pipeline operations, transmission of natural gas from processing facilities to local distributors and storage.<sup>5</sup> This second category would include the major interstate pipeline companies shown in Figure 3. Natural gas distribution supported 1,979 jobs in the state in 2022 while pipeline transportation supported another 456 jobs for a total of 2,435 jobs.<sup>6</sup> Annual wages for *natural gas distribution* totaled \$137.0 million while annual wages for *pipeline transportation* summed to \$48.4 million. Together, annual earnings amounted to \$185.4 million for the two sectors.

Despite the number of interstate pipelines traversing the state, there are existing and emerging supply constraints for pipeline distribution and in turn natural gas distribution as noted above.<sup>7</sup> Constraints are already present in east Tennessee, with some distributors indicating they have little or no additional capacity to expand their activities. Problems are beginning to surface in middle and west Tennessee. These constraints threaten economic development and the availability of an important source of fuel diversity for all energy consumers. These concerns are reinforced by a survey administered to TGA members as part of this study. About one-fourth of the respondents noted that they could not currently add a new manufacturing customer requiring 500 Mcf per day of gas without greater pipeline capacity. And about one-half of the respondents indicated that interstate pipeline capacity was insufficient to meet future needs. Resolving these constraints is important to future economic growth in the state.

## Natural Gas Extraction

Tennessee has limited fossil fuel reserves (both coal and natural gas) to support extraction activities and final use. As a result, the state must import natural gas from elsewhere, pointing to the need for a robust pipeline distribution system and network of local distributors. To frame the situation in Tennessee, the amount of gas extracted from active wells in the state accounted for only 13 jobs in 2022.

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<sup>4</sup> <https://www.census.gov/naics/?input=221210&year=2022&details=221210>

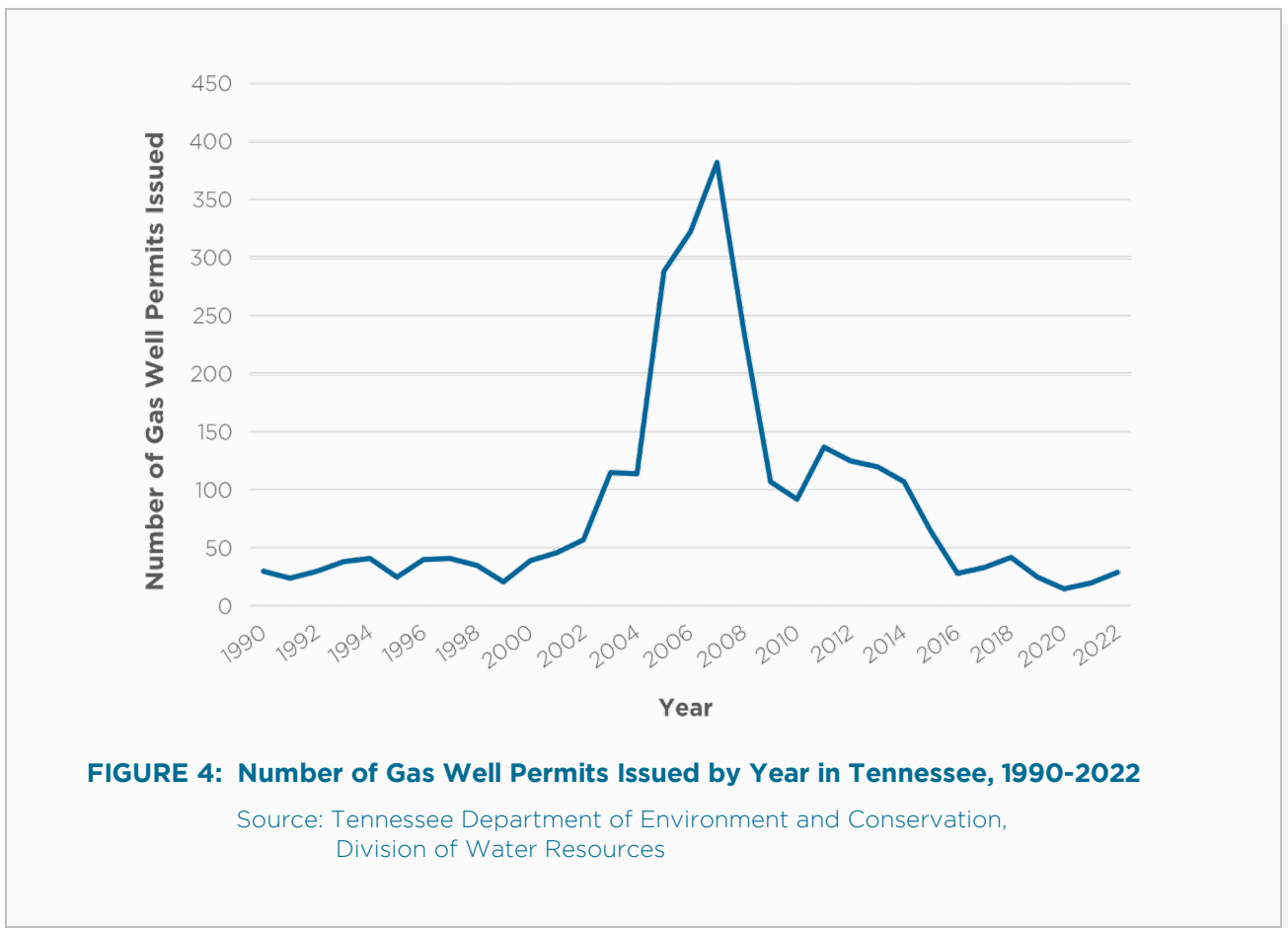
<sup>5</sup> See <https://www.naics.com/naics-code-description/?code=486210>

<sup>6</sup> U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

<sup>7</sup> For background, see Tennessee State Energy Policy Council, "Ensuring Natural Gas Capacity to Meet Tennessee's Economic Development Needs," March 29, 2022. Available at [Energy Security Planning \(tn.gov\)](https://www.tn.gov/energy-security-planning)

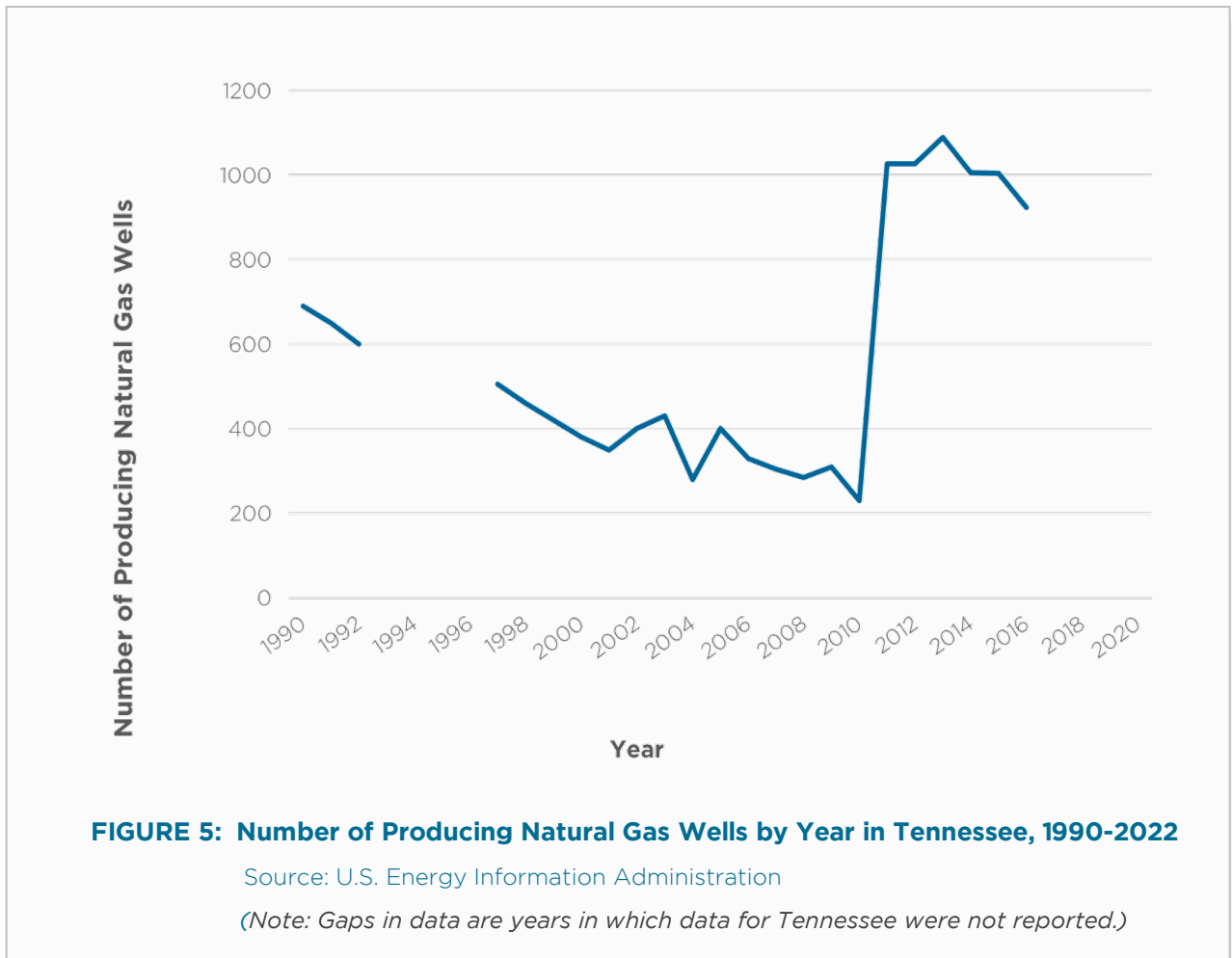


**Figure 4** shows the number of natural gas well permits that have been issued by the state, dating back to 1990. (Note that once a permit is issued, it remains in effect until the well closes, so the permit figures tend to accumulate over time.) While there was a spike in permit issuance in the mid-2000s, this was short lived, and the pattern reverted to the long-term trend of small numbers of permits issued each year. The spike in permit issuance coincides with a spike in natural gas prices (in Tennessee and the U.S.) during the same time period as well as increased use of horizontal drilling in the early 2000s.

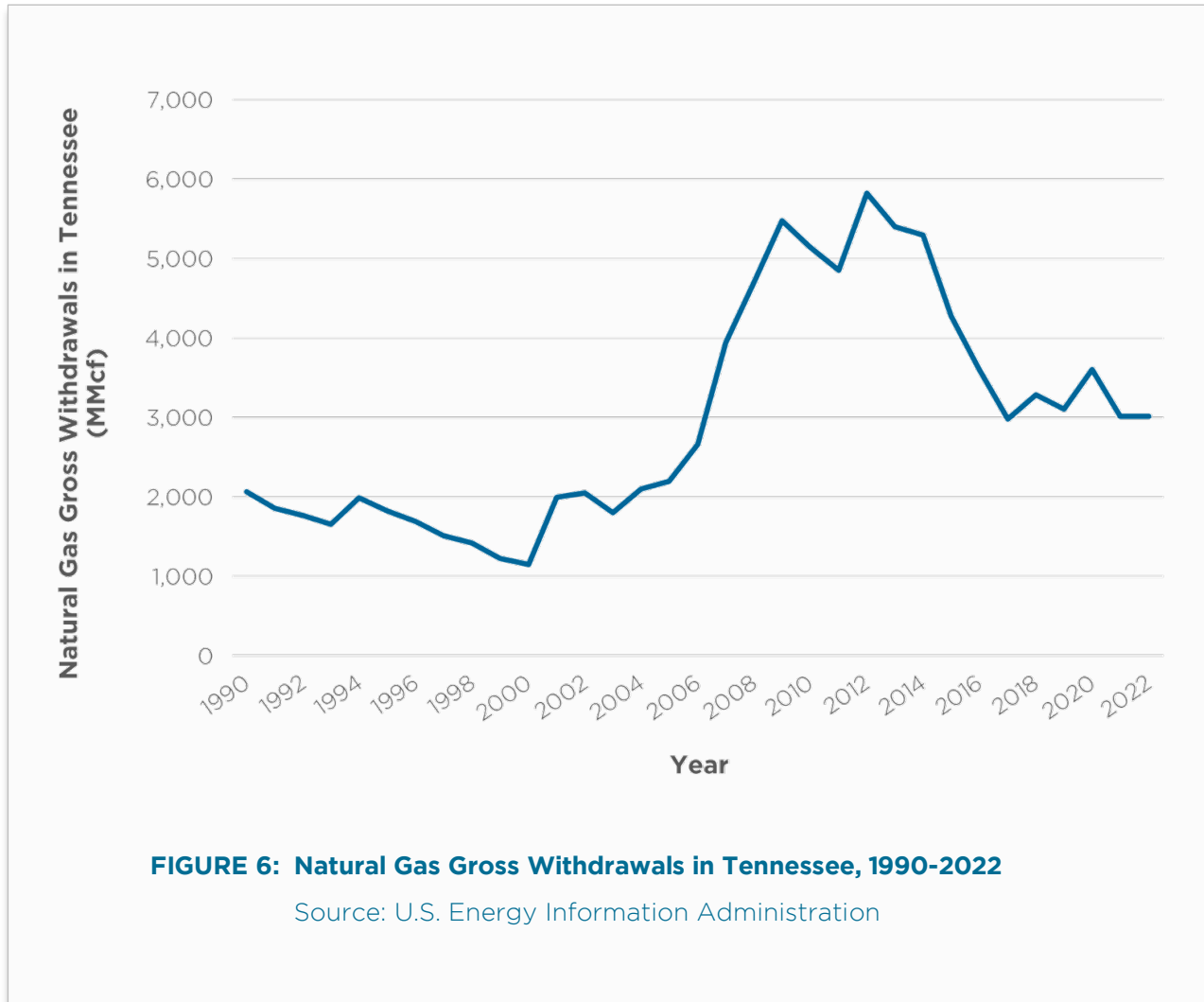


The top seven counties for number of permits issued since 1990 are (in order): Overton, Anderson, Morgan, Pickett, Fentress, Scott, and Campbell counties. Notably, these counties account for 92.4 percent of the gas permits issued between 1990 and 2022.

Permit issuance fails to indicate the scope of natural gas extraction from active wells. Shown in **Figure 5** are the number of *producing* natural gas wells in Tennessee from 1990 to 2016, the most recent year for which data are available. The number of producing wells trended down from 1990 to 2010 and then saw a sharp spike. Following the spike, the downward trend re-emerged similar to the pattern for permits noted above.



Gross withdrawals from the active wells are shown in **Figure 6**.<sup>8</sup> Not surprisingly, these data roughly follow the same pattern as those displayed in the two figures above. Since 2017, withdrawals have hovered around 3,000 MMcf. To place these figures in context, in 2022, withdrawals from wells in Tennessee were just 0.007 percent of total natural gas withdrawals across the country.



<sup>8</sup> Gross withdrawals represent the full well-stream volume or total volume extracted from underground reservoirs. Marketed production is natural gas gross withdrawals less gas used for repressuring, quantities vented and flared, and nonhydrocarbon gases removed in treating or processing operations. Dry production is natural gas withdrawn from reservoirs, reduced by volumes used at the production (lease) site and by processing losses (i.e., dry natural gas production equals marketed production less extraction loss). For Tennessee in 2022, gross withdrawals equaled 3,016 MMcf, marketed production equaled 3,016 MMcf, and dry production equaled 3,000 MMcf.

**Table 1** below reports the seven Tennessee counties that had active natural gas production in 2020. All the counties are located in the eastern portion of the state and are primarily rural. Anderson, Morgan, and Scott counties had the largest volume of production while Fentress and Roane counties showed inconsequential levels of extraction.

**TABLE 1: Tennessee Natural Gas Production by County, 2020**

County	Production (MMcf)	Percent of Total Production
Anderson	1,384	38.4
Morgan	747	20.7
Scott	729	20.2
Claiborne	437	12.1
Campbell	259	7.2
Fentress	35	1.0
Roane	12	0.3
Total	3,602	100.0

Source: Tennessee Department of Environment and Conservation, Division of Mineral and Geologic Resources, Tennessee Oil and Gas Program

## Economic Impact of the Natural Gas Sector on Tennessee

The discussion above has provided background on the natural gas sector to frame the analysis that follows. This section documents the economic impact of the natural gas sector on the state in terms of jobs, wage and salary income, as well as state GDP. Subsequent sections discuss other economic benefits that are tied to natural gas use in the state, notably applications in industry and centralized power generation. As noted above, this report does not evaluate the economic impacts associated with the various uses of natural gas.

Driving the economic impacts of the natural gas sector are the direct employment, payroll and nonpayroll spending by businesses in the extraction, natural gas distribution and pipeline transportation sectors of the economy which have been noted earlier. The employment and spending activity in these sectors yields additional benefits through business supply chains (indirect effects) and the ripple effects of spending (multiplier effects). For example, as an employee of a local natural gas distributor spends her paycheck in the local community, this spending in turn supports jobs and income in retail trade, personal services, insurance and banking, housing, medical care, education services and so on. Workers in these sectors in turn

spend a portion of their income on goods and services in Tennessee, yielding additional jobs and income. These are the ripples of the multiplier that spread across the state. All this economic activity boosts state GDP by increasing the production of goods and services. The economic impact analysis presented here captures these additional indirect and multiplier benefits on jobs, income, and GDP. The impact analysis uses information on the extraction, distribution, and pipeline transportation sectors, drawing on publicly available information.

While the economic impacts tallied here are measured at the state level, these impacts are first felt at the local level. This is especially important for the members of TGA which have a significant presence across Tennessee. TGA members pay good wages and salaries and generally offer a range of fringe benefits that enhance employee and family wellbeing, including health and dental insurance and pension or retirement plans. Based on a survey of TGA members, nearly one-half of respondents indicated that they provided education and training opportunities, including training vouchers.

**Table 2** reports the economic impacts on jobs for the extraction, local distribution, and pipeline transportation sectors. The estimates rely on publicly available data for each of these sectors.<sup>9</sup> The first row of data presents the direct employment, the same figures that were presented in the discussion above. Local natural gas distribution accounts for 1,979 (or 80.8 percent) of the total number of direct jobs (2,448). The second row shows the estimated effects on the supply chain (indirect effects) and the ripple effects of spending (multiplier effects). Note that local distribution yields 5,187 additional jobs in the economy, for total employment of 7,166. The total number of jobs for all natural gas sectors, including their supply chain and multiplier impacts, is 8,594.

**TABLE 2: Employment Impact of the Natural Gas Sector on Tennessee**

	Extraction	Distribution	Pipeline Transportation	Total
Direct	13	1,979	456	2,448
Indirect Plus Multiplier	27	5,187	932	6,146
Total Impact	40	7,166	1,388	8,594

<sup>9</sup> As noted above, some members of the TGA provide services in addition to gas, for example, water and electricity. As a result, some of their employment is not tied directly to the provision of natural gas services.

**Table 3** shows the impact of the natural gas sector on earnings for the jobs reported above. The first row shows total earnings for the three sectors of interest. For the local distribution sector, direct earnings received by workers total \$137.0 million of direct earnings for all three natural gas sectors. The next row shows income corresponding to employment arising indirectly and through the multiplier process which totals \$202.8 million. The last row shows the total earnings impact on Tennessee, \$394.7 million.

**TABLE 3: Income Impact of the Natural Gas Sector on Tennessee**

	Extraction	Distribution	Pipeline Transportation	Total
Direct	\$6,454,316	\$136,990,880	\$48,407,324	\$191,852,520
Indirect Plus Multiplier	\$5,643,654	\$161,430,053	\$35,724,605	\$202,798,312
Total Impact	\$12,097,970	\$298,420,933	\$84,131,929	\$394,650,832

**Table 4** captures the impacts on state GDP with the data arrayed similarly to the previous two tables. Local distribution directly adds \$161.9 million to the state's GDP. With multiplier and indirect effects, the figures jump to \$352.6 million. Extraction adds a total of \$14.3 million and pipeline transportation adds a total of \$99.4 million to state GDP. Combined the three sectors contribute \$466.3 million to the production of in-state goods and services.

**TABLE 4: GDP Impact of the Natural Gas Sector on Tennessee**

	Extraction	Distribution	Pipeline Transportation	Total
Direct	\$7,626,081	\$161,861,234	\$57,195,553	\$226,682,868
Indirect Plus Multiplier	\$6,668,245	\$190,737,278	\$42,210,318	\$239,615,841
Total Impact	\$14,294,326	\$352,598,511	\$99,405,872	\$466,298,709

## Impacts of TGA Member Capital Investment

Local natural gas distributors must maintain their network and equipment to ensure its integrity and resiliency. These kinds of investments are an ongoing activity of TGA members and produce additional income and employment benefits for Tennesseans, even if short lived and confined to the period of capital investment. In some instances, new ongoing jobs are created within the local distributors as a result of new investment spending.

Based on the survey of TGA members, several significant investments have been identified that can serve as examples of the importance of associated economic impacts that arise within local communities. Three have been chosen here for illustrative purposes. Note that the economic impacts occur in a fashion analogous to the process described above. New investment dollars support construction jobs, income and nonpayroll spending which then affects supply chains and triggers the spending multiplier. While data limitations preclude a full assessment of economic impacts, investment dollars provided by utilities as part of this study are insightful.

The investment data that were reported through the survey of TGA members cover the past three years. A three-year window was chosen because many construction projects take time to complete. Because detailed data are not available on the specific nature of construction activities and where inputs were purchased, these figures must be viewed as simply suggestive of overall economic benefits to the community and the state.

Clarksville Water and Gas reported investing nearly \$6.5 million in capital spending to support their system. No new employment was created. Based on multipliers for Tennessee's construction sector, the investment would have created over \$5 million in income for Tennesseans and 86 temporary jobs, accounting for direct construction spending, indirect effects, and multiplier effects. The Powell Clinch Utility District invested \$7.6 million in the last three years to support safety and resiliency, to expand capacity, and to expand its service area. The total impact on earnings would be over \$5.9 million with a total jobs impact of over 100 workers for the three-year window. Finally, the Gibson County Utility District reported three-year investment of \$9.8 million. The total earnings impact would have been \$7.7 million with 130 jobs created over the period of construction.

## Manufacturing Uses of Natural Gas

Natural gas is an attractive energy source for industry because of its relative efficiency. The uses of natural gas are more nuanced in the manufacturing sector than in other gas-using sectors like residential applications. Natural gas is used by manufacturing firms for traditional space and water heating as well as other common applications. Importantly, it is also used for energy-intensive manufacturing processes that cannot be efficiently fueled from alternatives like electricity. Examples include steel and ceramic production and brick and glass drying. Natural gas

is also a source of some products including propane, ammonia, pharmaceuticals, plastics, and fertilizers. For these production activities, natural gas is an essential ingredient.

These and other applications make natural gas a critical input for some manufacturing sectors and an important fuel source for manufacturing users. In many applications, natural gas offers a more efficient and cost-effective energy source than electricity. Because Tennessee is heavily reliant on the manufacturing sector, abundant, resilient and competitively-priced natural gas supplies are very important to manufacturers who support in-state job creation.

It is important to highlight the host of benefits that accrue to the state from manufacturing. First and foremost are the many jobs directly tied to manufacturing firms. Total manufacturing employment in Tennessee, including both durable goods and nondurable goods, accounted for almost 350,000 jobs in 2021, as shown in **Figure 7**. Note that manufacturing employment in Tennessee has been growing and is projected to continue to grow through the next decade. Between 2023 and 2033, Tennessee is expected to see manufacturing employment rise from 370,400 to 390,700, for a net gain of 20,700 jobs. In sharp contrast, the national economy is expected to see a loss of 1.6 million manufacturing jobs over the same time period.<sup>10</sup>

Jobs in manufacturing pay very well and are often accompanied by important fringe benefits like retirement plans and health insurance. This compensation offers security for both workers and their families. In 2022, the average wage in the state's manufacturing sector was \$60,513 compared to a statewide average wage of \$57,741.<sup>11</sup>

These jobs in manufacturing are created through the ability of businesses to *export* their products, both final consumer products and intermediate products, to other businesses in Tennessee as well as to other states and countries. By exporting manufactured products, new purchasing power is brought into the state.

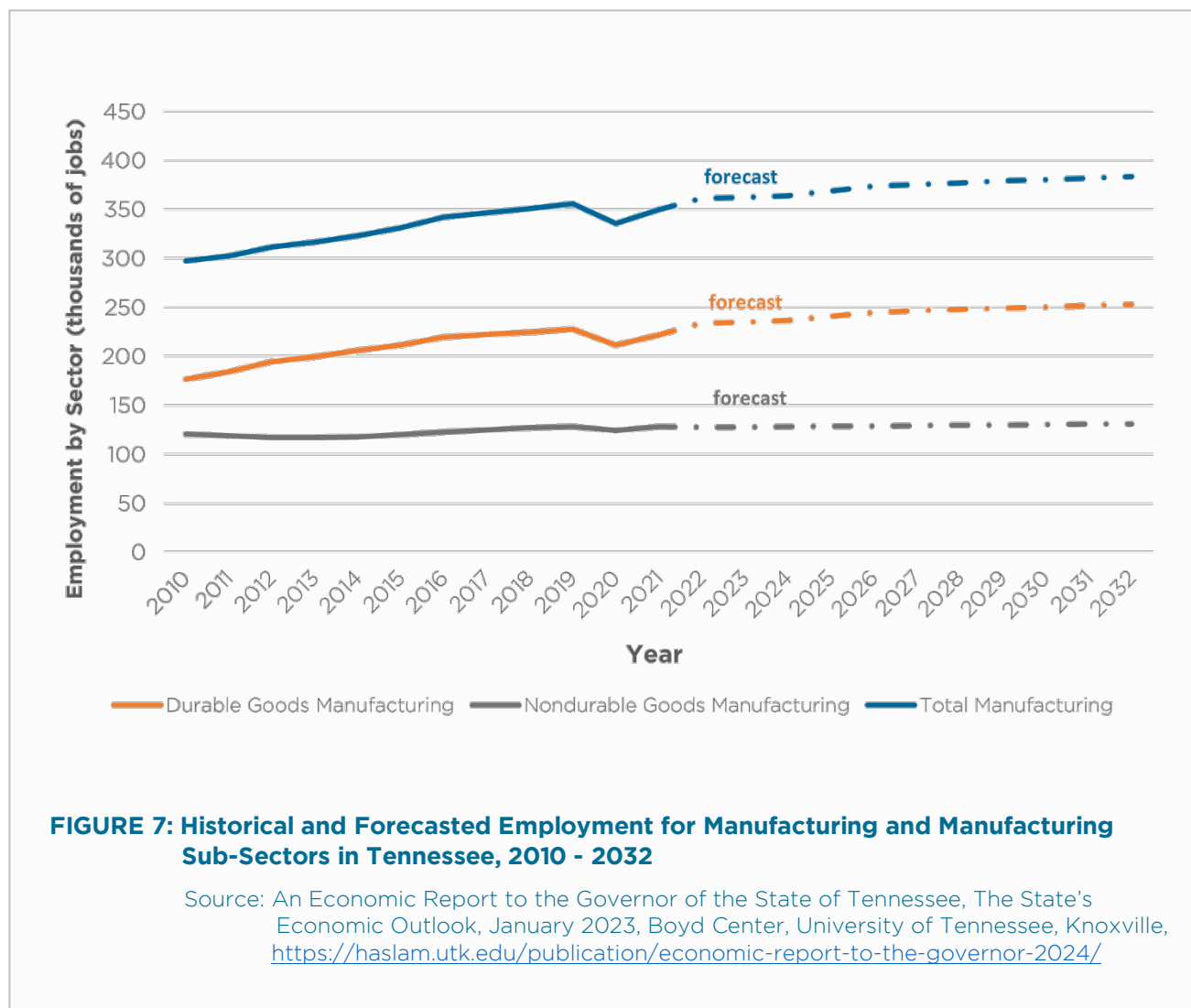
Manufacturing firms need to stay on the cutting edge in order to compete in a highly-competitive national and international marketplace. Manufacturing firms have important linkages to every other sector of the state economy, supporting additional jobs and expanding worker income. Significant numbers of jobs are created in the manufacturing supply chain, both within and outside the manufacturing sector. For example, an automobile parts manufacturer may need intermediate inputs like wire harnesses and fabricated metal products that may be produced in Tennessee. Manufacturers may also purchase marketing, financial and legal services from in-state businesses. The ability of the supply chain to thrive hinges in part on the ability of the upstream

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<sup>10</sup> *An Economic Report to the Governor of the State of Tennessee, The State's Economic Outlook*, January 2023, the Boyd Center, University of Tennessee, Knoxville. Available at <https://haslam.utk.edu/publication/economic-report-to-the-governor-2024/>

<sup>11</sup> *An Economic Report to the Governor of the State of Tennessee, The State's Economic Outlook*, January 2023, Boyd Center, University of Tennessee, Knoxville.





**FIGURE 7: Historical and Forecasted Employment for Manufacturing and Manufacturing Sub-Sectors in Tennessee, 2010 - 2032**

Source: An Economic Report to the Governor of the State of Tennessee, The State’s Economic Outlook, January 2023, Boyd Center, University of Tennessee, Knoxville, <https://haslam.utk.edu/publication/economic-report-to-the-governor-2024/>

manufacturer to thrive. Additional jobs and income are created through the multiplier process where worker spending and business nonpayroll spending sends ripples across the state economy. These additional jobs are one of the reasons that the state and local communities aggressively recruit high-paying manufacturers.

Manufacturing in Tennessee is a significant source of tax base expansion for the state and local governments. Manufacturers help boost the local property tax through their investment in buildings and equipment. Manufacturers also contribute to the state and local sales tax since many of the things that they purchase, from office supplies to building materials, are taxable. Both businesses and workers also contribute to the state and local tax base.

TGA members have modest numbers of manufacturing firms that subscribe to natural gas services compared to the number of commercial and residential customers (as discussed above at the top

of page 5). However, these manufacturing enterprises are both large consumers of natural gas and an important source of job creation for host communities.

The survey administered through the TGA asked members to provide examples of manufacturing firms that subscribed to their services. Examples are reported in **Table 5**. An important feature of the responses is that industries relying on natural gas are either producing final products for sale in a national/international market or meeting industry supply chain needs. Many of the company names will be familiar to readers of this report.

**TABLE 5: Examples of Manufacturing Firms and Products**

Example Companies	Products	Example Companies	Products
3M Company	tape and adhesive manufacturing	Kentucky Tennessee Clay	ball clay
Aisin Automotive Casting Tennessee	engine components	MacLean Power Systems	power system products
Ascension Saint Thomas	healthcare, hospitals	MW/MB	roofing reinforcement and materials
Aviagen	poultry feed and poultry hatchery	Nidec Motor Corporation	generators
Big Bend Galvanizing	hot-dip galvanizing services	NN Ball & Roller	ball and roller bearing components
Bonnell Aluminum	aluminum extrusions	Nuclear Fuel Services	fuel material for naval nuclear reactors used in U.S. submarines and aircraft carriers
Bridgestone Americas	truck and bus radial tires	Precision Coils	copper coils
Bush Brothers	food, beans	SI Group	polymer plastic
Carlex Glass America	automotive glass	Sonoco	cardboard containers
Ceco Door	steel door and frame openings	Specialty Tire	specialty tires
Cemex USA	cement	StonePeak Ceramics	porcelain tile
CMC Steel	steel	Teknor Apex	garden hose, vinyl compounding, chemicals, nylon compounding, TPE compounding

*(continued on next page)*

**TABLE 5. Examples of Manufacturing Firms and Products (continued)**

Example Companies	Products	Example Companies	Products
Covoro Mining Solutions	chemicals	Tennessee Valley Authority	power generation
Dal-Tile	tile	The Carlstar Group	specialty tires
Evonik	specialty chemicals	Troxel	tubing
Florim	floor and wall porcelain tile	University of Tennessee at Knoxville	university
Fluid Routing Solutions	metallic tubes and hoses	University of Tennessee at Martin	University
Georgia Pacific	gypsum board	US Brick	bricks
Glasteel	fiberglass panels	Valero	fuel refining
Granges Americas	aluminum rolling and recycling	Valley Concrete	concrete and septic tank building
Hankook	passenger vehicle, truck, and bus tires	Vanderbilt	university
Hydrasports Boats	boats	Virnig	skid steer attachments
Johns Manville	fiber forming, fiberglass	WestLake Chemical	PVC fittings and piping
Jones Brothers	asphalt	Zoechem	zinc oxide powder and pellets
Kellogg	food		

## Centralized Power Generation

Natural gas is used to produce electricity for electric utilities as well as for the combined-heat-and-power plants (CHP) of a small number of commercial and industrial businesses. (Examples include the Vanderbilt University Power Plant and Packaging Corporation of America.) In 2022, electric utilities accounted for the lion’s share of electricity production (92.0 percent), falling slightly from 2010 (95.6 percent of the total). Between 2010 and 2022, overall natural gas-supported electricity production was up 621.2 percent in Tennessee.<sup>12</sup>

<sup>12</sup> U.S. Energy Information Agency, EIA 923. All but one commercial and industrial CHP plants were connected to the grid in 2022, enabling the sale of power to the public.

The steady growth since 2010 masks a relatively inconsequential role for natural gas in electricity production in previous years. The robust growth is due to a small number of factors including the retirement of coal fired power plants, environmental concerns over coal use, relatively low natural gas prices and the higher thermal efficiency of new natural gas-fired facilities.<sup>13</sup>

TVA is actively involved in expanding its access to natural gas supplies through pipeline expansions like Enbridge's Ridgeline project that would be built along the existing East Tennessee Natural Gas pipeline network.<sup>14</sup> This important increase in pipeline capacity would fuel the conversion of the Kingston Fossil plant from coal to natural gas supporting further growth in natural gas use. However, as noted above, this puts additional pressure on an already constrained pipeline system.

Employment data for fossil fuel power generation does not break out figures for coal versus natural gas fired facilities. Total employment for fossil fuel power generation totaled 578 in 2022, down from 738 jobs in 2010. These figures suggest efficiency gains for natural gas power generation. Figure 6 (above) shows where natural gas power plants are located across the state.

## Conclusion

Tennesseans receive significant benefits from having access to safe, reliable and competitively-priced natural gas supplies. Ensuring access to natural gas is the task of TGA local distributors which acquire natural gas in the national marketplace and move it from interstate and intrastate pipelines across their own distribution networks for final use. In addition to the benefits of natural gas as a fuel source are the economic impacts arising from the employment, nonpayroll spending, and investment activities of local natural gas distributors. Other benefits arise through the ability of natural gas to meet the needs of industry and power producers across the state.

The economic impact of TGA natural gas distribution activity on the state is substantial, accounting for 7,166 jobs, \$298.4 million in income, and \$352.6 million in state GDP (see Tables 2, 3, and 4). Combining natural gas sectors, including natural gas extraction, pipeline transportation, and natural gas distribution, generates a total impact of 8,594 jobs, \$394.7 million in income, and \$466.3 million in state GDP.

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<sup>13</sup> See U.S. Energy Information Agency, [https://www.eia.gov/todayinenergy/detail.php?id=44436#:~:text=For%20example%2C%20in%202019%2C%20of,3.3%20quads\)%20into%20net%20generation.](https://www.eia.gov/todayinenergy/detail.php?id=44436#:~:text=For%20example%2C%20in%202019%2C%20of,3.3%20quads)%20into%20net%20generation.)

<sup>14</sup> For more information, see <https://www.enbridge.com/projects-and-infrastructure/projects/ridgeline-expansion-project>.

The **Tennessee Gas Association** (TGA), established in 1962, is a non-profit association created by and for the natural gas distribution systems across the State. TGA offers members opportunities to enhance their professional careers, company operations and industry contacts through various conferences and training sessions throughout the year. Member classifications include Corporate, Business Partner, Pipeline, Marketer and Public Housing Authorities. TGA is governed by a Board of Directors made up of member employees from across the State. Employing our own lobbyist gives TGA's membership a collaborative voice in legislative arenas as we advocate for the future of natural gas in Tennessee.

### ***Vision Statement***

Strengthening the foundational role of natural gas in Tennessee's energy future.

### ***Mission Statement***

Equipping members to promote natural gas in the communities we serve.

### ***Core Values***

- ❖ **Promote:** Develop and support outreach programs that drive the direct and safe use of Natural Gas.
- ❖ **Advocate:** Proactively work to create public goodwill towards natural gas and the natural gas Industry through maintaining an active presence in legislative, regulatory, and public forums.
- ❖ **Collaborate:** Facilitate programs to actively engage all members and industry partners in sharing best practices and new ideas to improve the success of their respective organizations.
- ❖ **Educate:** Provide training opportunities that enhance the knowledge and skill sets required to safely and effectively lead, manage, and operate the natural gas industry in Tennessee.

### APPENDIX 1: TGA Membership, 2023

Company Name	Year Established	Company Name	Year Established
Adamsville Gas	1962	Lebanon Gas Department	1952
Appalachian Natural Gas Distribution	1992	Lenoir City Utilities Board	1951
Athens Utilities Board	1951	Lewisburg Gas Department	1950
Athens Utilities Gas Dept., City of	1952	Lexington Gas System	1955
Atmos Energy	1915	Linden, Town of	1958
Bedford County Utility District	2000	Livingston Gas Department, Town of	1958
Bells Gas & Water, City of	1983	Lobelville Gas Company	1957
Bolivar Utility Department	1954	Loretto Gas System, City of	1935
Bridgeport Utilities	1956	Loudon Utilities	1939
Brownsville Energy Authority	1952	Madisonville Gas System	1951
Centerville, Town of	1955	Marion Natural Gas	1956
Chattanooga Gas Company	1860	Martin, City of	1950
Citizens Gas Utility District	1958	Mauzy City Gas Department	1963
Claiborne Utilities District	1998	Memphis Light, Gas & Water	1939
Clarksville Gas & Water Department	1953	Middle TN Natural Gas Utility District	1955
Clifton Gas Department	1991	Middleton, City of	2013
Collinwood Gas Department, City of	1959	Mt. Pleasant Gas System	1960
Cookeville Gas Department	1952	Munford, City of	1980
Covington, City of	1932	Navitas TN NG, LLC.	2010
Crockett Public Utility District	1953	Oak Ridge Utility District	1951
Dunlap Natural Gas System	1964	Paris-Henry County Public Utility District	1958
Dyersburg Gas System	1949	Parsons Natural Gas	1954
Elk River Public Utility District	1955	Piedmont Natural Gas	1851
Etowah Utilities	1952	Pikeville Natural Gas	1966
Fayetteville Public Utilities	1949	Portland Natural Gas System	1950

*(continued on next page)*

**APPENDIX 1: TGA Membership, 2023 (continued from previous page)**

<b>Company Name</b>	<b>Year Established</b>	<b>Company Name</b>	<b>Year Established</b>
Friendship, City of	1913	Powell-Clinch Utility District	1959
Gallatin Public Utilities	1952	Powell-Valley Gas Utility District	1998
Gallaway, City of	1966	Pulaski Natural Gas	1957
Gibson County Utility District	1953	Ridgetop Natural Gas	1935
Greater Dickson Gas Authority	1949	Ripley Gas Department	1959
Halls, Town of	1953	Rockwood Water & Gas	1958
Hardeman Fayette Utility District	1960	Savannah Utility Department	1952
Harriman Utility Board	1936	Scottsville Gas Company	1944
Hawkins County Gas Utility District	1957	Selmer Utility Division	1960
Henderson Utility Department	1953	Sevier County Utility District	1955
Hohenwald, City of	1950	Smyrna Natural Gas System	1957
Horton Highway Utility District	1957	Somerville, Town of	1955
Humboldt Utilities	1939	South Fulton, City of	1959
Humphreys County Utility District	1955	Springfield Gas System	1949
Jackson Energy Authority	1959	St. Joseph, City of	1994
Jamestown Gas System	1964	Sweetwater Utilities Board	1950
Jefferson-Cocke County Utility Dist.	1957	Tipton County, First Utility District of	1962
Knoxville Utilities Board	1854	Unicoi County Gas Utility District	1963
Lafayette Gas Department	1953	Waynesboro, City of	1960
Lake County Utility District	1957	West TN Public Utility District	1955
Lawrenceburg Utility Systems	1952		

## TENNESSEE GAS ASSOCIATION

### **2023-2024 TGA Officers**

Mike Davidson, President, Middle TN Natural Gas  
Rob Neil, 1<sup>st</sup> Vice President, Powell-Clinch Utility District  
Brent Dillahunty, 2<sup>nd</sup> Vice President, West TN Public Utility District  
Taylor Erskin, Treasurer, Greater Dickson Gas Authority  
Jane Brown, Secretary, Middle TN Natural Gas

### **2023-2024 TGA Board of Directors**

Christina Christiansen, Atmos Energy Corporation  
Jimmy Daniel, Magnolia River  
Eddie Davidson, Piedmont Natural Gas  
Mike Davidson, Middle TN Natural Gas  
Virgil Deanes, Jr., Memphis Light, Gas & Water  
Brent Dillahunty, West TN Public Utility District  
Keith Garth, Marion Natural Gas  
Randall Griner, Fayetteville Public Utilities Gas Department  
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Tyler Hayes, Clarksville Gas & Water Department  
Allyson Horner, Gibson County Utility District  
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Jocelyn McInturff, Knoxville Utilities Board  
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Eddie Moffitt, Clark Engineering & Utility Solutions  
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Mark O'Neal, Greater Dickson Gas Authority  
Jeff Patterson, Oak Ridge Utility District  
Joey Sauls, Enbridge, Inc.  
Tim Whitson, Unicoi County Gas Utility District  
Braxton Williams, Jackson Energy Authority

### **Tennessee Gas Association Staff**

Kelley Zamboni, Executive Director  
Jamie Wellman, Director of Member Services