



◀ Countries

Turkey



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[full report](#)

Overview

Turkey's importance in the energy markets is growing, both as a regional energy transit hub and as a growing consumer. Turkey's energy demand has increased rapidly over the last few years and likely will continue to grow in the future.

Over the last two years, Turkey has seen the fastest growth in energy demand in the OECD, and unlike a number of other OECD countries in Europe, its economy has avoided the prolonged stagnation that has characterized much of the continent for the past few years. The country's energy use is still relatively low, although it is increasing at a very fast pace.

According to the International Energy Agency (IEA), energy use in Turkey is expected to double over the next decade, while electricity demand growth is expected to increase at an even faster pace. Meeting this level of growth will require significant investment in the energy sector, much of which will come from the private sector. Large investments in natural gas and electricity infrastructure will be essential.

In addition to being a major market for energy supplies, Turkey's role as an energy transit hub is increasingly important. It is key to oil and natural gas supplies movement from [Russia](#), the Caspian region, and the Middle East to Europe. Turkey has been a major transit point for seaborne-traded oil and is becoming more important for pipeline-traded oil and natural gas. Growing volumes of Russian and Caspian oil are being sent by tanker via the [Turkish Straits](#) to Western markets, while a terminal on Turkey's Mediterranean coast at Ceyhan serves as an outlet for oil exports from northern [Iraq](#) and [Azerbaijan](#). Ceyhan is located approximately 30 miles southeast of Adana on the Mediterranean Sea coast on the Bay of Iskenderun.



Source: Central Intelligence Agency, *The World Factbook*

Oil

Concurrent with Turkey's economic expansion, its crude oil consumption has increased over the last decade. With very limited domestic reserves, Turkey imports nearly all of its oil supplies.

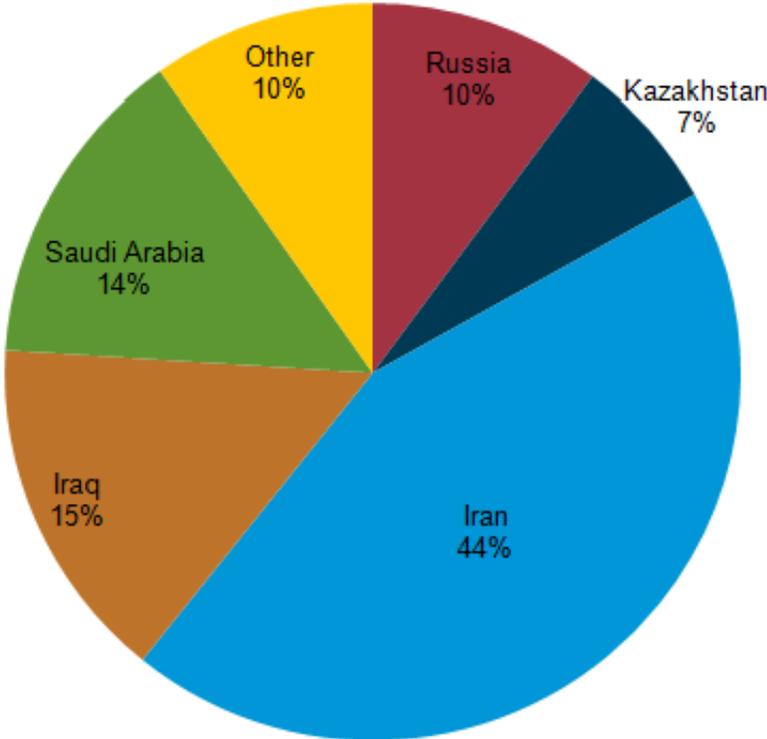
As of January 1, 2013, the *Oil & Gas Journal* estimated Turkey's proved oil reserves at 270 million barrels, located mostly in the southeast region. Turkey's oil production peaked in 1991 at 85 thousand barrels per day (bbl/d), but then declined each year and bottomed out in 2004 at 43 thousand bbl/d. Although Turkey's production of liquid fuels has increased slightly since 2004, it is far short of what the country consumes each year.

In 2010 and 2011, Turkey's economy was one of the fastest growing economies in the world, at over 8 percent annual growth rates, and with this economic expansion, Turkey's oil consumption grew. In 2011, Turkey's consumption averaged 706 thousand bbl/d in 2011. While the economic expansion appeared to be slowing in 2012, preliminary data for 2012 show that total consumption of liquid fuels in Turkey increased during the year. Its domestic production, however, shows no signs of any meaningful increase in the short-term.

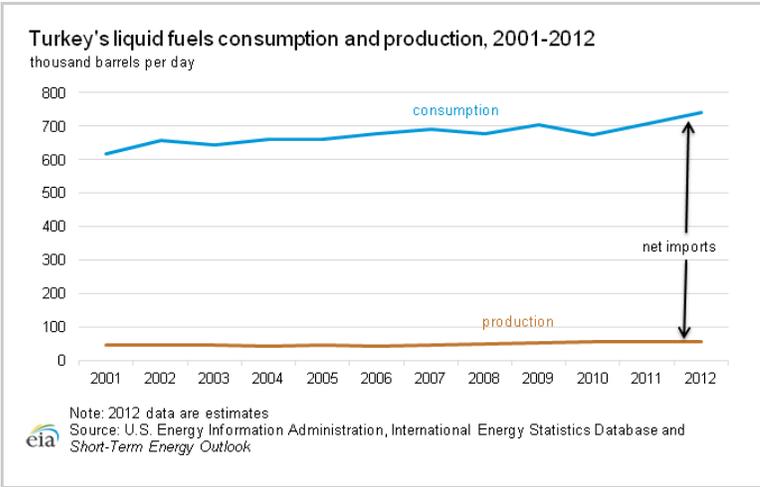
In 2011, Turkey imported more than 90 percent of its total liquid fuels consumption. According to the IEA, Turkey's imports are expected to double over the next decade. The majority of Turkey's oil imports originated in [Iran](#), which supplied about 51 percent of Turkey's crude oil imports in 2011. Data through September 2012 show that Iran retained the top spot among suppliers through that month. However, given the imposition of sanctions on Iranian crude oil exports, it is likely that imports from Iran will fall for the remainder of 2012. Russia, once the largest source country of Turkey's crude oil has fallen behind Iraq in terms of volumes and is now the third-largest supplier of crude oil to Turkey.

In addition to crude oil imports, Turkey is a net importer of oil products, with total product imports amounting to about 300 thousand bbl/d in 2010, the latest year for which these data are available. The majority (65 percent) of these imports was diesel fuel, with smaller volumes of jet fuel and liquefied petroleum gas (LPG).

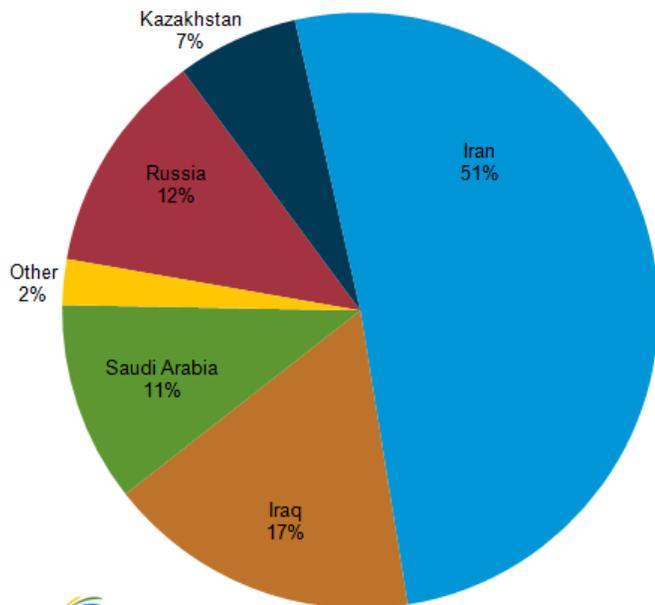
Share of Turkey's crude oil imports by country, January-September 2012



Source: Eurostat



Share of Turkey's crude oil imports by country, 2011



Source: Eurostat

Sector organization

Although there are a number of international firms operating in Turkey, TPAO has preferential rights in the upstream sector.

TPAO is the main exploration and production entity in Turkey and directly competes with the private sector in these activities. However, the state-owned firm has preferential rights, and any foreign involvement in upstream activities is limited to joint ventures with TPAO. Overall, TPAO produced about 74 percent of the total oil output in Turkey in 2011.

The government offers several types of tax breaks to encourage exploration and production, including lower corporate tax rates, exemptions from import duties for material and equipment, and exemptions from value-added tax for exploration activities.

A number of entities are involved in the oil sector, including the Ministry of Energy and Natural Resources (MENR) and the General Directorate of Petroleum Affairs. MENR is responsible for the formulation and implementation of energy policies in coordination with public and private entities. The General Directorate of Energy Affairs is the main policy-making body within MENR, and it is tasked with executing energy policy. In addition, it conducts studies on energy policy, energy markets, efficiency, and environment. Other regulatory bodies include the General Directorate of Petroleum Affairs (responsible for regulation of exploration and production activities in the oil and gas sector), Energy Markets Regulatory Authority (independent regulatory authority for the oil and gas market), Competition Authority (regulates mergers and acquisitions in the market), and State Planning Organization (advisory body that assists in preparation of national development plans, evaluates public investment projects, allocates funds, and monitors implementation).

Exploration and production

Most of Turkey's 270 million barrels of proven oil reserves are located in the Hakkari Basin

(which is also where most of Turkey's oil production occurs), with additional deposits found in Thrace in the northwest. There also may be significant reserves under the Aegean Sea. However, this has not been confirmed as a result of the ongoing territorial dispute with Greece.

The Black Sea may hold significant oil production potential for Turkey. The Turkish national oil company, TPAO, has increased its exploration activities in the Black Sea, which could hold between 7 and 10 billion barrels of oil. The offshore area is being explored by TPAO, which has formed joint ventures with ExxonMobil and Petrobras.

The vast majority of Turkey's oil production occurs in the Batman and Adiyaman Provinces (southeast), while 1 percent of its crude oil production originates in the Thrace Province. TPAO's short-term goal is to develop the resources situated in the Black Sea. Turkey's Ministry of Energy and Natural Resources aims for commercial production to occur in the Black Sea by 2016.

In addition to the Black Sea, TPAO plans on developing hydrocarbon resources in the Mediterranean. In November 2011, TPAO signed an agreement with Shell for hydrocarbon exploration in the Mediterranean and the southeast area of the country. This agreement covered plans for shale gas exploration in the southeast near the city of Diyarbakir. According to Turkey's Ministry of Energy and Natural Resources, Shell began exploration at the Saribugday 1 field in August 2012.

Oil transit

Turkey plays an increasingly important role in the transit of oil. It is strategically located at the crossroads between oil-rich Former Soviet Union countries and the Middle East, and the European demand centers. In addition, it is home to one of the world's busiest chokepoints through which 2.9 million barrels per day flowed in 2010.

Turkey has two domestic crude oil pipelines and two major international oil pipelines that serve to meet demand in Turkey and also are used as outlets for exports. Turkey is also home to one of the world's busiest chokepoints, the Turkish Straits, and has been seeking bypass alternatives to ease the congestions in the area.

Domestic pipelines

The domestic pipelines are both owned and operated by BOTAS. The Ceyhan-Kirikkale Pipeline is a 278-mile pipeline that delivers crude oil from Ceyhan to the Kirikkale refinery near Ankara and can transport approximately 100 thousand bbl/d of crude oil. The Batman-Dortyol Pipeline runs approximately 320 miles and transports the domestically-produced crude oil in the Batman area to the terminal in Dortyol on the Bay of Iskenderun near Ceyhan.

International Oil Transit

Turkey is playing an increasingly important role in the transit of oil supplies from Russia, the Caspian region, and the Middle East to Europe, with the Turkish government deriving significant revenues from the transit fees. Significant volumes of Russian and Caspian oil are being sent by tanker via the Turkish Straits to Western markets. Approximately 2.9 million bbl/d flowed through the Bosphorus in 2010, almost all of which was crude oil.

Oil shipments through the Turkish Straits decreased from over 3.4 million bbl/d at their peak

in 2004 to 2.6 million bbl/d in 2006 as Russia shifted crude oil exports toward the Baltic ports. Traffic through the Straits increased again as crude production and exports from Azerbaijan and [Kazakhstan](#) rose in recent years.

A terminal on Turkey's Mediterranean coast at Ceyhan facilitates oil exports from northern Iraq via a pipeline from Kirkuk and from Azerbaijan via the Baku-Tbilisi-Ceyhan pipeline. The Kirkuk-Ceyhan pipeline is Turkey's largest oil pipeline (by capacity) and serves as a transport pipeline of Iraqi oil. It is approximately 600 miles long and consists of two lines with a nameplate capacity of 1.65 million bbl/d. However, only one of the twin pipelines is operational with a maximum available capacity of 600 thousand bbl/d, according to IEA. Frequent attacks on the pipeline regularly result in operation disruptions, and actual flows averaged just over 300 thousand bbl/d in 2012. The pipeline was attacked at least five times between April and September 2012.

The Baku-Tbilisi-Ceyhan Pipeline (BTC) is Turkey's longest pipeline, and runs approximately 1,100 miles. Its original capacity was 1 million bbl/d, which was increased to 1.2 million bbl/d in 2009 with the use of drag-reducing agents. The pipeline transports Azeri light crude (mainly from the Azeri-Chirag-Guneshli field) via Georgia to Turkey's Mediterranean port of Ceyhan for further export. Since 2008, Kazakh crude oil has also been shipped via the BTC. The crude is then shipped via tankers to European markets. The pipeline initially came into service in June 2006.

Bypass routes

To ease increasing oil traffic through the Bosphorus Straits and in an effort to anticipate needed increases in pipeline capacity for increasing volumes of Caspian oil, a number of Bosphorus bypass options are under consideration in Bulgaria, Romania, Ukraine, and Turkey itself. The BTC Pipeline, which bypasses the Turkish Straits chokepoint, is the first of many planned or proposed bypass pipelines to be constructed.

Bosphorus bypass options outside of Turkey include the Odessa-Brody pipeline in Ukraine, which currently transports crude oil into Odessa (reverse mode). Others have not yet been constructed, but proposals include the Pan-European Oil Pipeline, the Bourgas, Bulgaria to Vlore, Albania, and the Bourgas to Alexandropolous, Greece pipeline.

There were a number of bypass options proposed in Turkey over the last decade, including:

- **Samsun-Ceyhan Pipeline** would transport oil from Turkey's Black Sea port of Samsun to Ceyhan on the Mediterranean coast. The project includes the construction of a 350-mile oil pipeline, a new terminal for receiving oil at Samsun, a terminal for exporting the oil, and a storage plant at Ceyhan. The oil pipeline will have a maximum initial transportation capacity of 1 million bbl/d, which can eventually be increased to 1.5 million bbl/d.
- **Kiyikoy-Ibrikbaba Pipeline** is a 1.2 million bbl/d pipeline that would run between Kiyikoy on the Black Sea and Ibrikbaba on the Aegean Sea near Greece. This pipeline was proposed more than six years ago, but very little progress has occurred.
- **Agva-Izmit Pipeline** would connect the Black Sea to the Tupras' (Turkish Petroleum Refineries Company) Izmit refinery.
- **Canal Istanbul** is a proposed 30-mile link between the Black Sea and the Sea of Marmara. The waterway would be located on the European side of the Bosphorus and is planned to be completed by 2023. However, given the size of the undertaking and cost associated, this project is the least desirable and feasible option and thus it

likely will not be completed.

Ports

The port of Ceyhan has become an important outlet for both Caspian oil exports as well as Iraqi oil shipments from Kirkuk. Turkey is seeking to build up Ceyhan as a regional energy hub, with private investors receiving approval to build several refineries at the oil terminal, adding revenue beyond transit fees.

The Ceyhan oil terminal has four crude oil loading berths. Two outer berths can accommodate tankers up to 300 thousand deadweight tons, while the two inner berths accommodated ships up to 150 thousand deadweight tons. Through October 2012, Ceyhan facilitated more than 600 thousand bbl/d of Azeri exports and about 300 thousand bbl/d of Iraqi crude oil exports to Europe and United States.

In addition to crude oil, Iraqi condensate exports have also started to load in Ceyhan. In September 2012, the Kurdish Regional Government trucked the first cargo of condensate from Iraq to Ceyhan, which was loaded onto a vessel on October 4. The size of the cargo was about 105 thousand barrels, with additional cargoes already planned to be shipped via the same route.

Refinery sector

Turkey has six refineries with a combined processing capacity of 714,275 barrels per day. Tupras is Turkey's dominant refining firm, operating more than 85 percent of the total refining capacity. Tupras also owns about 59 percent of the total petroleum products storage capacity in Turkey.

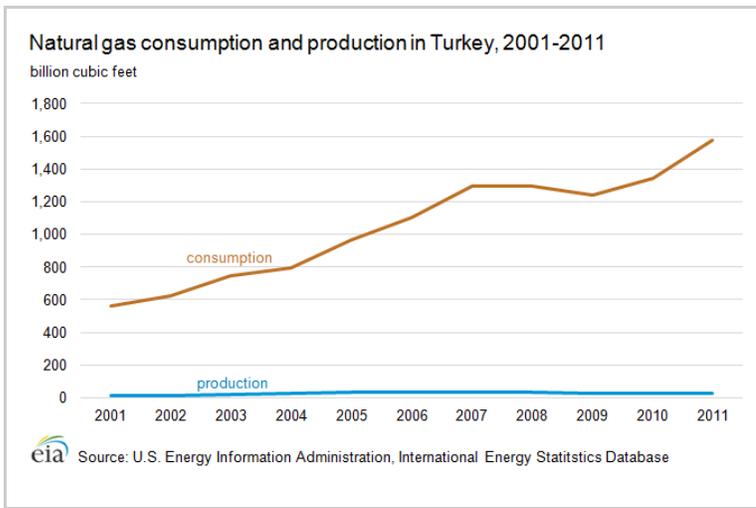
Starting in 1990, Turkey's refining sector began to undergo the process of privatization. In 2005, 51 percent of the shares of the formerly state-owned Tupras's were auctioned off to the Koc -Shell Joint Venture (JV) Group. The Koc-Shell JV includes Koc Holding, Aygaz, OPET, Shell Overseas Investment, and Shell Company of Turkey. The remaining 49 percent of shares are publicly traded.

Natural gas

Turkey holds a strategic role in natural gas—between the world's second largest natural gas market, continental Europe, and the substantial gas reserves of the Caspian Basin and the Middle East.

As of January 1, 2013, the *Oil & Gas Journal* estimates Turkish natural gas reserves at 218 billion cubic feet (Bcf). Turkey produced 27 Bcf of natural gas in 2011, relying almost exclusively on imports to meet domestic demand. Turkey's energy demand growth has been among the fastest in the world in 2010 and 2011, although slower economic growth in 2012 has dampened the natural gas consumption increase to some extent.

Natural gas is accounting for an increasing share of the energy mix in Turkey and it has overtaken oil and become the most important fuel in terms of volume consumed. EIA data indicate that natural gas consumption in Turkey exceeded oil and coal consumption by about 0.3 quadrillion British thermal units in 2011.



Sector organization

The state-owned Petroleum Pipeline Corporation (BOTAS) dominates the natural gas sector, although the majority of the market is open to competition. BOTAS also builds and operates gas pipelines in Turkey and dominates in the wholesale market and in exports of natural gas.

Turkey's midstream natural gas market has been led by BOTAS for decades, and the company continues to exercise the Turkish state's mandate for developing the country's pipeline networks and procuring sufficient natural gas supplies. In addition to ensuring adequate supply for the domestic market, a key part of this mandate has been participation in international pipeline projects that can take advantage of Turkey's location as a key corridor between Europe and the Middle East and Central Asia to play an active role in trans-regional energy supply.

A number of government entities are involved in the natural gas sector, including the Ministry of Energy and Natural Resources (MENR) and Energy Markets Regulatory Authority (EMRA). MENR is responsible for the formulation and implementation of energy policies in coordination with public and private entities. Other regulatory bodies include the General Directorate of Petroleum Affairs, the Competition Authority, and the State Planning Organization.

In September 2012, MENR proposed a new gas sector liberalization bill. The new version of the bill calls for BOTAS to be unbundled into three distinct entities: an LNG trading group, a gas transmission system operator, and a storage facility operator. Gas Import and export rights would be transferred to private companies under this new bill.

Exploration and production

Turkey produces a very small amount of natural gas, with the total production amounting to 27 billion cubic feet (Bcf) in 2011. There are 14 gas fields in Turkey, the largest being Marmara Kuzey, an offshore field in the Sea of Marmara in the Thrace-Gallipoli Basin. Gas production is mainly carried out by three companies: Turkiye Petrolery A.O. (TPAO), BP, and Shell. A number of natural gas fields have been brought onstream in the Black Sea, including the Akcakoca, East Ayazli, Akkaya, and Ayazli fields.

Consumption and imports

Turkey is increasingly dependent on natural gas imports as its domestic consumption rises each year. Natural gas is used domestically mainly in the electric power sector.

Natural gas consumption has increased rapidly over the past decade, and despite the temporary declines recorded in 2009, natural gas consumption reached a peak of more than 1.5 trillion cubic feet (Tcf) in 2011. Natural gas is mainly used in power generation and space heating. Consumption growth is expected to remain strong as rising electricity consumption and new power plants continue to spur demand.

The importance of natural gas for Turkey's economy has significantly increased since the early 2000s. In 2000, the power sector consumed approximately 795 million cubic feet (MMcf) per day, and this volume more than doubled to 1.9 Bcf per day in 2009, according to PFC Energy data. Similarly, in the residential and commercial sectors, consumption of natural gas totaled 516 and 243 MMcf per day, respectively, in 2009, increasing from 289 and 45 MMcf per day, respectively, in 2000. Industrial consumption also rose by nearly three-fold over the same time period.

In 2009 (the year for which the most recent sectoral data are available), the majority (57 percent) of natural gas use in Turkey was consumed by the electric power sector. The industrial and residential sectors each accounted for approximately 15 percent. Natural gas demand peaks in the winter months, when natural gas use for power generation and space heating is highest. Demand during winter months can be double the demand during summer months. Given Turkey's low capacity for natural gas storage to meet its seasonal demand swings, it relies primarily on increased imports to meet the seasonal increases in demand.

In 2011, Turkey imported approximately 1.5 Tcf, the majority from Russia. Another 19 percent of the total came from Iran, the second-largest source country. Sizeable shares of natural gas imports also originated in Azerbaijan and [Algeria](#).

Most of Turkey's natural gas imports are transported via pipelines, including those from Russia, Iran, and Azerbaijan. Turkey also imports liquefied natural gas (LNG).

[Pipeline imports](#)

The majority of Russian gas arrives in Turkey via the Blue Stream pipeline, although sizeable volumes also reach the large population centers in and around Istanbul via the Bulgaria-Turkey line. In total, Turkey imported approximately 890 Bcf of natural gas from Russia in 2011, according to PFC Energy.

Turkey received about 290 Bcf of Iranian natural gas in 2011, which was imported via the Tabriz-Dogubayazit pipeline. The vast majority is incorporated into the Turkish central pipeline network and further distributed as necessary. Approximately 140 Bcf arrived from Azerbaijan via the Baku-Tbilisi-Erzurum (BTE) pipeline in 2011.

Turkey's currently available natural gas import pipelines and capacities

Pipeline	Origin	Operated By	Approximate Capacity (MMcf per day)
Blue Stream	Russia	Gazprom	1,550
Baku-Tbilisi-Erzurum (BTE)	Azerbaijan	South Caucasus Pipeline Consortium (SCPC)	820

Tabriz - Dogubayazit	Iran	BOTAS	1,930
Bulgaria-Turkey	Bulgaria	Gazprom	2,000

With the launch of the Baku-Tbilisi-Erzurum pipeline in 2007 and the subsequent launch of re-exports of natural gas to Greece, Turkey has begun to stake its position as an energy bridge for gas supplies from the Caspian to Europe. However, in the long run, Turkey's position as a gas transit state could be affected by its need to satisfy its rapidly growing domestic consumption.

For Turkey to function as a gas transit state, it must be able to import enough gas to satisfy both domestic demand and any re-export commitments as well as provide enough pipeline capacity to transport Caspian natural gas across Turkey to Europe. While Turkey enjoyed considerable excess import capacity a few years ago, this excess pipeline capacity has eroded as Turkey now uses most of its pipeline capacity to meet its domestic demand. Furthermore, possible restrictions on imports of Iranian natural gas because of sanctions would remove Turkey's excess capacity during peak demand months.

EIA estimates that the excess capacity of the Blue Stream pipeline on an annual average basis declined to about 200 MMcf per day in 2011, well below excess capacity of 600 to 700 MMcf per day (annual basis) a few years ago. Additional annual average excess capacity may be available on the Baku-Tbilisi-Erzurum pipeline at about 200 MMcf per day and the Bulgaria-Turkey pipeline, at another 200 MMcf per day.

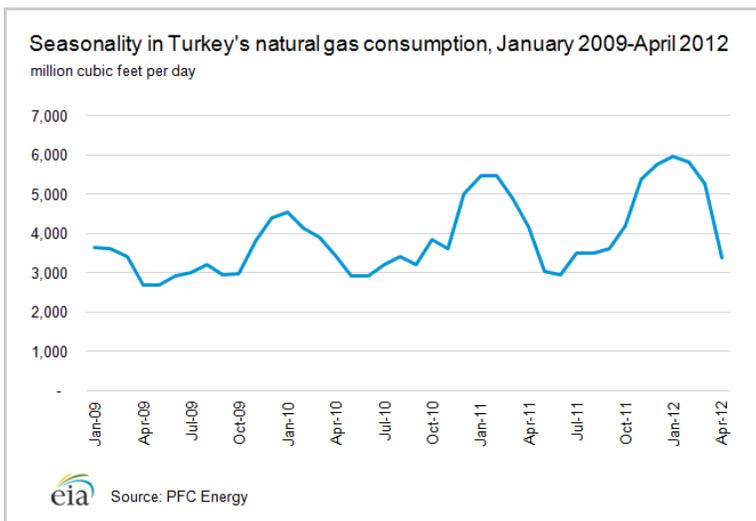
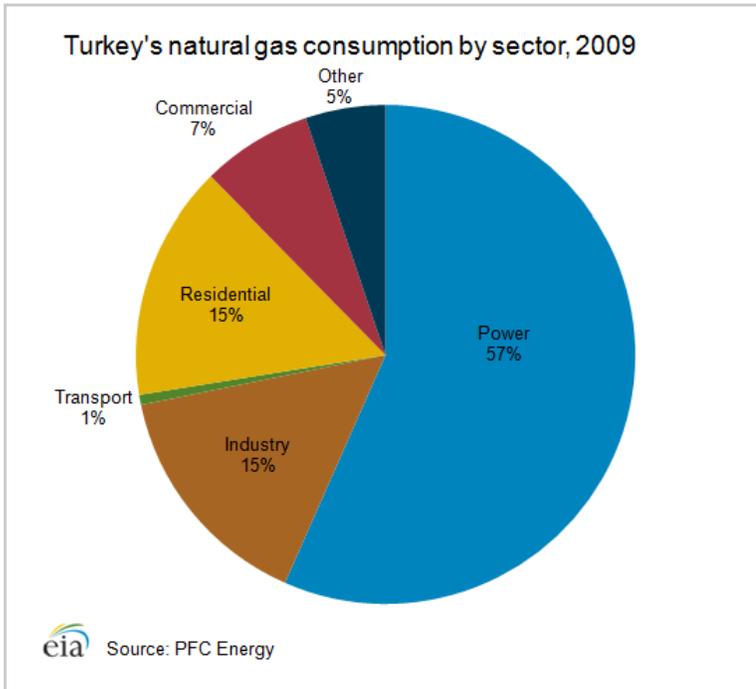
However, excess capacity on these pipelines is much lower during peak demand months. Turkey's natural gas demand is highly seasonal, with heating season months (November through February) exhibiting natural gas demand that is significantly higher than in other months. Additionally, natural gas import infrastructure in Turkey has been a frequent target of terrorists, and Turkey is extremely vulnerable to supply disruptions. The Tabriz-Dogubayazit pipeline has been increasingly targeted by the Kurdish rebel militants. These attacks have increased in frequency and damage in recent months. Flows on the Tabriz-Dogubayazit pipeline were disrupted a number of times in 2012, with two such disruptions occurring during October alone. The Baku-Tbilisi-Erzurum pipeline has also been a terrorist target, and flows on this pipeline were halted two times in 2012.

A number of pipeline projects have been proposed, most of which envision that Turkey would play a vital role. Although none of these projects have commenced, consuming nations in Europe are particularly interested in realizing at least some of these projects.

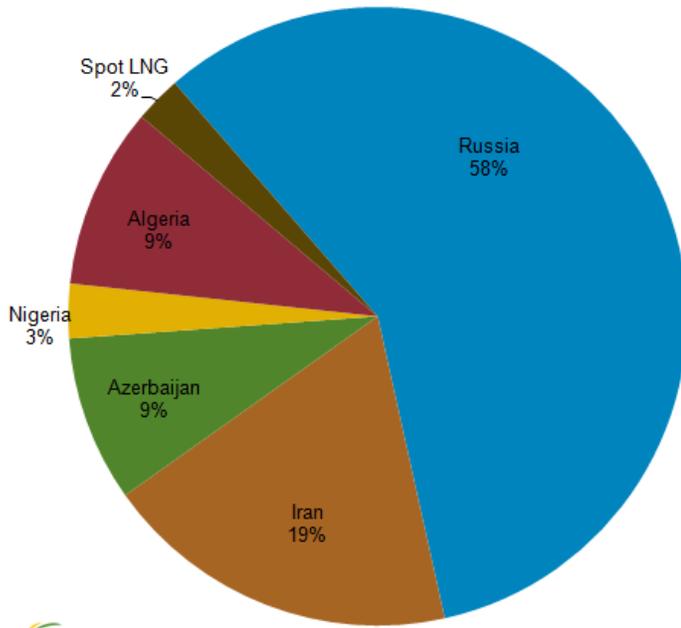
The proposed pipelines include:

- **Nabucco Pipeline**, which is the longest-running and much-delayed proposal. If built, it would carry 1.1 Tcf of gas per day through Turkey, Bulgaria, Romania, Hungary to Austria.
- **South East European Pipeline (SEEP)** was proposed by BP, although details on the proposal are scarce. SEEP would require the construction of only 800 miles of pipeline as it would rely on existing infrastructure and may exceed Nabucco's planned capacity.
- **Trans Anatolian Pipeline (TANAP)** project was proposed as an alternative to the much-delayed Nabucco. This project is considering two alternatives, which include the possibility of upgrading the current BOTAS pipeline network and/or construction of a new standalone pipeline across Turkey in order to facilitate shipping of Azerbaijan's natural gas from the Shah Deniz II field. The pipeline's capacity would be 30 billion cubic meters per year.

- Expansion of the Interconnector **Turkey-Greece-Italy Pipeline (ITGI)**. The Turkey-Greece section has been operational since 2007. The remaining Greece-Italy section would transport about 350 Bcf per day of natural gas.
- **Turkey-Iraq Pipeline** would give Turkey access to Iraq's natural gas resources. Although a memorandum of understanding was signed a number of years ago, planning for construction has yet to take place.
- Extension of the **Arab gas pipeline** to Turkey would allow delivery from Egypt to Turkey via Jordan and Syria. Given the political instability and unrest that have engulfed the region since 2011, this project effectively has been cancelled.



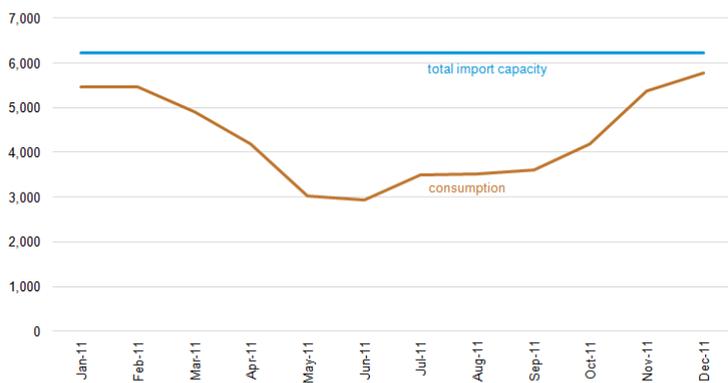
Turkey's natural gas imports, 2011



Source: PFC Energy

Turkey's monthly natural gas consumption and total import capacity, 2011

million cubic feet per day



Source: U.S. Energy Information Administration, *Natural Gas Exports from Iran*

Liquefied natural gas

Turkey imports LNG from five countries: Algeria, Nigeria, Qatar, Egypt, and Norway, according to PFC Energy. Turkey imported a cargo diverted from Spain for the first time in August 2012. LNG volumes arrive at the country's two terminals, Marmara Ereğlisi in Tekirdag and the Aliaga terminal in Izmir.

Marmara Ereğlisi has been in operation since 1994 and is owned by BOTAS. Its annual capacity is 8.2 billion cubic meters (bcm) and has a maximum sendout capacity of 22 million cubic meters (mcm) per day. The Aliaga terminal is owned by EGEGAZ, with an annual capacity of 6 bcm. Its maximum sendout capacity is 16 mcm per day.

LNG accounted for approximately 15 percent of the total supply in 2011. Imports of LNG from Algeria and Nigeria are generally purchased on long-term contracts, although some of the volumes from these two countries were purchased on the spot market, along with the remaining LNG imports.

With the exception of a dip in imports in 2011, LNG imports are rising as Turkey seeks to

diversify its sources of gas supplies. However, preliminary data for 2012 indicate that LNG imports likely exceeded last year's imports. As of August 2012, Turkey's LNG imports were approximately 16 percent higher than the same period in 2011.

Electricity

Following the restructuring of the electricity sector, both consumption and generation of electricity have expanded. Most of the electricity is generated with conventional thermal sources, although the government plans to displace at least some of this generation with nuclear power.

In 2010, Turkey's total electricity generating capacity was 49.5 million kilowatts. Total net electricity generation amounted to 217 billion kilowatthours in 2011. Turkey's electricity demand has seen a 70-percent increase between 2001 and 2010, with much of the growth occurring between 2002 and 2008. Although demand fell in 2009 compared with the previous year because of the economic slowdown, in 2010 consumption increased by about 10 percent compared with the previous year.

Conventional thermal sources account for the largest share of electricity generation, with natural gas occupying the most prominent place among them. Conventional thermal and hydroelectricity generation accounts for nearly all of Turkey's electricity. Although Turkey does not currently generate any electricity from nuclear power, the government has been advocating construction of nuclear power plants in an effort to diversify Turkey's electricity supply portfolio.

Sector organization

In March 2001, the Turkish government enacted an Electricity Market Law, which set the stage for liberalization of power generation and distribution activities. Under the law, the state-owned Turkish Electricity Generation and Transmission Corporation (TEAS) was split into separate generation, transmission, distribution, and trade companies, with a goal of eventual privatization of the generation and trade companies. Turkey has taken steps to create competitive wholesale trading and retail sales markets and plans to open the market for all customers by 2015. In addition, retail tariffs were changed to reflect the cost of generation, transmission, and distribution without subsidies.

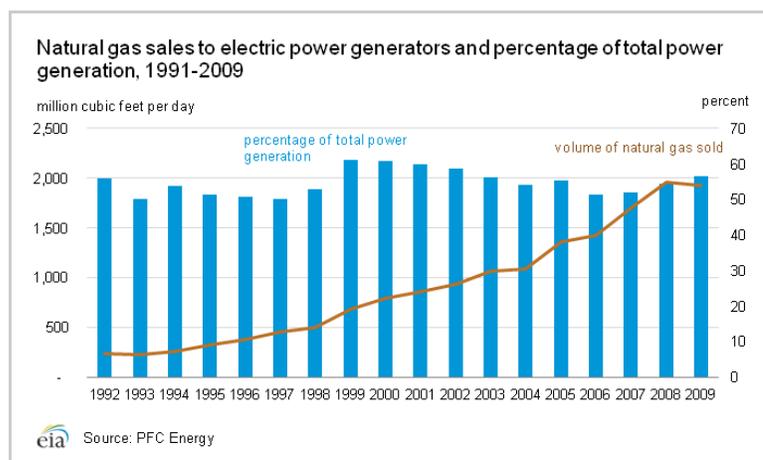
The 2001 law created the Energy Markets Regulatory Authority (EMRA) as the regulator of the electricity market. It is tasked with issuing licenses for all market activities related to the electricity market, determining and approving regulated tariffs, and setting the eligibility limit for market opening. In addition, it is involved in drafting legislation affecting electricity markets, resolving disputes, and applying penalties.

The largest generation company is the state-owned Electricity Generation Company (EUAS), which controls about half of all generation in Turkey. The remainder was distributed among independent power producers, build-operate-transfer, and build-own-operate producers.

Turkish Electricity Transmission Company (TEIAS) is the publicly-owned enterprise that owns and operates the transmission system and is legally unbundled.

Conventional thermal

Conventional thermal sources have historically been Turkey's largest power source. Natural gas-fired power plants have increased substantially in the last decade and now comprise more than half of the country's conventional thermal generation. There are plans to build additional gas-fired generators, however the construction of these plants will depend on the availability of supply of natural gas and government policy. Recent announcements by the government officials indicate that the country is planning to decrease its share of natural gas-fired generation and to replace that with other sources, including nuclear power.



Coal

Turkey imports about 90 percent of the hard coal it consumes. Volumes of imported coal may rise in the future as coal's importance for electricity generation increases.

Coal-fired power stations also remain an important energy source for Turkey, and there is renewed interest in exploiting Turkey's domestic coal resources. The domestically-produced lignite in particular makes an important contribution to Turkey's energy sector and power mix. Given the increase in electricity demand, coal's importance undoubtedly will rise.

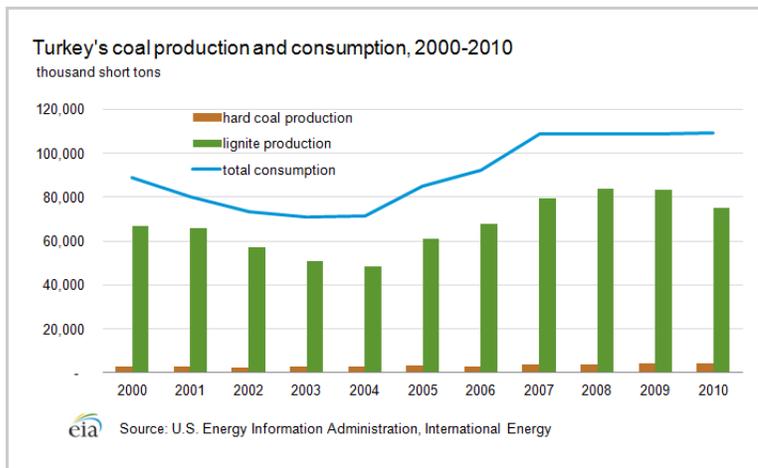
Turkey also produces hard coal, although it imports about 90 percent of the hard coal that it consumes. It imports coal mainly from Russia, [Australia](#), and the United States. Around 40 percent of Turkey's lignite is located in the Afsin-Elbistan basin of southeastern Anatolia, while hard coal is mined only in one location, the Zonguldak basin of northwestern Turkey.

In 2008, Turkey had total recoverable coal reserves of 2.6 billion short tons, of which only 583 million short tons (MMst), or about 23 percent, was "hard coal" (anthracite and bituminous). The remainder, around 2,000 MMst, consists of lignite coal reserves. In 2010, Turkey produced 79 MMst of total coal and consumed about 109 MMst of total primary coal in 2010.

Locations of coal resources in Turkey



Source: EUROCOAL, European Association for Coal and Lignite



Note: Numbers cited in the text are EIA estimates unless otherwise noted.

Sources

- Associated Press Newswires
- BBC
- BOTAS
- Cambridge Energy Research Associates
- CIA World Factbook
- Economist Intelligence Unit Country Reports
- Energy Intelligence, *Nefte Compass*
- EUROCOAL
- Eurostat
- FACTS Global Energy
- Global Insight
- International Energy Agency
- International Monetary Fund
- OECD
- Oil and Gas Journal
- PFC Energy

- Reuters
- TPAO
- U.S. Energy Information Administration