



ADVANCING AMERICA'S Hospitality

Advancing America's Hospitality: The Value of Natural Gas to the U.S. Hospitality Sector

September 2023

UPDATED December 2023


American Gas Association

Table of Contents

Disclaimer..... 1

Letter from the President & CEO: The Essential Role of Natural Gas in the Hospitality Industry..... 2

Executive Summary..... 4

Introduction and Context..... 6

Natural Gas Consumption and the U.S. Hospitality Sector..... 8

 Natural Gas Consumption 8

 Cost Impacts 13

How Natural Gas is Used in the U.S. Hospitality Sector 15

 Cooking 15

 Water Heating 15

 Space Heating 16

Economic Contributions of the U.S. Hospitality Sector 17

Appendix A..... 23

 Approach and Methodology for Estimating Natural Gas Consumption..... 23

 Approach and Methodology for Assessing Cost Impacts 24

Appendix B 26

Disclaimer

This report was prepared for the American Gas Association, with the assistance of its contractors, to be a source of independent analysis. Neither the American Gas Association, its contractors, nor any person acting on their behalf:

- Makes any warranty or representation, express or implied, with respect to the accuracy, completeness, or usefulness of the information contained in this report, or that the use of any information, apparatus, method, or process disclosed in this report may not infringe privately owned rights,
- Assumes any liability, with respect to the use of, damages resulting from the use of, any information, method, or process disclosed in this report,
- Recommends or endorses any of the conclusions, methods or processes analyzed herein.

References to work practices, products or vendors do not imply an opinion or endorsement of the American Gas Association or its contractors. Use of this publication is voluntary and should be taken after an independent review of the applicable facts and circumstances.

This nonpartisan study is based on independent analysis and research and is not intended to advocate a particular view on any specific legislation or encourage readers to act with respect to specific legislation. Conclusions reached in this report are the product of objective research and do not necessarily represent the opinions of FTI Consulting.

Letter from the President & CEO: The Essential Role of Natural Gas in the Hospitality Industry

Natural gas and gas infrastructure is essential to our economy and provides reliable and affordable energy to fuel our homes and businesses. While most of us are familiar with natural gas, how it contributes to the everyday operations of critical American industries creating goods and services is not always well understood. One such American industry is hospitality.

In our second analysis of the *Advancing America* series, we explore how businesses such as hotels, restaurants, amusement parks, museums, and resorts depend on natural gas. Each year, these industries consume as much natural gas as the entire state of Maryland to create world-class meals and the seamless experience patrons expect. So while we may not always see natural gas when we enjoy a meal or take our loved ones on vacation, the benefits to consumers and businesses are significant.

Natural gas is central to so much of the fun we experience and the time we spend with friends, family, and the world around us. Hotels use natural gas to provide hot showers, clean linens, and reliable power to keep the lights on. In the winter, heated pools and saunas allow us to relax, and fireplaces or heat lamps allow us to stay warm while connecting with family and friends. And in the kitchen, natural gas fuels the stoves and ovens that produce world-class cuisines.

For many chefs and customers, natural gas has a significant cultural role in food preparation. Chefs of all backgrounds use natural gas cooking to infuse flavors into their dishes, often requiring or using the unique characteristics provided by this fuel and its flames to create unmistakable, unforgettable, and beloved international dishes. Ryan Park, general manager of Park's BBQ in California, recently said, "The tabletop gas grill is an important part of our Korean food culture."¹

The costs of removing gas as a fuel option can be significant. This analysis finds that mandated electrification of the industry would result in increased fuel expenditures of \$23.2 billion through 2050, threatening an industry that supports 16.9 percent of all U.S. jobs, \$1.8 trillion in GDP, and \$161 billion in state and local taxes when accounting for direct, indirect, and induced economic impacts.² And with restaurant profit margins hovering only around 5 percent, increased energy costs translate directly to higher consumer costs and reduced employment. Those job losses would fall disproportionately on minority populations, as the hospitality sector includes a sizable workforce of African-American, Asian, and Hispanic/Latino community members.

"The tabletop gas grill is an important part of our Korean food culture."

Ryan Park
Park's BBQ
(Los Angeles, Calif)

¹ <https://www.latimes.com/food/story/2022-06-02/gas-stove-ban-chinese-korean-bbq-electric-new-buildings-restaurants-future>

² Using 2022 employment level of 158,297,000 <https://fred.stlouisfed.org/series/CE16OV#0>

Restrictions would stymie the entrepreneurial spirit of aspiring chefs from diverse backgrounds while allowing celebrity chefs to receive exceptions to the rule.³ Such “one-off” exemptions may demonstrate the indispensable value of natural gas, but they also ignore the culinary aspirations of would-be restaurateurs in favor of those who are already established and limit the number of unique restaurant offerings in a given city.

Indeed, ideologically driven bans on this affordable and reliable source of energy represent a direct threat to the entire hospitality industry’s ability to operate.

The findings of this report highlight the vital role of natural gas in the hospitality sector. All stakeholders, including state and federal policymakers, consumer protection advocates, and labor advocates, should pay close attention to these findings and the significant impact that restrictions on natural gas could have for so many iconic businesses and destinations.

The U.S. hospitality sector has world-class appeal, attracting guests from all over the world and providing unmatched cuisines and entertainment. Natural gas's role in enabling those unique experiences may be underappreciated, but it is indispensable. Hopefully, with this analysis, it will no longer be overlooked.

Karen Harbert

President and CEO, American Gas Association

³ On May 17, 2023, Celebrity Chef Jose Andreas’ new restaurant in Palo Alto, Calif., was granted an exemption from the city’s reach code preventing new building from utilizing natural gas, and was permitted a natural gas connection. <https://www.bloomberg.com/news/articles/2023-05-18/chef-jose-andres-wins-exemption-for-gas-stoves-in-new-restaurant>

Executive Summary

The American Gas Association engaged FTI Consulting, Inc. (“FTI”) to describe the economic value natural gas provides to the U.S. hospitality sector, which is defined to include recreation,⁴ accommodations,⁵ and food service.⁶ The findings in this analysis are based on data from the U.S. Energy Information Administration and IMPLAN.

Natural gas plays a critical role in the hospitality industry. It powers our hotels for hot showers and clean linens and enables chefs to infuse unique flavors into their dishes. It serves as a feedstock to manufacture packaging that keeps our food fresh and provides energy to the fryers used to make our favorite wings or fries. At one-third the unit price of electricity, natural gas keeps costs affordable for the hospitality industry, allowing budget-conscious customers to enjoy a dinner out or their favorite movie. Due to its myriad of applications, natural gas is a hard-to-replace element in a highly competitive set of industries known for their low margins.

Unfortunately, some states and localities are advocating for restrictions on natural gas without carefully considering the effect on hotels, restaurants, amusement parks, museums, resorts, and consumers. This analysis shows that mandated electrification would negatively impact the hospitality sector.

This study finds that:

- The U.S. hospitality sector supports **16.9 percent of all U.S. jobs, \$1.8 trillion in GDP, and \$161 billion in state and local taxes** when accounting for direct, indirect, and induced economic impacts.
- The U.S. hospitality sector supports **17.6 million direct jobs, 4 million indirect jobs, and 5.2 million induced jobs**. Many people within the industry are also from African-American, Asian, and Hispanic/Latino communities, meaning that job losses due to natural gas bans or limits would fall disproportionately on minority populations.

The hospitality sector directly consumes nearly

387 billion cubic feet

of natural gas each year, more than Maryland’s natural gas consumption, with a population of 6.16 million.

⁴ Performing arts companies; commercial sports except racing; racing and track operations; independent artists, writers, and performers; promoters of performing arts and sports and agents for public figures; museums, historical sites, zoos, and parks; amusement parks and arcades; gambling industries (except casino hotels); other amusement and recreation industries; fitness and recreational sports centers; bowling centers

⁵ Hotels and motels, including casino hotels; other accommodations

⁶ Full-service restaurants; limited-service restaurants; all other food and drinking places

- Businesses within the hospitality sector directly consume over 387 billion cubic feet of natural gas each year during day-to-day operations. **This is greater than Maryland’s total natural gas consumption (in all sectors) each year.**⁷
- Food service is the largest subcomponent of the U.S. hospitality sector, with the most “acute” need for natural gas during food preparation. A survey from the National Restaurant Association reported **76 percent of restaurants use gas for cooking.**⁸
- Mandated electrification of the U.S. hospitality sector would **cost the U.S. economy \$23.2 billion in increased fuel costs through 2050 and lower GDP by \$46.0 billion over the same timeframe, putting tens of thousands of jobs at risk.**
 - New York has the highest cost for fuel switching from natural gas to electricity, where **replacing all gas with electricity would cost the state economy over \$8.1 billion through 2050.** This is significant because the state recently enacted a statewide phase-out of natural gas in most new homes and commercial and industrial facilities⁹.
 - Other states like Massachusetts, New Jersey, and Minnesota – where statewide bans or limits on natural gas have been considered – would rank among the top 10 in highest fuel costs for switching from gas to all-electric with their relatively cold climates.

⁷ 301 Bcf in 2022 according to EIA https://www.eia.gov/dnav/ng/ng_cons_sum_a_EPG0_VC0_mmcf_a.htm

⁸ <https://restaurant.org/nra/media/downloads/pdfs/advocacy/2022/banning-natural-gas-at-the-local-level.pdf>

⁹ New York’s restriction applies to new buildings under seven stories in 2026, and larger buildings in 2029, and does exempt restaurants and other select commercial or manufacturing facilities. <https://www.washingtonpost.com/climate-environment/2023/05/03/newyork-gas-ban-climate-change/>

Introduction and Context

The hospitality sector was among the hardest hit sectors by the pandemic. Restaurants were forced to close, and hotels had to lay off workers as demand cratered. After COVID-19 restrictions were lifted, demand for these services soared, but inflation and labor shortages have created new challenges in the post-pandemic economy. As such a critical part of so many lives, we should be exploring solutions that can help this sector accelerate its recovery, not holding it back with the added burden of higher energy prices and mandates to replace appliances and other expensive equipment.

Natural gas is critical to maintaining and growing the U.S. hospitality sector. Direct use includes heating buildings and structures, food preparation, drying and laundering services, and water heating. Natural gas production also benefits propane production and consumption. Propane is a natural gas liquid (“NGL”) often produced alongside natural gas, which allows for similar direct use. This report conservatively excludes these benefits to the U.S. hospitality sector, though it would be a factor in the real world for certain customers.

Beyond significant direct use of natural gas by the U.S. hospitality sector, natural gas is also a salient component of the preproduction and postproduction phases of the U.S. hospitality sector through “indirect” use of natural gas in its supply chain. As the opening entry in this series, Advancing America’s Agriculture, showed, natural gas is a critical input for the agriculture sector and its suppliers, especially agrochemical manufacturers. Agriculture and food processing produces the food inputs for final preparation for the 695,000 food service establishments nationally.¹⁰

Number of restaurant establishments nationwide	Number of arts, entertainment, and recreation establishments nationwide	Number of hotel establishments nationwide
695,000*	176,800	77,300

*enough for each state to have 13,620 restaurants, or one restaurant for every 480 Americans

Natural gas is generally the lowest-cost option for space and water heating for the various commercial structures in the U.S. hospitality sector. Hospitality services are also known as one of the U.S. economy's most competitive and low-margin sectors. For example, restaurants have historically earned approximate profit margins of 5 percent and were deeply affected by the COVID-19 pandemic.¹¹ Any increase in cost can pass through to workers, either in the form of fewer employment opportunities for

¹⁰ <https://www.bls.gov/iag/tgs/iag722.htm>

¹¹ <https://restaurant.org/research-and-media/research/economists-notebook/analysis-commentary/bottom-line-impact-of-rising-costs-for-restaurants/>

hospitality workers or higher prices for customers, reducing their income. In this way, natural gas's availability plays a crucial role in shaping decisions on employment and business offerings, and where investors decide to open new businesses.

El Cholo, the oldest Mexican restaurant in Los Angeles, recently added a new location in Salt Lake City.

In talking about the expansion to Utah, third-generation owner Ron Salisbury said California is becoming "less friendly" to restaurants, including new restrictions on natural gas stoves and other appliances.¹² On the other hand, Utah was among the first states to pass a consumer protection law ensuring homes and businesses can access natural gas.¹³

Natural gas is not just a utility but an irreplaceable component in many cooking styles. According to a survey from the National Restaurant Association, 76 percent of restaurants depend on gas for cooking.¹⁴ There is also a strong cultural element to cooking styles that makes gas essential for a variety of cuisines. Certain techniques, such as the stir-fry cooking necessary in many popular Asian cuisines, would be impossible without natural gas because "the way flavors are developed – such as oil sizzled as flames lick up and around the pan – are virtually unique to stir-fry cooking, especially those dishes that call for wok hei, a kind of charred quality that occurs when ingredients are tossed in a well-seasoned wok."¹⁵

In response to a proposed ban on natural gas in Los Angeles, the California Restaurant Association said last year that because of the "sheer number of restaurants in L.A., this will have a massive impact on the future of the restaurant industry and how many diverse cuisines are offered."¹⁶ Chinese and Korean chefs in Los Angeles are especially worried about what a mandated switch to electricity could mean for the essential component that has complemented Asian cuisine for generations.

This report examines the full scope and scale of the U.S. hospitality sector, the sector's direct and indirect use of natural gas, and highlights use cases for gas. It begins by describing the natural gas demand from the sector, as implied by federal economic and energy data.

A survey from the National Restaurant Association reported 76 percent of restaurants use gas for cooking.

¹² <https://www.axios.com/local/salt-lake-city/2023/06/14/el-cholo-salt-lake-city-mexican-restaurant-utah>

¹³ <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/gas-ban-monitor-momentum-gathers-to-prohibit-all-electric-building-requirements-63336917>

¹⁴ <https://restaurant.org/nra/media/downloads/pdfs/advocacy/2022/banning-natural-gas-at-the-local-level.pdf>

¹⁵ <https://www.washingtonpost.com/food/2023/02/08/chefs-induction-stoves/>

¹⁶ <https://www.latimes.com/food/story/2022-06-02/gas-stove-ban-chinese-korean-bbq-electric-new-buildings-restaurants-future>

Natural Gas Consumption and the U.S. Hospitality Sector

Natural gas has emerged as a noteworthy energy source for the U.S. hospitality sector because it is a reliable and cost-effective energy solution. These qualities have driven economic growth and have been paramount in operational efficiency. Aside from these economic benefits, natural gas is renowned for its environmental benefits and lower carbon emissions when compared to fossil fuels such as coal or petroleum products.¹⁷ This attribute aligns well with the growing sustainability initiatives within the hospitality industry, where businesses are increasingly striving to reduce their carbon footprints by embracing greener practices.¹⁸

Natural Gas Consumption¹⁹

The consumption of natural gas associated with the U.S. hospitality sector was estimated using IMPLAN data²⁰ and data covering gas consumption from the U.S. Energy Information Administration (“EIA”).²¹ IMPLAN is an “input-output” (or “IO”) model of national and regional economies that shows the contributions of an economic sector, specific enterprise, or policy to the economy. FTI used IMPLAN to estimate the full impact of the U.S. hospitality sector (“direct”) by accounting for its supply chain (“indirect”) and its direct and indirect employee spending (“induced”). Appendix A describes the methodology and approach used to estimate natural gas consumption by the hospitality sector.

When including the direct use of natural gas by the U.S. hospitality sector and the indirect use in its industrial supply chain, the U.S. hospitality sector consumes roughly 595.1 Bcf. **This is more than Wisconsin’s total natural gas consumption (in all sectors) each year.**²² Such a level of natural gas consumption is also equivalent to over 4.9 percent of all commercial and industrial gas consumption across the U.S. economy, based on EIA data on monthly gas consumption by sector.

The hospitality industry’s share of commercial and industrial consumption exceeds 8.0 percent in 10 states and the District of Columbia. Many of the states, like Nevada, Hawaii, and Vermont, are known for tourism hubs like Las Vegas and Burlington.

¹⁷ <https://www.eia.gov/energyexplained/natural-gas/natural-gas-and-the-environment.php>

¹⁸ <https://sustainablehospitalityalliance.org/our-work/climate-action/>

¹⁹ All figures and tables related to natural gas demand use full-year 2022 data as their underlying source

²⁰ <https://implan.com>

²¹ <https://www.eia.gov/>

²² 579.6 Bcf in 2022 according to EIA https://www.eia.gov/dnav/ng/ng_cons_sum_a_EPG0_VCO_mmcf_a.htm

States in the Northeast and the Midwest with colder climates, such as Minnesota, Iowa, Wisconsin, Illinois, Michigan, Indiana, Ohio, Pennsylvania, New York, New Jersey, and six New England states, generally tend to rely more heavily on natural gas for space and water heating.

Table 1 – U.S. natural gas consumption supported by the U.S. hospitality sector

Economic Sector	Units	Direct Demand ²³	Indirect Demand ²⁴	Direct & Indirect
Commercial	Bcf	387.5	45.8	433.3
Industrial	Bcf	0.0	161.9	161.9
C + I²⁵	Bcf	387.5	207.6	595.1

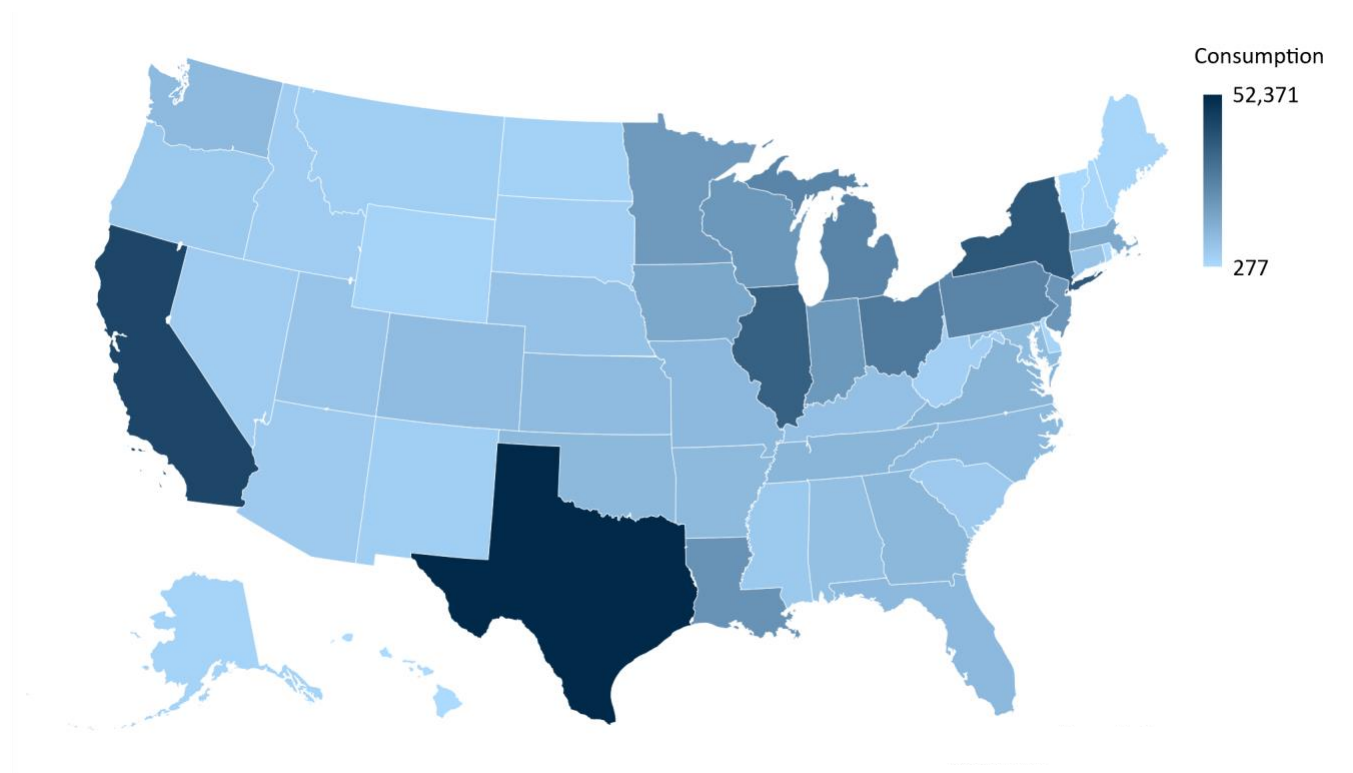
SOURCE: IMPLAN Model, EIA Natural Gas Consumption Data, FTI Calculations

Figure 1 and **Figure 2** show the consumption and the share of commercial and industrial consumption supported by the U.S. hospitality sector by state (**Figure 1**) and the share of commercial and industrial gas demand supported by the sector for each state (**Figure 2**). An important factor that drives differences between states is the size of the state, where larger state economies (e.g., California in **Figure 1**) have larger absolute results for natural gas demand. Another important factor is state specific industry mixtures (e.g., Texas and Louisiana in **Figure 2**, where a large portion of gas consumption is attributable to the petrochemical cluster on the Gulf Coast and the heavy use of natural gas in the manufacturing of plastic packaging).

²³ The EIA Commercial Buildings Energy Consumption Survey shows total 2018 gas consumption of 388.0 Bcf across hotels, motels or inns, other lodging, fast food, restaurants or cafeterias, recreation, and entertainment or culture principal building activities. This was adjusted to 387.5 Bcf for 2022 based on total commercial demand in 2022 falling 0.1% from 2018 levels.

²⁴ Indirect gas demand, or the demand from industries in the hospitality supply chain, was determined using an input-output table that specified the share of each industry's output derived from natural gas purchases.

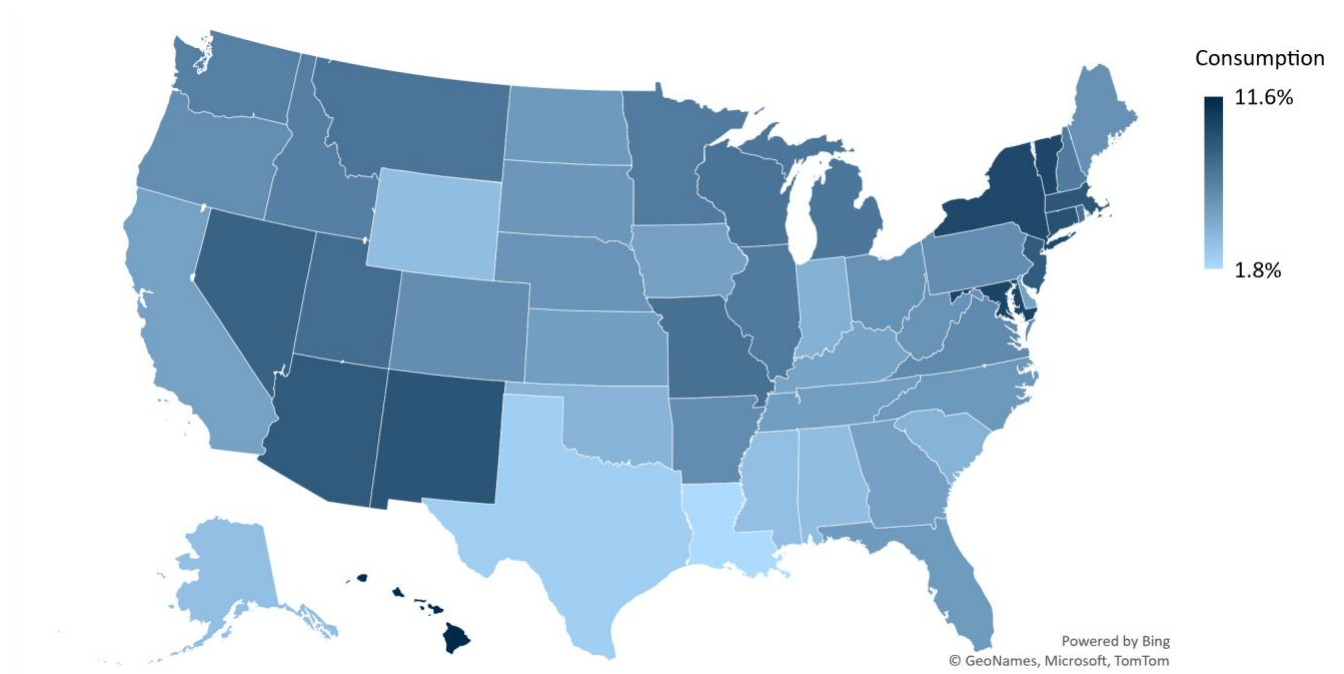
²⁵ Commercial sector plus industrial sector

Figure 1 – State natural gas consumption supported by the hospitality sector (MMcf)

SOURCE: IMPLAN Model, EIA Natural Gas Consumption Data, FTI Calculations

Figure 2 shows the “intensity” of gas consumption supported by the U.S. hospitality sector for each state energy sector and economy relative to all commercial and industrial gas consumption. Some of the major highlights and takeaways from **Figure 2** include:

- The states most reliant on tourism, such as Nevada, Hawaii, and Vermont, have some of the largest share of their commercial and industrial natural gas consumption supported by the U.S. hospitality sector. While the U.S. hospitality sector is distributed nationally, it is over-indexed within states with tourism hubs that attract visitors from out of the region.
- The share of commercial and industrial demand supported by the U.S. hospitality sector tends to be higher in the Northeast and Southwest.
- No state has less than 1.8 percent of its commercial and industrial gas consumption supported by the U.S. hospitality sector. The Gulf Coast economies of Texas and Louisiana have the lowest shares due to robust industrial gas consumption in the states, but each state has substantial absolute gas consumption supported by the U.S. hospitality sector. This amounts to over 52.3 Bcf for Texas and 21.0 Bcf for Louisiana.

Figure 2 – Share of state natural gas consumption supported by the hospitality sector (%)

SOURCE: IMPLAN Model, EIA Natural Gas Consumption Data, FTI Calculations

Table 2 shows the economic sectors with the highest level of gas consumption either directly a part of or indirectly related to the U.S. hospitality sector. The most prominent sectors in **Table 2** are a part of several relevant categories, which include the following types of sectors:

- The economic sector with the highest level of consumption from **Table 2** is the U.S. hospitality sector's restaurant or cafeteria food service component. This is sensible because food service is the largest of the three subcomponents of the U.S. hospitality sector, and food service has the most “acute” need for natural gas for cooking.
- The petrochemical sector is the largest supply-chain sector from **Table 2**. Petrochemicals are a component of the supply chain for many materials and industries, including “plastics, fertilizers, packaging, clothing, digital devices, medical equipment, detergents, tires, and many others.”²⁶ Applications for the U.S. hospitality sector from this list include plastics and packaging for the food service sector and textiles and detergents for hotel linens.
- Other supporting sectors include construction (maintenance and repair of nonresidential structures), primary materials (e.g., iron and steel, etc.), chemicals, transportation, and the many categories of food processing that produce food for restaurants.

²⁶ <https://www.iea.org/reports/the-future-of-petrochemicals>

Table 2 – Largest consumers of natural gas by the U.S. hospitality sector and its supply chain (MMcf)

Rank	Economic Sector	Direct	Indirect
-	Food service – Restaurant or cafeteria	106,851	-
-	Lodging – Hotels	103,856	-
-	Public assembly - Recreation	84,882	-
-	Public assembly – Entertainment or culture	32,954	-
-	Food service – Fast Food	30,957	-
-	Lodging – Motel or inn	15,978	-
-	Lodging – Other lodging	11,983	-
1	Petrochemical manufacturing	-	17,501
2	Maintenance and repair construction	-	12,384
3	Other basic organic chemicals	-	9,600
4	Iron and steel mills	-	7,753
5	Other local government enterprises	-	6,894
6	Truck transportation	-	6,225
7	Grain farming	-	6,198
8	Beef cattle ranching and farming	-	6,051
9	Dairy cattle and milk production	-	5,731
10	Cheese manufacturing	-	4,574
11	Paper mills	-	4,345
12	Couriers and messengers	-	4,281
	ALL OTHERS >>	-	116,111
	TOTAL >>	387,461	207,648

SOURCE: IMPLAN Model, EIA Natural Gas Consumption Data, FTI Calculations

Costs Impact of Replacing Gas in the U.S. Hospitality Sector

FTI constructed an illustrative and representative scenario using federal energy data and information from the IMPLAN model to analyze the cost impact of replacing natural gas with electricity in the U.S. hospitality sector. This scenario is not the only possible future for the U.S. energy sector but presents a plausible pathway with straightforward assumptions. The scenario relies upon the EIA’s 2023 Annual Energy Outlook’s Reference Case. Appendix A further describes the approach and methodology used to estimate cost impacts of replacing natural gas with electricity in the hospitality sector.

Cost Impacts

The cost impacts of the scenario modeled by IMPLAN in this report includes the following highlights:

- Between 2026 and 2050, the cumulative increase in net costs due to increased fuel expenditures for the U.S. economy would be \$23.2 billion. These costs would have real-world impacts on the U.S. hospitality sector and its customers through higher operational costs affecting households.
- The increased costs, passed along to consumers, result in a decline of \$46.0 billion in GDP from 2026 through 2050 and a decline of 394.6 thousand job-years.
- New York alone would be responsible for approximately 35 percent of the \$23.2 billion in the total U.S. cost increase. New York has a large economy and population, an extensive entertainment and tourism sector centered on leisure amenities like Broadway and business travel from around the world, and is comparatively cold, collectively making the impact on the Empire State the largest nationally.

shows the states that would be most affected by the increased costs. New York would have the largest impacts of over \$8.1 billion, followed by New Jersey with an impact of over \$2.2 billion. Other states in the Northeast and Midwest, including Massachusetts, Michigan, and Minnesota, would also be significantly impacted.

Table 3 – States with the highest net fuel costs from replacing gas with electricity (2023 \$ millions)

Rank	State	Net Costs (2026-2050)
1	New York	\$8,113
2	New Jersey	\$2,201
3	Massachusetts	\$2,198
4	Michigan	\$2,140
5	Minnesota	\$1,638
6	Ohio	\$1,472
7	Wisconsin	\$1,334

8	Pennsylvania	\$1,172
9	Connecticut	\$1,137
10	Illinois	\$1,064
	ALL OTHERS >>	\$738
	TOTAL >>	\$23,203

SOURCE: SEDS Energy Demand, AEO Reference Case, American Gas Association²⁷, FTI Calculations

The U.S. hospitality sector is made up of low-margin subsectors. Most restaurants operate on low-profit margins of approximately 5 percent.²⁸ The situation is even more extreme for accommodations, arts, entertainment, and recreation with low profit margins. According to a public dataset on sector-level profitability posted by the Stern School of Business at New York University,²⁹ hotels have a net margin of 1.1 percent and entertainment and recreation of 0.9 percent.

Low margins result from a high degree of competition. According to the U.S. Bureau of Labor Statistics, there are 695,000 restaurant establishments nationally.³⁰ This is enough for each state to have 13,500 restaurant establishments on average³¹ or the equivalent of one restaurant establishment for every 480 Americans.

There are 77,300 accommodation establishments nationally.³² Hotels have low margins because of difficulties differentiating one hotel room from another without incurring additional costs (e.g., a remodeled hotel might be more attractive to tourists but require capital investments by proprietors). The transparency of pricing and its “race to the bottom” because of various travel sites (such as Expedia) make hotel margins difficult to maintain. There are 176,800 establishments for arts, entertainment, and recreation nationally, ensuring ample competition.³³

With little to no room to give on profitability, the most likely outcome of a cost increase for the U.S. hospitality sector is higher prices for customers and downward pressure on wages for workers. Both effects reduce U.S. household income – either reducing workers' nominal wages on one side or reducing consumers' real income through higher prices.

²⁷ https://naturalalliesforcleanenergy.org/wp-content/uploads/2021/08/AGA_Study_On_Residential_Electrification_Jul2018.pdf

²⁸ <https://restaurant.org/research-and-media/research/economists-notebook/analysis-commentary/bottom-line-impact-of-rising-costs-for-restaurants/>

²⁹ https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/margin.html

³⁰ <https://www.bls.gov/iag/tgs/iag722.htm>

³¹ If including the District of Columbia as a *de facto* state economy

³² <https://www.bls.gov/iag/tgs/iag721.htm>

³³ <https://www.bls.gov/iag/tgs/iag71.htm>

Wage and staffing impacts threaten to exacerbate the U.S. hospitality sector's already high turnover rate. According to the U.S. Census Bureau and its Business Dynamics Statistics³⁴ product, the annual turnover rate³⁵ from 2010 to 2018³⁶ for the arts, entertainment, and recreation is 17.8 percent per year. For the accommodation and food service subsectors, the turnover rate of establishments is measured at 22.4 percent per year.

How Natural Gas is Used in the U.S. Hospitality Sector

Natural gas has several important use cases throughout the U.S. economy where alternative energy sources, such as electricity, would not provide the same level of service nor allow for similar products. Examples of these important use cases include:

Cooking

Natural gas provides the energy for commercial and kitchen appliances like ovens and cooktops. Natural gas (and propane) allows for efficient and precise cooking, which saves time, reduces labor costs, and allows restaurants to turn over tables more quickly and serve more customers.

Chefs highly prefer gas ovens and ranges and, in some cases, the only way to prepare certain dishes. Before gas-fired stoves became a political controversy, surveys showed that chefs preferred to cook with natural gas. A 2011 survey showed a 98 percent preference for natural gas;³⁷ a 2014 survey showed a 96 percent preference for natural gas cooktops;³⁸ and a recent survey again showed a 90 percent preference for natural gas.³⁹ In addition to chefs and their preferences, certain dishes cannot be prepared through other means. As the Washington Post observed recently, “Chinese stir-fry cooking is difficult, if not impossible, to replicate with induction burners.”⁴⁰

An open flame is also required to prepare certain types of Mexican food, which has become a staple subcategory of American cuisine. Mexican cooking originated around an open flame: “Mexican natives did not have ovens, so everything was heated over an open fire.”⁴¹

Water Heating

The U.S. hospitality sector has one of the highest needs for water heating. Its needs are sometimes comparable to industrial water heating and steam needs. For the recreation subsector, this even includes heated pools and waterparks with natural gas or propane.⁴²

³⁴ <https://www.census.gov/programs-surveys/bds.html>

³⁵ Defined as the share of establishments either founded or exiting the market each year

³⁶ The “trough” after the Great Recession and the most recent year with historical data

³⁷ <https://www.fpuc.com/new-survey-shows-that-98-of-chefs-prefer-cooking-with-gas/>

³⁸ <https://www.thedailymeal.com/cook/5-reasons-top-chefs-prefer-gas-cooktops>

³⁹ <https://blueflamealliance.com/food-service-resources/equipment/>

⁴⁰ <https://www.washingtonpost.com/food/2023/02/08/chefs-induction-stoves/>

⁴¹ <https://www.thespruceeats.com/methods-used-in-authentic-mexican-cooking-2342659>

⁴² <https://propane.com/2021/02/01/heating-a-large-water-park-affordably-bwp/>

For accommodations, water heating requirements include pools and the guests' use of hot water, especially for showering. Showering at hotels presents an illustrative use case for the rapid services that natural gas-fired water heating provides. Like other types of energy demand,⁴³ the energy requirements for showering has a predictable hourly pattern of a peak between 6:30 AM and 8:30 AM before a slight "bump" in the evening with trace amounts during the day. This is an intuitive hourly shape given our daily routines. That is, travelers and families rise to prepare themselves for their day out with the typical morning shower.

In response, hotels build out their water heating systems to handle peak loads. For example, the Marriott Marquis New York near Times Square has "three boilers the size of a tractor-trailer and about a dozen heat exchangers" to cover 1,996 rooms.⁴⁴ Some even larger hotels can have up to ten boilers to make sure they can always meet peak demand. To offer details, "The vast majority of hotels have conventional tank-storage water heaters, which are powered by gas."⁴⁵

Hotels and outdoor waterparks require natural gas to heat water. This increases the ability of guests to enjoy such amenities throughout the year and of proprietors to keep waterparks open for further weeks or months (drawing in more revenues to cover fixed costs). Pool usage generally decreases once the water temperature drops below the lowest comfortable level of 78°F.⁴⁶

Space Heating

According to the Commercial Buildings Energy Consumption Survey ("CBECS") produced by EIA, among buildings using natural gas in the U.S., the "food service" subsector and "lodging" subsector account for 203,000 structures and 138,000.⁴⁷ Among buildings that use natural gas, food service takes up 987 million square feet, and lodging takes up 5.8 billion square feet. The two categories together are 11.5 percent of all commercial structures using natural gas in the economy and 10.1 percent of all commercial square footage that uses natural gas.

The average square footage of a U.S. home is 2,273 square feet,⁴⁸ which implies the square footage for food service and lodging makes up the equivalent of 29.8 million U.S. homes. Such a large quantity of indoor space requires a commensurate amount of space heating, which natural gas can provide at the highest efficiency and the lowest cost, especially in colder northern states.

⁴³ Such as the demand for air conditioning being at its highest during the hottest part of the day in the late morning and afternoon before the sun sinks towards the west

⁴⁴ <https://www.usatoday.com/story/travel/hotels/2018/12/03/hot-showers-hotels/2154259002/>

⁴⁵ <https://www.base-4.com/water-heaters-for-hotels/>

⁴⁶ <https://pinchapenny.com/pool-life/gas-heater-benefits>

⁴⁷ <https://www.eia.gov/consumption/commercial/data/2018/index.php?view=consumption#c23-c32>

⁴⁸ <https://www.rocketmortgage.com/learn/average-square-footage-of-a-house>

Economic Contributions of the U.S. Hospitality Sector

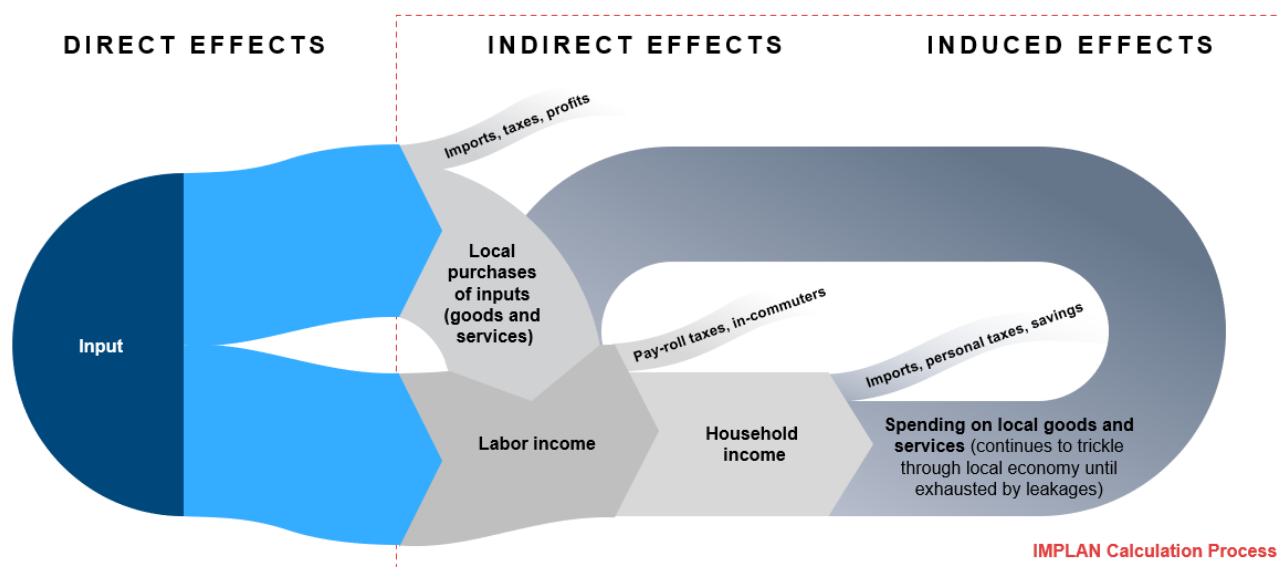
The U.S. hospitality sector represents a significant part of the U.S. economy as measured by jobs, output, labor income, and gross domestic product (“GDP”). Additionally, this economic activity contributes to federal, state, and local tax revenues.

FTI used IMPLAN to estimate the full impact of the U.S. hospitality sector (“direct”) by accounting for its supply chain (“indirect”) and its direct and indirect employee spending (“induced”) as defined further below:

- **Indirect** – The effect of the direct impact on suppliers, such as the agriculture sector creating demand for agrochemicals to support agricultural production.
- **Induced** – The direct economic sector and its suppliers compensate employees for their labor and proprietors and creditors (such as a bank) for their ownership, which in turn stimulates consumer spending when households take this income and spend it.

Figure 3 shows the calculation process for IMPLAN, including the indirect and induced effects:

Figure 3 – IMPLAN calculation process



For an example of direct, indirect, and induced working together, consider a hypothetical ski town in the Mountain West. The local economy is dependent on tourism and outside visitors throughout the year, either hikers and campers in the summer or skiers in the winter.

Tourism would be at the center of the regional economy and constitute the “direct” impact in IMPLAN. Supporting and supplier sectors, such as construction services to build and maintain hotels and stores and maintain vacation homes, would be part of the “indirect” impact in IMPLAN. These sectors would

provide most of the jobs in the region and therefore most of the income, which supports consumer expenditures in the region by residents (e.g., hospitals and schools).

Based on the IMPLAN modeling undertaken for **Table 4**, the U.S. hospitality sector supports 17.6 million direct jobs, 4.0 million indirect jobs, and 5.2 million induced jobs. These employment results would be commensurate with the macroeconomic impacts, including \$3.2 trillion in sales output, \$1.8 trillion in U.S. GDP, and \$1.2 trillion in household labor income. The GDP impact is roughly equivalent to the GDP of New York state (slightly over \$2.0 trillion).

Table 4 – Economic impact of the U.S. hospitality sector

Impact	Units	Direct	Indirect	Induced	Total
Employment	Jobs (millions)	17.6	4.0	5.2	26.8
Sales Output	2023 \$ billions	\$1,284	\$901	\$1,020	\$3,205
GDP	2023 \$ billions	\$770	\$460	\$579	\$1,809
Labor Income	2023 \$ billions	\$547	\$293	\$339	\$1,179
Federal Taxes	2023 \$ billions	\$115	\$73	\$90	\$278
S&L⁴⁹ Taxes	2023 \$ billions	\$59	\$39	\$63	\$161

SOURCE: IMPLAN Model, FTI Calculations

As shown in **Table 4**, the U.S. hospitality sector supports \$278 billion in federal tax revenues, mostly through federal income and payroll taxes, and \$161 million in state and local revenues. This is in the range of estimates provided by peer research. The U.S. Travel Association (“USTA”) estimated state and local collections related to travel of \$84 billion,⁵⁰ though with different industries considered by USTA.

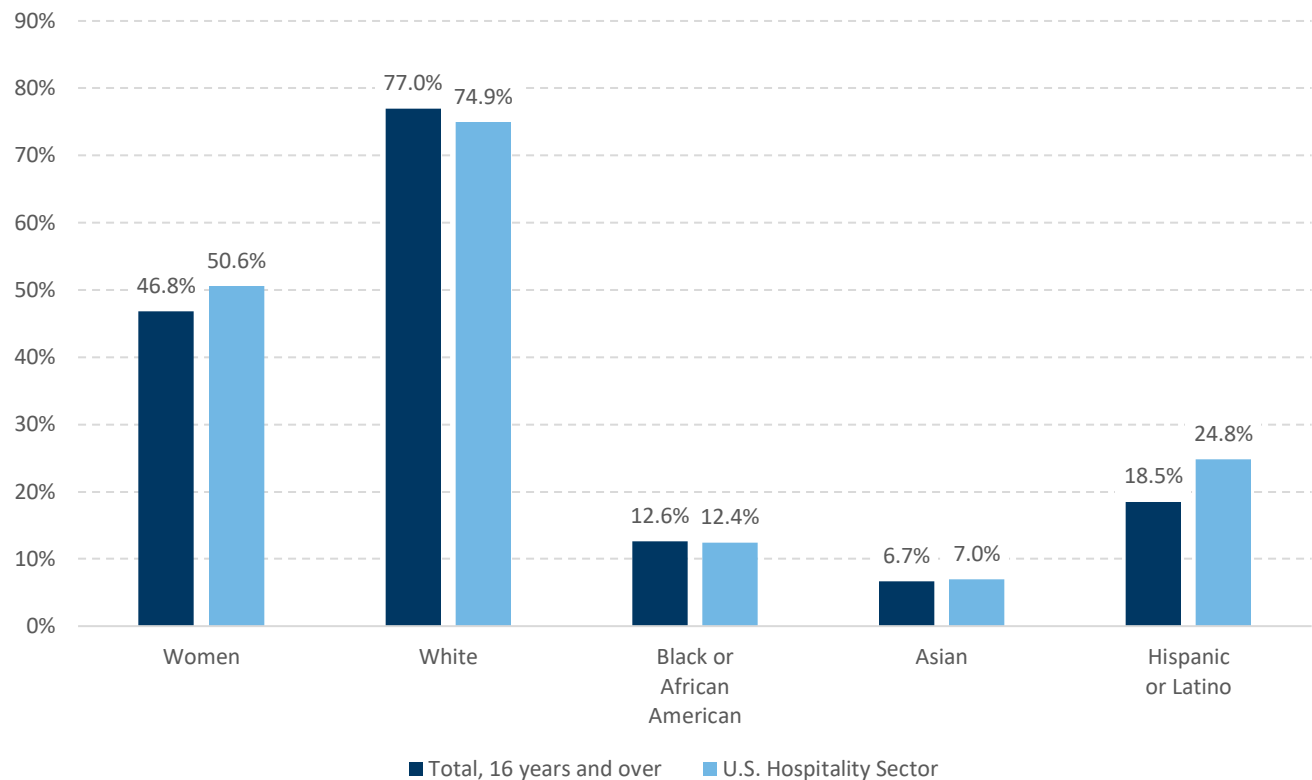
⁴⁹ “S&L” = State and local governments

⁵⁰ <https://www.ustravel.org/sites/default/files/2023-04/economic-impact-answer-sheet.pdf>

For instance, USTA would include air travel in its results but most likely not the total scope of the U.S. restaurant sector.

Additionally, women and Hispanic or Latino individuals make up a disproportionate share of the direct jobs in the U.S. hospitality sector. **Figure 4** illustrates the distribution of the workforce across demographic groups, comparing the U.S. economy as a whole with the specific representation in the hospitality sector.

Figure 4 – Demographics of the U.S. hospitality sector’s workforce compared to all sectors (2022)



SOURCE: U.S. Bureau of Labor Statistics

The U.S. hospitality sector and travel-related hospitality are “over-indexed” in terms of their impact on state and local government finances. Many states exempt food purchased at grocery stores and for preparation at home from their sales taxes to reduce the sales tax’s regressivity. No states exempt prepared food from restaurants, which is considered a luxury purchase.

Like rental cars and other services used mainly by travelers, hotels have heavy excise taxes. Many states and localities earmark those revenues for specific purposes, such as highway improvements or improvements on other venues used and enjoyed by the public.⁵¹

According to the American Hotel and Lodging Association (“AHLA”),⁵² the hotel sector supports \$46.7 billion nationally in state and local tax collections. According to the same study, states with the largest hotel employment include California, Florida, Nevada, Texas, New York, and Pennsylvania. The AHLA also found, “American hotels support 8.3 million American jobs, which is equivalent to one in 25 U.S. jobs, according to an economic analysis released... by the [AHLA].”⁵³

Figure 5 through **Figure 8** show the results for total employment and GDP from **Table 4** for 50 states and the District of Columbia. While the results sum to those of **Table 4** and the distribution across the country is like that shown in **Figure 2**, the major highlights include:

- The results in **Figure 5** are less concentrated in certain regions similar to our study analyzing natural gas’ benefit to agriculture.⁵⁴ With agriculture, the largest number of jobs and quantity of GDP by state accrues in the Midwest, California, and Texas. The U.S. hospitality sector is less concentrated in certain regions and more closely correlates with GDP by state or state population.
- While some states have proportionally higher impacts in **Figure 6** and **Figure 8** because of interstate and international tourism, states with larger economies and populations generally have a larger hospitality sector due to their market sizes.
- Exceptions to these rules do exist in some specific states. Those include Nevada, Hawaii, Montana, Rhode Island, and Florida. In Nevada, the hospitality sector supports over 20 percent of its employment – a sensible result given the important role that Las Vegas’ renowned entertainment sector plays in its regional economy.
- Even states with a median impact in **Figure 5** compared to other states can have large impacts in the context of a state economy. For instance, the Common Sense Policy Roundtable found that for Colorado, tourism was⁵⁵ “\$60.1 billion, or 13.7 percent: contribution of the sports, recreation, and tourism sector to Colorado’s GDP.”⁵⁶

⁵¹ <https://www.dallasnews.com/news/politics/2022/04/27/dallas-approves-using-future-hotel-tax-money-to-pay-for-cotton-bowl-other-fair-park-venue-upgrades/>

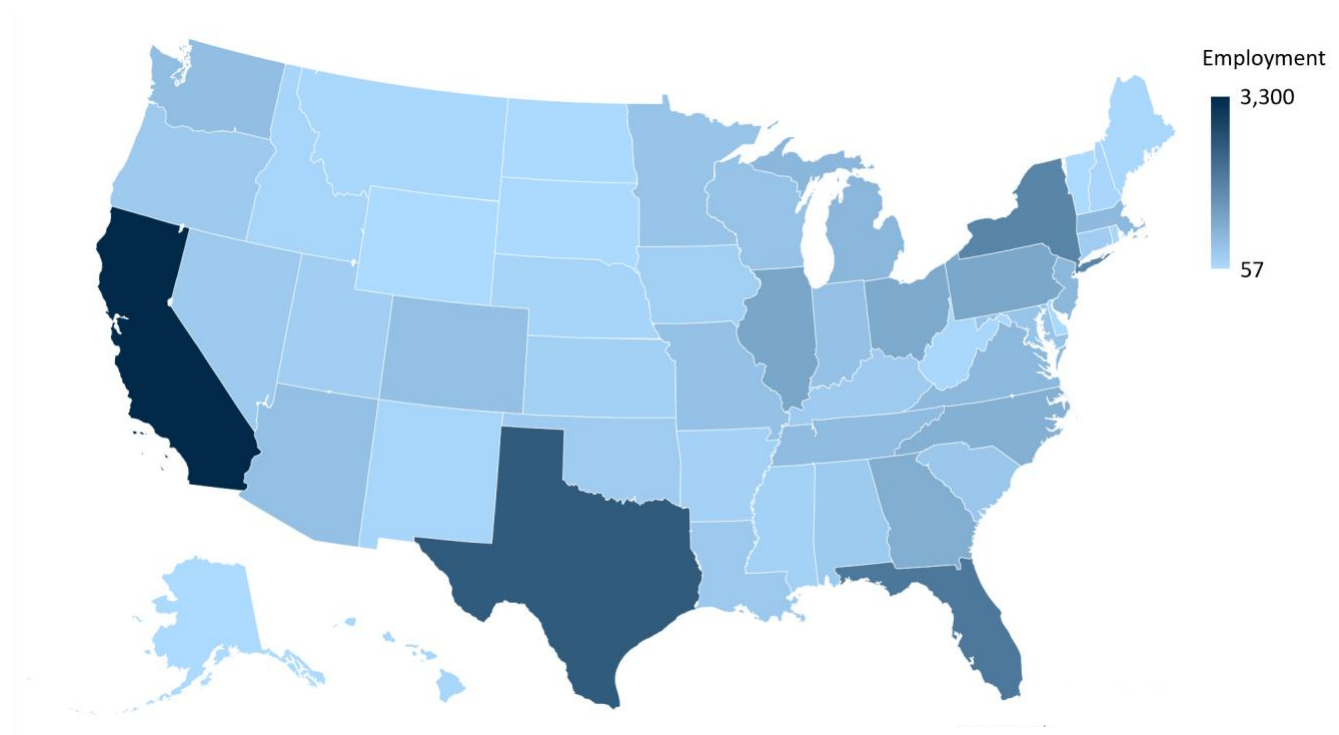
⁵² <https://www.ahla.com/news/report-hotel-generated-state-and-local-tax-revenue-reach-new-highs-2023>

⁵³ <https://www.ahla.com/news/american-hotels-support-nearly-one-25-us-jobs>

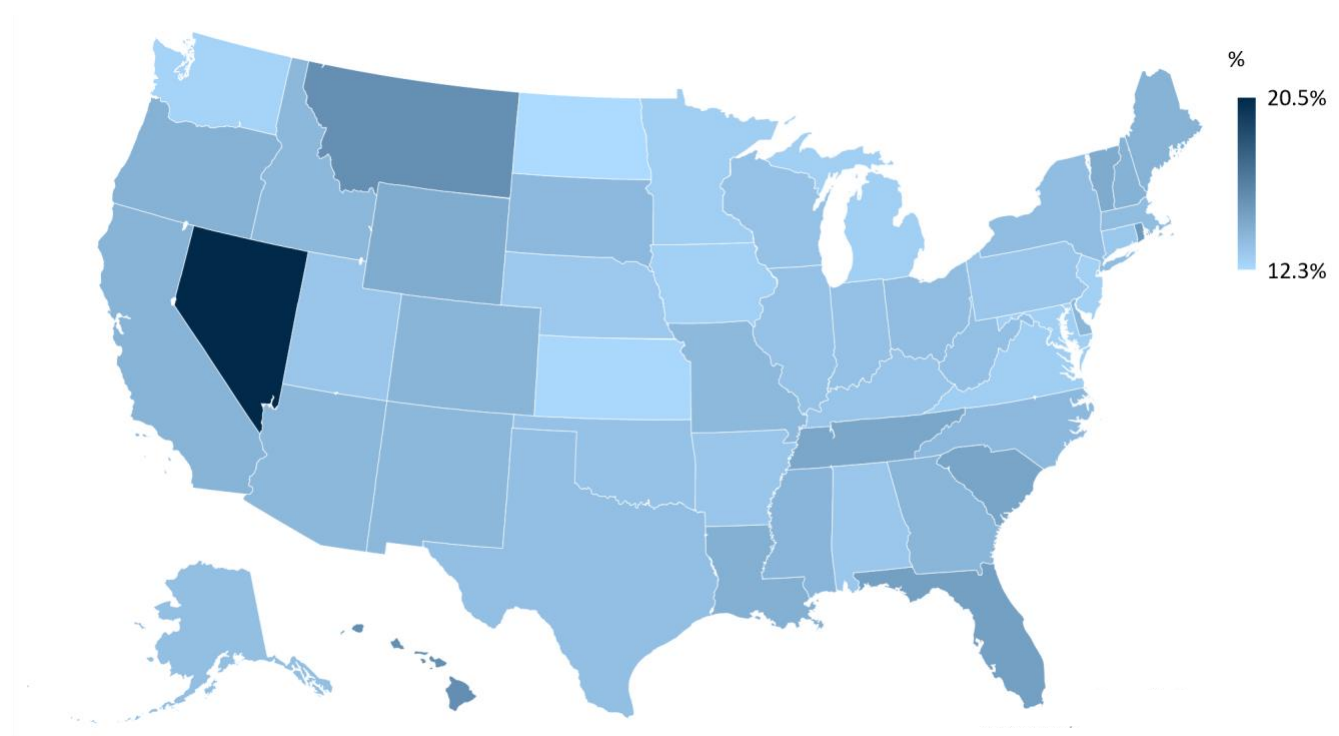
⁵⁴ <https://www.aga.org/research-policy/resource-library/advancing-americas-agriculture/>

⁵⁵ A different but related sectoral concept to the U.S. hospitality sector used here

⁵⁶ <https://commonsenseinstituteco.org/co-sports-recreation-tourism/>

Figure 5 – Total jobs by state supported by the U.S. hospitality sector (thousands)

SOURCE: IMPLAN Model, FTI Calculations

Figure 6 – Share of total state jobs supported by the U.S. hospitality sector (%)

SOURCE: IMPLAN Model, FTI Calculations

Appendix A

Approach and Methodology for Estimating Natural Gas Consumption

The following steps were taken to estimate natural gas consumption for the hospitality sector using EIA and IMPLAN data:

- IMPLAN provided the following datapoints:
 - Output by economic sector (all 546 in the IMPLAN database) and by state (the 50 states and including the District of Columbia, a de facto state economy)
 - Share of output dedicated to natural gas consumption from the IO table
- Output by sector and state was multiplied by the IO coefficient for natural gas demand to estimate the dollars expended by sector and state on natural gas inputs
- Commercial (wholesale, retail, and all services) and industrial sectors (natural resources, utilities, construction, and manufacturers) were grouped together
- Using this data, FTI determined each IMPLAN sector's share of commercial OR industrial expenditures on natural gas made in each of the 51 regions
- FTI compiled historical gas consumption by month by residential, commercial, industrial, and transportation customers based on EIA data⁵⁷
- FTI allocated the commercial and industrial consumption between IMPLAN sectors based on the estimated share of expenditures using the output and IO data
- FTI compared this result to the output by sector and region to generate an effective rate of gas consumption (in MMcf) associated with a dollar of direct sales output
- FTI ran IMPLAN to determine the economic impact of the U.S. agriculture and agrochemical sectors and used the effective rates to estimate the impact on gas demand
- This estimate is the underlying data for the tables and maps in the next two subsections about gas demand and the U.S. agriculture sector and agrochemical sector

⁵⁷ https://www.eia.gov/dnav/ng/ng_cons_sum_dcunus_a.htm

Approach and Methodology for Assessing Cost Impacts

The following steps were taken to estimate the cost impacts to the hospitality sector:

- The cost impact scenario assumes that electrification of direct gas use is feasible for all sectors. This is a simplifying and conservative assumption for the scenario's purposes, but this is unlikely to be desirable in some cases, and unrealistic in others. For instance, according to the American Gas Association, "96 percent of professional chefs prefer cooking with gas."⁵⁸ Also, within the industrial sector, electrification may be possible for "low-temperature heat processes,"⁵⁹ but not for processes requiring high-temperature heat, such as "industrial distillation, concentrating, and drying or kilning" and "chemical or other high-temperature processes."⁶⁰
- Only fuel costs – either in the form of direct natural gas use or direct electricity use – are considered. Any differences in equipment costs are not considered.
- Gas demand for the U.S. hospitality sector and its suppliers would be converted to electricity between 2026 and 2045 at the rate of 5 percent (or 1/20th) per year. In 2045 and the years after, there would be no further conversions because everything is electrified. This trend would represent a gradual conversion to electricity as existing natural gas-fired heating equipment depreciates, buildings are replaced, and new buildings are brought online.
- According to an American Gas Association study on electrification, the thermal efficiency of air-source heat pumps depends on ambient air temperature.⁶¹
- Ambient temperature depends on the temperature in the hours when heating demand occurs. FTI used NOAA data⁶² to construct an 8,760-hour temperature shape by state. FTI then used the shape to determine each hour's share of annual demand and the efficiency of the conversion for each hour. FTI used these two data points to create a weighted average of the conversion efficiency for each state. Conversion efficiencies tend to be highest in the warmest states (e.g., in the Southeast) and the lowest in colder states (e.g., the Midwest).
- FTI compiled energy demand and energy price data from the EIA⁶³, its Annual Energy Outlook ("AEO"),⁶⁴ and specifically its Reference Case.⁶⁵ EIA projects its energy demand and energy price data only at the regional level.⁶⁶ To make these series into state-level data, FTI allocated demand

⁵⁸ <https://www.cleveland.com/entertainment/2023/01/gas-vs-electric-stove-debate-simmers-on-but-local-chefs-prefer-cooking-with-gas.html>

⁵⁹ <https://www.iea.org/reports/electrification>

⁶⁰ <https://www.epa.gov/rhc/industrial-process-heat-technologies-and-applications-text-version-diagram>

⁶¹ https://www.aga.org/wp-content/uploads/2018/07/aga_study_on_residential_electrification.pdf

⁶² <https://www.ncdc.noaa.gov/cdo-web/search>

⁶³ <https://www.eia.gov/>

⁶⁴ <https://www.eia.gov/outlooks/aeo/>

⁶⁵ https://www.eia.gov/outlooks/aeo/tables_ref.php, Table 2 and Table 3

⁶⁶ <https://www.tampaairport.com/sites/default/master/files/landing-pages/images/census-regions-graphic.png>

between states based on the historical share of demand within regions and the historical ratio of regional prices to state prices from SEDS.⁶⁷

- FTI multiplied the resulting series by the state-level data underlying **Table 1** and shown with **Figure 2**, to determine what share of total state demand for the commercial sector and for the industrial sector was ultimately supported by the U.S. hospitality sector.
- The projected demand and change in demand for gas and power was multiplied by EIA price forecasts for retail energy service to determine the change in net costs.
- The last point assumes electricity prices are not responsive to load increases resulting from the electrification of commercial buildings and industrial facilities. This assumption is conservative and biases the results in the direction of lowering projected net costs of the electrification for the U.S. hospitality sector and its suppliers. In other words, the costs of electrification for the U.S. hospitality sector will almost assuredly be higher than what is estimated in this analysis.
- A higher load could mean higher electricity prices for electric consumers. The increased load might mean higher hourly dispatch prices on wholesale markets and a need for new power plants or transmission upgrades, all of which can cost billions of dollars and will eventually have to fall on utility customers.

⁶⁷ <https://www.eia.gov/state/seds/>

Appendix B

Table 5 – Output Supported by the Hospitality Industry (2023 \$ millions)

State	Direct	Indirect	Induced	Total
AL	\$14,880.1	\$10,582.4	\$11,864.3	\$37,326.8
AK	\$2,508.9	\$2,354.1	\$2,067.0	\$6,930.0
AZ	\$26,037.0	\$15,717.5	\$18,813.5	\$60,568.0
AR	\$9,000.8	\$7,993.4	\$7,814.3	\$24,808.5
CA	\$176,822.2	\$127,308.4	\$137,063.9	\$441,194.5
CO	\$27,047.0	\$16,552.3	\$18,149.8	\$61,749.1
CT	\$14,592.7	\$10,318.8	\$13,023.6	\$37,935.1
DE	\$3,448.7	\$2,976.6	\$3,633.0	\$10,058.3
DC	\$7,173.4	\$4,321.2	\$4,714.1	\$16,208.7
FL	\$90,512.0	\$47,060.1	\$56,826.2	\$194,398.3
GA	\$37,464.7	\$29,283.2	\$30,760.3	\$97,508.2
HI	\$9,150.1	\$2,805.1	\$3,647.9	\$15,603.1
ID	\$5,971.4	\$4,902.7	\$4,879.1	\$15,753.2
IL	\$50,003.7	\$38,397.3	\$43,901.1	\$132,302.1
IN	\$23,937.0	\$16,627.5	\$20,546.7	\$61,111.2
IA	\$10,362.7	\$11,079.1	\$11,095.4	\$32,537.2
KS	\$9,632.5	\$9,186.2	\$9,752.7	\$28,571.4
KY	\$14,226.8	\$11,073.4	\$12,055.4	\$37,355.6
LA	\$17,304.2	\$11,188.2	\$12,851.4	\$41,343.8
ME	\$5,345.8	\$2,899.6	\$3,595.0	\$11,840.4
MD	\$23,437.7	\$13,653.6	\$17,065.3	\$54,156.6
MA	\$32,928.0	\$20,626.6	\$26,177.0	\$79,731.6
MI	\$29,145.4	\$22,409.2	\$26,661.0	\$78,215.6
MN	\$19,341.2	\$18,250.4	\$19,583.3	\$57,174.9
MS	\$9,891.9	\$5,886.0	\$6,652.4	\$22,430.3
MO	\$22,757.9	\$16,145.2	\$17,990.2	\$56,893.3
MT	\$4,573.6	\$2,458.4	\$2,874.2	\$9,906.2
NE	\$7,001.3	\$7,617.0	\$7,597.8	\$22,216.1
NV	\$26,777.8	\$6,533.3	\$7,493.3	\$40,804.4
NH	\$6,513.5	\$3,206.3	\$4,191.1	\$13,910.9
NJ	\$29,634.7	\$25,712.1	\$30,613.7	\$85,960.5
NM	\$7,052.4	\$3,836.6	\$4,537.2	\$15,426.2
NY	\$88,743.6	\$68,646.2	\$78,872.5	\$236,262.3
NC	\$37,500.7	\$24,844.9	\$28,778.0	\$91,123.6
ND	\$2,715.0	\$2,567.4	\$2,810.9	\$8,093.3
OH	\$41,782.0	\$30,944.5	\$35,185.4	\$107,911.9
OK	\$13,313.8	\$8,943.4	\$10,149.0	\$32,406.2
OR	\$15,471.6	\$11,253.8	\$11,962.7	\$38,688.1

State	Direct	Indirect	Induced	Total
PA	\$45,233.3	\$33,529.2	\$39,495.1	\$118,257.6
RI	\$4,861.2	\$2,338.4	\$2,970.7	\$10,170.3
SC	\$19,197.8	\$10,555.0	\$12,169.9	\$41,922.7
SD	\$3,344.7	\$3,089.8	\$3,210.0	\$9,644.5
TN	\$29,250.6	\$17,538.4	\$20,266.3	\$67,055.3
TX	\$107,627.2	\$75,993.8	\$86,923.2	\$270,544.2
UT	\$11,763.2	\$8,941.7	\$10,186.4	\$30,891.3
VT	\$2,981.0	\$1,565.7	\$1,807.3	\$6,354.0
VA	\$29,922.2	\$22,007.6	\$24,461.3	\$76,391.1
WA	\$28,038.3	\$23,414.1	\$27,917.2	\$79,369.6
WV	\$5,253.8	\$3,086.7	\$3,811.5	\$12,152.0
WI	\$19,881.1	\$20,588.1	\$18,836.0	\$59,305.2
WY	\$2,664.7	\$1,718.0	\$1,771.1	\$6,153.8

Table 6 – Employment Supported by the Hospitality Industry (thousands)

State	Direct	Indirect	Induced	Total
AL	231.4	51.3	67.0	349.7
AK	38.9	10.0	10.2	59.1
AZ	353.4	81.0	106.1	540.5
AR	135.6	36.1	43.8	215.5
CA	2,184.8	487.1	627.6	3,299.5
CO	363.4	76.8	95.8	536.0
CT	186.9	42.6	60.8	290.3
DE	52.9	12.0	16.2	81.1
DC	73.4	15.8	20.3	109.5
FL	1,244.9	267.1	342.3	1,854.3
GA	569.0	135.7	165.8	870.5
HI	97.2	14.9	20.2	132.3
ID	99.0	21.9	27.9	148.8
IL	639.5	164.2	210.3	1,014.0
IN	344.2	73.7	102.4	520.3
IA	161.4	42.4	53.6	257.4
KS	149.9	37.3	48.0	235.2
KY	212.4	51.0	65.2	328.6
LA	253.7	50.2	67.2	371.1
ME	77.6	16.1	21.5	115.2
MD	306.8	66.8	91.9	465.5
MA	420.7	87.5	126.8	635.0
MI	440.0	107.0	142.8	689.8

State	Direct	Indirect	Induced	Total
MN	289.9	77.2	100.8	467.9
MS	150.6	29.7	39.6	219.9
MO	334.5	76.1	99.4	510.0
MT	76.8	13.0	17.1	106.9
NE	108.5	28.3	34.9	171.7
NV	275.5	35.9	43.4	354.8
NH	83.7	16.0	22.7	122.4
NJ	408.7	117.3	149.3	675.3
NM	106.6	17.5	26.1	150.2
NY	1,036.9	241.2	343.9	1,622.0
NC	556.8	122.2	154.7	833.7
ND	44.7	10.5	14.1	69.3
OH	612.4	139.4	182.9	934.7
OK	201.9	45.2	57.9	305.0
OR	232.4	54.2	67.2	353.8
PA	630.9	145.8	211.0	987.7
RI	65.5	12.1	16.4	94.0
SC	289.4	54.8	69.8	414.0
SD	55.6	11.8	15.9	83.3
TN	402.5	85.8	110.9	599.2
TX	1,569.4	351.2	457.6	2,378.2
UT	182.0	43.7	55.3	281.0
VT	42.0	7.1	10.7	59.8
VA	435.9	105.3	129.4	670.6
WA	358.7	86.2	116.4	561.3
WV	78.3	14.6	21.9	114.8
WI	310.7	77.6	95.8	484.1
WY	40.5	7.4	9.0	56.9

Table 7 – GDP Supported by the Hospitality Industry (2023 \$ millions)

State	Direct	Indirect	Induced	Total
AL	\$7,423.6	\$4,426.4	\$5,819.2	\$17,669.2
AK	\$1,412.6	\$1,084.9	\$1,192.5	\$3,690.0
AZ	\$15,521.6	\$7,768.1	\$10,522.6	\$33,812.3
AR	\$4,612.4	\$3,408.4	\$3,730.5	\$11,751.3
CA	\$115,234.3	\$70,920.6	\$83,990.5	\$270,145.4
CO	\$16,673.6	\$8,215.5	\$10,075.0	\$34,964.1
CT	\$9,506.7	\$5,824.2	\$8,209.8	\$23,540.7
DE	\$1,904.6	\$1,699.1	\$2,259.7	\$5,863.4

State	Direct	Indirect	Induced	Total
DC	\$5,201.4	\$2,933.1	\$3,280.2	\$11,414.7
FL	\$54,531.8	\$23,521.9	\$31,579.7	\$109,633.4
GA	\$20,273.8	\$15,377.5	\$17,371.8	\$53,023.1
HI	\$6,352.1	\$1,381.3	\$2,117.1	\$9,850.5
ID	\$3,060.4	\$1,864.3	\$2,353.9	\$7,278.6
IL	\$31,337.0	\$20,147.4	\$24,970.2	\$76,454.6
IN	\$13,464.9	\$7,446.6	\$10,360.0	\$31,271.5
IA	\$5,503.5	\$4,221.8	\$5,293.8	\$15,019.1
KS	\$5,036.4	\$4,163.1	\$4,746.7	\$13,946.2
KY	\$7,412.4	\$4,966.8	\$5,984.6	\$18,363.8
LA	\$9,596.8	\$4,837.4	\$6,284.6	\$20,718.8
ME	\$3,232.1	\$1,405.7	\$1,987.3	\$6,625.1
MD	\$14,567.0	\$7,420.6	\$10,220.2	\$32,207.8
MA	\$21,802.7	\$11,790.2	\$16,340.9	\$49,933.8
MI	\$16,029.2	\$10,771.1	\$13,978.2	\$40,778.5
MN	\$11,120.0	\$8,812.8	\$10,677.1	\$30,609.9
MS	\$5,027.3	\$2,243.3	\$3,029.3	\$10,299.9
MO	\$12,717.0	\$7,523.4	\$9,410.3	\$29,650.7
MT	\$2,419.8	\$1,006.4	\$1,396.8	\$4,823.0
NE	\$3,772.7	\$3,253.4	\$3,811.3	\$10,837.4
NV	\$18,696.7	\$3,376.0	\$4,293.2	\$26,365.9
NH	\$4,195.8	\$1,717.3	\$2,517.8	\$8,430.9
NJ	\$18,410.8	\$14,620.9	\$18,448.6	\$51,480.3
NM	\$3,820.9	\$1,601.6	\$2,320.3	\$7,742.8
NY	\$61,286.6	\$42,034.4	\$52,260.5	\$155,581.5
NC	\$20,824.1	\$12,003.4	\$15,710.4	\$48,537.9
ND	\$1,409.7	\$1,143.7	\$1,390.8	\$3,944.2
OH	\$22,992.1	\$15,171.1	\$18,912.3	\$57,075.5
OK	\$7,006.7	\$3,938.2	\$4,965.8	\$15,910.7
OR	\$8,938.5	\$5,629.4	\$6,656.5	\$21,224.4
PA	\$27,527.1	\$17,810.3	\$22,377.8	\$67,715.2
RI	\$3,098.7	\$1,235.3	\$1,727.5	\$6,061.5
SC	\$10,444.8	\$4,864.9	\$6,208.8	\$21,518.5
SD	\$1,720.5	\$1,206.2	\$1,606.2	\$4,532.9
TN	\$17,214.0	\$8,329.3	\$10,728.4	\$36,271.7
TX	\$59,458.4	\$37,369.4	\$46,773.1	\$143,600.9
UT	\$6,342.0	\$4,077.6	\$5,389.8	\$15,809.4
VT	\$1,861.4	\$615.5	\$938.6	\$3,415.5
VA	\$16,966.3	\$12,024.4	\$14,364.5	\$43,355.2
WA	\$17,944.0	\$12,480.3	\$17,665.3	\$48,089.6

State	Direct	Indirect	Induced	Total
WV	\$2,777.2	\$1,440.6	\$1,978.3	\$6,196.1
WI	\$10,952.3	\$7,944.9	\$9,467.7	\$28,364.9
WY	\$1,497.3	\$750.6	\$848.5	\$3,096.4

Table 8 – Labor Income Supported by the Hospitality Industry (2023 \$ millions)

State	Direct	Indirect	Induced	Total
AL	\$4,892.3	\$2,745.7	\$3,439.6	\$11,077.6
AK	\$1,121.3	\$585.3	\$645.5	\$2,352.1
AZ	\$10,905.3	\$4,843.6	\$6,170.9	\$21,919.8
AR	\$2,887.8	\$2,209.0	\$2,175.8	\$7,272.6
CA	\$88,140.1	\$44,586.8	\$47,522.6	\$180,249.5
CO	\$11,111.9	\$5,501.6	\$6,122.1	\$22,735.6
CT	\$6,995.2	\$3,637.0	\$4,871.1	\$15,503.3
DE	\$1,433.2	\$803.7	\$1,102.7	\$3,339.6
DC	\$3,441.6	\$2,167.8	\$2,310.0	\$7,919.4
FL	\$34,587.1	\$14,831.1	\$18,324.6	\$67,742.8
GA	\$13,688.3	\$9,174.1	\$9,815.7	\$32,678.1
HI	\$3,888.1	\$872.4	\$1,164.9	\$5,925.4
ID	\$2,253.0	\$1,191.0	\$1,435.8	\$4,879.8
IL	\$21,028.2	\$13,017.4	\$14,541.1	\$48,586.7
IN	\$8,537.5	\$4,681.0	\$5,965.6	\$19,184.1
IA	\$3,600.5	\$2,739.8	\$3,017.7	\$9,358.0
KS	\$3,336.9	\$2,536.5	\$2,842.6	\$8,716.0
KY	\$5,208.5	\$2,865.2	\$3,517.6	\$11,591.3
LA	\$6,256.5	\$2,697.1	\$3,460.7	\$12,414.3
ME	\$2,263.8	\$890.0	\$1,152.4	\$4,306.2
MD	\$10,056.6	\$4,902.3	\$5,961.6	\$20,920.5
MA	\$17,135.9	\$7,997.0	\$10,261.5	\$35,394.4
MI	\$11,296.4	\$7,188.7	\$8,443.5	\$26,928.6
MN	\$7,546.2	\$6,137.7	\$6,696.9	\$20,380.8
MS	\$3,096.5	\$1,337.5	\$1,704.3	\$6,138.3
MO	\$8,631.2	\$4,850.3	\$5,596.1	\$19,077.6
MT	\$1,806.9	\$600.7	\$856.2	\$3,263.8
NE	\$2,477.1	\$1,931.8	\$2,079.3	\$6,488.2
NV	\$10,981.6	\$2,128.8	\$2,355.6	\$15,466.0
NH	\$3,196.9	\$1,133.3	\$1,545.5	\$5,875.7
NJ	\$14,164.1	\$10,085.6	\$11,318.3	\$35,568.0
NM	\$2,642.9	\$891.6	\$1,256.5	\$4,791.0
NY	\$47,318.7	\$25,946.5	\$30,232.4	\$103,497.6

State	Direct	Indirect	Induced	Total
NC	\$15,692.7	\$7,590.7	\$8,795.4	\$32,078.8
ND	\$1,010.6	\$653.4	\$816.0	\$2,480.0
OH	\$16,408.4	\$9,535.5	\$10,714.1	\$36,658.0
OK	\$4,783.0	\$2,561.7	\$3,011.6	\$10,356.3
OR	\$7,067.3	\$3,828.3	\$4,073.3	\$14,968.9
PA	\$20,247.1	\$12,420.4	\$14,149.2	\$46,816.7
RI	\$1,993.1	\$836.6	\$1,023.4	\$3,853.1
SC	\$7,067.8	\$3,033.6	\$3,565.4	\$13,666.8
SD	\$1,272.6	\$724.2	\$925.4	\$2,922.2
TN	\$13,514.0	\$5,568.3	\$6,879.1	\$25,961.4
TX	\$42,891.0	\$24,093.8	\$28,502.9	\$95,487.7
UT	\$4,401.7	\$2,475.5	\$3,070.7	\$9,947.9
VT	\$1,262.4	\$391.8	\$572.2	\$2,226.4
VA	\$11,750.3	\$7,769.6	\$8,030.6	\$27,550.5
WA	\$11,869.7	\$7,367.4	\$9,440.4	\$28,677.5
WV	\$1,816.8	\$816.4	\$1,133.4	\$3,766.6
WI	\$7,512.7	\$5,120.4	\$5,582.9	\$18,216.0
WY	\$964.8	\$421.8	\$451.8	\$1,838.4

Table 9 – Federal Taxes Supported by the Hospitality Industry (2023 \$ millions)

State	Direct	Indirect	Induced	Total
AL	\$1,293.7	\$814.6	\$1,008.5	\$3,116.8
AK	\$242.7	\$153.3	\$190.2	\$586.2
AZ	\$2,227.7	\$1,407.5	\$1,744.2	\$5,379.4
AR	\$824.1	\$519.4	\$644.1	\$1,987.6
CA	\$15,935.6	\$10,108.7	\$12,558.9	\$38,603.2
CO	\$2,260.1	\$1,428.8	\$1,771.6	\$5,460.5
CT	\$1,384.6	\$878.1	\$1,091.1	\$3,353.8
DE	\$342.9	\$216.8	\$270.2	\$829.9
DC	\$621.2	\$395.5	\$491.7	\$1,508.4
FL	\$7,280.9	\$4,594.4	\$5,694.5	\$17,569.8
GA	\$3,477.9	\$2,195.4	\$2,723.8	\$8,397.1
HI	\$577.2	\$365.3	\$454.4	\$1,396.9
ID	\$555.4	\$349.8	\$432.3	\$1,337.5
IL	\$4,589.1	\$2,906.3	\$3,613.6	\$11,109.0
IN	\$2,071.1	\$1,307.0	\$1,622.5	\$5,000.6
IA	\$1,023.9	\$645.9	\$802.1	\$2,471.9
KS	\$939.7	\$593.0	\$736.0	\$2,268.7
KY	\$1,277.1	\$805.3	\$998.2	\$3,080.6
LA	\$1,413.2	\$890.7	\$1,105.1	\$3,409.0

State	Direct	Indirect	Induced	Total
MA	\$3,069.3	\$1,947.2	\$2,412.7	\$7,429.2
MD	\$2,019.2	\$1,277.6	\$1,584.8	\$4,881.6
ME	\$454.7	\$287.0	\$355.1	\$1,096.8
MI	\$2,792.9	\$1,763.4	\$2,183.9	\$6,740.2
MN	\$2,003.6	\$1,266.9	\$1,570.9	\$4,841.4
MS	\$774.2	\$486.7	\$602.6	\$1,863.5
MO	\$2,027.2	\$1,279.3	\$1,585.0	\$4,891.5
MT	\$383.4	\$241.3	\$297.5	\$922.2
NE	\$698.0	\$440.7	\$548.2	\$1,686.9
NV	\$1,528.0	\$966.9	\$1,203.2	\$3,698.1
NH	\$544.4	\$344.7	\$426.6	\$1,315.7
NJ	\$3,178.4	\$2,014.9	\$2,498.6	\$7,691.9
NM	\$556.1	\$350.2	\$433.5	\$1,339.8
NY	\$8,584.3	\$5,457.1	\$6,791.0	\$20,832.4
NC	\$3,343.9	\$2,110.9	\$2,613.0	\$8,067.8
ND	\$271.8	\$171.4	\$212.6	\$655.8
OH	\$3,805.7	\$2,403.3	\$2,979.8	\$9,188.8
OK	\$1,157.8	\$729.6	\$902.6	\$2,790.0
OR	\$1,475.4	\$932.4	\$1,152.5	\$3,560.3
PA	\$4,386.3	\$2,776.6	\$3,439.2	\$10,602.1
RI	\$389.0	\$245.9	\$304.8	\$939.7
SC	\$1,549.8	\$976.4	\$1,207.9	\$3,734.1
SD	\$323.2	\$203.8	\$252.5	\$779.5
TN	\$2,528.4	\$1,598.2	\$1,975.3	\$6,101.9
TX	\$9,750.2	\$6,158.5	\$7,627.0	\$23,535.7
UT	\$1,091.0	\$688.0	\$852.6	\$2,631.6
VT	\$236.1	\$149.0	\$184.4	\$569.5
VA	\$2,788.3	\$1,762.2	\$2,185.8	\$6,736.3
WA	\$2,656.2	\$1,684.2	\$2,101.4	\$6,441.8
WV	\$431.3	\$271.8	\$336.8	\$1,039.9
WI	\$1,944.9	\$1,227.4	\$1,522.5	\$4,694.8
WY	\$213.4	\$134.4	\$166.7	\$514.5

Table 10 – State and Local Taxes Supported by the Hospitality Industry (2023 \$ millions)

State	Direct	Indirect	Induced	Total
AL	\$582.8	\$386.6	\$617.7	\$1,587.1
AK	\$120.8	\$80.2	\$128.2	\$329.2
AZ	\$1,108.1	\$735.5	\$1,175.2	\$3,018.8
AR	\$386.2	\$256.2	\$409.7	\$1,052.1
CA	\$8,832.8	\$5,865.5	\$9,369.3	\$24,067.6
CO	\$1,145.0	\$760.1	\$1,214.5	\$3,119.6

State	Direct	Indirect	Induced	Total
CT	\$767.2	\$509.5	\$814.5	\$2,091.2
DE	\$186.7	\$124.1	\$199.7	\$510.5
DC	\$373.0	\$247.8	\$395.4	\$1,016.2
FL	\$3,560.7	\$2,364.0	\$3,786.1	\$9,710.8
GA	\$1,723.9	\$1,144.5	\$1,833.0	\$4,701.4
HI	\$315.5	\$209.6	\$336.6	\$861.7
ID	\$243.8	\$161.6	\$257.2	\$662.6
IL	\$2,485.2	\$1,650.4	\$2,641.7	\$6,777.3
IN	\$1,019.6	\$676.7	\$1,083.7	\$2,780.0
IA	\$494.5	\$328.0	\$524.5	\$1,347.0
KS	\$457.7	\$303.7	\$485.7	\$1,247.1
KY	\$604.1	\$400.8	\$640.6	\$1,645.5
LA	\$674.2	\$447.4	\$717.1	\$1,838.7
ME	\$217.5	\$144.3	\$230.5	\$592.3
MD	\$1,051.0	\$697.8	\$1,115.7	\$2,864.5
MA	\$1,652.3	\$1,096.8	\$1,746.3	\$4,495.4
MI	\$1,347.5	\$894.0	\$1,426.3	\$3,667.8
MN	\$1,010.2	\$670.4	\$1,069.5	\$2,750.1
MS	\$337.7	\$224.0	\$358.6	\$920.3
MO	\$975.0	\$647.0	\$1,033.6	\$2,655.6
MT	\$161.5	\$107.1	\$170.4	\$439.0
NE	\$352.5	\$234.0	\$375.1	\$961.6
NV	\$839.6	\$558.0	\$897.3	\$2,294.9
NH	\$278.9	\$185.1	\$294.8	\$758.8
NJ	\$1,698.6	\$1,127.5	\$1,797.2	\$4,623.3
NM	\$253.8	\$168.4	\$269.3	\$691.5
NY	\$5,058.2	\$3,360.3	\$5,372.3	\$13,790.8
NC	\$1,602.6	\$1,063.3	\$1,696.5	\$4,362.4
ND	\$129.7	\$86.0	\$137.5	\$353.2
OH	\$1,873.3	\$1,243.2	\$1,986.6	\$5,103.1
OK	\$527.2	\$349.6	\$557.8	\$1,434.6
OR	\$708.7	\$470.1	\$747.6	\$1,926.4
PA	\$2,242.5	\$1,488.2	\$2,370.8	\$6,101.5
RI	\$197.1	\$130.9	\$209.5	\$537.5
SC	\$707.7	\$469.5	\$750.2	\$1,927.4
SD	\$150.2	\$99.6	\$159.0	\$408.8
TN	\$1,215.7	\$806.3	\$1,281.2	\$3,303.2
TX	\$4,745.5	\$3,148.7	\$5,022.4	\$12,916.6
UT	\$518.5	\$344.0	\$550.1	\$1,412.6
VT	\$112.4	\$74.6	\$119.1	\$306.1

State	Direct	Indirect	Induced	Total
VA	\$1,413.4	\$938.4	\$1,501.2	\$3,853.0
WA	\$1,538.4	\$1,022.3	\$1,642.6	\$4,203.3
WV	\$202.1	\$134.1	\$214.7	\$550.9
WI	\$937.1	\$621.6	\$992.6	\$2,551.3
WY	\$100.6	\$66.8	\$107.0	\$274.4

Table 11 – Gas Consumption Supported by the Hospitality Industry (MMcf)

State	Direct Commercial	Direct Industrial	Indirect Commercial	Indirect Industrial	Total Commercial	Total Industrial	Grand Total
AL	2,846	0	362	4,698	3,208	4,698	7,906
AK	1,772	0	154	472	1,926	472	2,398
AZ	3,935	0	522	400	4,457	400	4,857
AR	6,108	0	990	2,538	7,098	2,538	9,636
CA	27,231	0	3,248	13,235	30,479	13,235	43,714
CO	6,823	0	816	1,529	7,639	1,529	9,168
CT	6,085	0	727	342	6,812	342	7,154
DE	1,204	0	207	625	1,411	625	2,036
DC	1,710	0	86	0	1,796	0	1,796
FL	7,001	0	1,006	1,886	8,007	1,886	9,893
GA	6,109	0	757	3,444	6,866	3,444	10,310
HI	254	0	22	1	276	1	277
ID	2,557	0	328	1,328	2,885	1,328	4,213
IL	26,997	0	3,243	5,694	30,240	5,694	35,934
IN	10,580	0	1,296	7,649	11,876	7,649	19,525
IA	6,412	0	670	7,842	7,082	7,842	14,924
KS	5,076	0	619	3,813	5,695	3,813	9,508
KY	4,250	0	597	3,141	4,847	3,141	7,988
LA	3,510	0	454	17,079	3,964	17,079	21,043
ME	1,032	0	119	570	1,151	570	1,721
MD	8,162	0	629	280	8,791	280	9,071
MA	12,888	0	1,088	793	13,976	793	14,769
MI	19,795	0	2,254	3,111	22,049	3,111	25,160
MN	13,189	0	1,490	4,294	14,679	4,294	18,973
MS	2,220	0	267	2,799	2,487	2,799	5,286
MO	7,284	0	999	1,592	8,283	1,592	9,875
MT	2,989	0	348	538	3,337	538	3,875
NE	3,612	0	554	3,146	4,166	3,146	7,312
NV	3,618	0	427	251	4,045	251	4,296
NH	1,032	0	111	158	1,143	158	1,301
NJ	16,985	0	2,146	1,074	19,131	1,074	20,205

State	Direct Commercial	Direct Industrial	Indirect Commercial	Indirect Industrial	Total Commercial	Total Industrial	Grand Total
NM	3,061	0	299	403	3,360	403	3,763
NY	33,552	0	3,450	1,636	37,002	1,636	38,638
NC	6,497	0	704	2,582	7,201	2,582	9,783
ND	1,890	0	215	906	2,105	906	3,011
OH	20,055	0	2,424	5,999	22,479	5,999	28,478
OK	5,004	0	714	4,219	5,718	4,219	9,937
OR	3,603	0	402	1,272	4,005	1,272	5,277
PA	18,414	0	2,290	4,451	20,704	4,451	25,155
RI	1,229	0	123	133	1,352	133	1,485
SC	2,869	0	341	1,686	3,210	1,686	4,896
SD	1,454	0	169	1,809	1,623	1,809	3,432
TN	6,680	0	1,062	3,077	7,742	3,077	10,819
TX	21,713	0	2,653	28,005	24,366	28,005	52,371
UT	5,256	0	648	729	5,904	729	6,633
VT	812	0	71	61	883	61	944
VA	8,214	0	971	2,045	9,185	2,045	11,230
WA	6,967	0	807	1,828	7,774	1,828	9,602
WV	2,613	0	279	529	2,892	529	3,421
WI	12,880	0	1,436	5,454	14,316	5,454	19,770
WY	1,433	0	195	715	1,628	715	2,343