

2010

OIL & GAS SECURITY

Emergency Response of IEA Countries

GREECE

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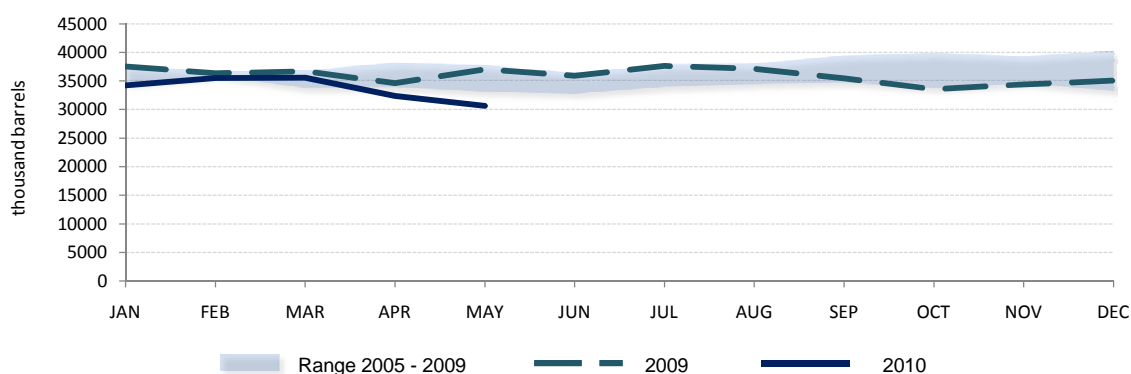
International
Energy Agency

Greece

Key Oil Data

	1985	1990	1995	2000	2005	2007	2008	2009
Production (kb/d)	27.1	16.9	9.3	5.9	1.8	1.7	1.3	1.1
Demand (kb/d)	241.7	314.1	355.5	399.2	423.9	449.9	428.9	409.6
<i>Motor gasoline</i>	41.6	56.1	64.2	75.7	90.7	95.8	93.7	94.0
<i>Gas/diesel oil</i>	81.3	107.0	122.8	144.3	160.6	156.2	148.7	149.2
<i>Residual fuel oil</i>	70.0	92.5	103.5	107.1	99.4	107.6	106.7	91.9
<i>Others</i>	48.9	58.5	64.9	72.0	73.2	90.4	79.8	74.4
Net imports (kb/d)	214.6	297.2	346.2	393.3	422.1	448.2	427.6	408.5
Import dependency	88.8%	94.6%	97.4%	98.5%	99.6%	99.6%	99.7%	99.7%
Refining capacity (kb/d)	390	385	401	383	401	429	429	429
Oil in TPES	60.9%	56.5%	56.8%	54.9%	56.6%	53.3%	54.8%	-

End-Month Total Oil Stock Levels¹ - Five Year Range

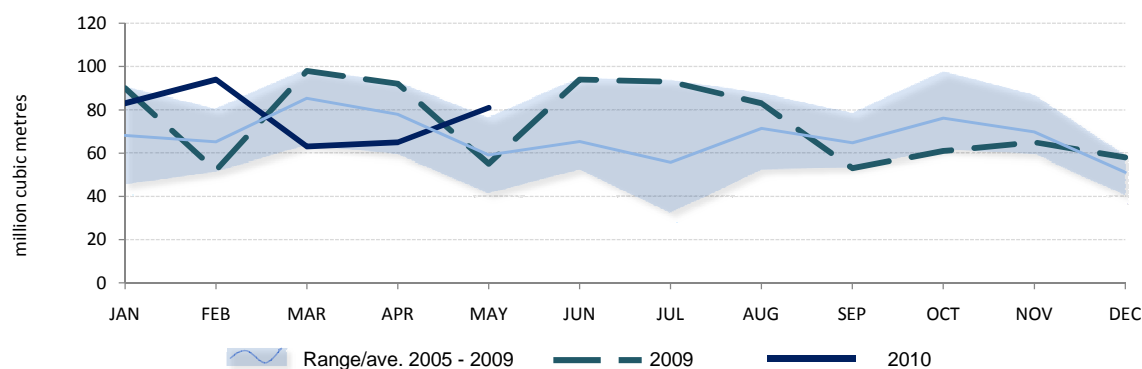


Key Natural Gas Data

	1985	1990	1995	2000	2005	2007	2008	2009 *
Production (mcm/y)	62	123	36	36	16	21	14	9
Demand (mcm/y)	62	123	35	2 052	2 842	4 030	4 208	3 528
<i>Transformation</i>	-	16	11	1 541	1 937	2 963	2 973	-
<i>Industry</i>	46	86	3	440	667	662	766	-
<i>Residential</i>	-	-	-	6	88	214	247	-
<i>Others</i>	16	21	21	65	150	191	222	-
Net imports (mcm/y)	-	-	- 1	2 016	2 826	4 009	4 194	3 519
Import dependency	0.0%	0.0%	-2.9%	98.2%	99.4%	99.5%	99.7%	99.7%
Natural Gas in TPES	0.4%	0.6%	0.2%	6.3%	7.9%	11.3%	11.7%	-

* based on monthly data submissions to the IEA.

End-Month Natural Gas Stock Levels² - Five Year Range



1 -Primary oil stocks on national territory; these exclude utility stocks and including pipeline and entrepot stocks where known.

2 -Stocks held on national territory, as reported to the IEA in monthly data submissions.

OVERVIEW

Oil is the dominant energy source in Greece, accounting for some 55% of the country's total primary energy supply (TPES) in 2008. Oil demand peaked at 450 kb/d in 2007, and since then it dropped to 410 kb/d in 2009. Almost all of the crude oils used in Greece are imported. Some 60% of crude oil is imported from OPEC countries.

The share of natural gas in the country's TPES has increased from 0.6% in 1990 to 11% in 2008. Due to the growth in the demand for electricity and the subsequent construction of new gas-fired power stations, the demand for natural gas steadily increased and stood at 4.2 bcm in 2008 (11.5 mcm/d). Roughly three-quarters of gas is supplied from Russia and Turkey by pipeline, and the remaining portion is imported in the form of LNG, largely from Algeria.

There are ten oil terminals in Greece. Seven of them are located in the Attiki Area (Athens) and the remaining three in the Salonica area. Six oil terminals can accept crude oils, of which four are located near the refineries. Except for jet fuels supplied to the Athens airport, nearly all inland transportation of crude oil and refined products is by ship and road. Products are also transported by rail in Greece, specifically to the power plants. Rail is also used to transport local products to the Balkans.

There are four refineries in Greece, with a total crude distillation capacity of around 490 kb/d. Roughly two-thirds of this capacity is owned by Hellenic Petroleum, including two refineries located in the Athens area and a third one near Thessaloniki. In 2009 some 40% of the refined product imports came from OECD-Europe countries, while some 16% of refined product imports were imported from Russia. Greece's oil product exports increased by 57% from 102 kb/d in 2004 to 160 kb/d in 2009. Greece is a net exporter of gasoline.

The use of oil stocks held by the domestic industry would be central to Greece's emergency response policy, as Greece meets its entire stockholding obligation to the IEA and the EU by placing a stockholding obligation on industry. Importers of crude oil or oil products, as well as large end-users, are required to hold oil stocks with a volume of equivalent to 90 days of their net imports made during the previous year. All compulsory stocks must be maintained within the Greek national territory. Greece does not hold public stocks and does not have any bilateral stockholding agreements with other IEA Member countries.

Diversification of supply sources and development of the natural gas transmission system are the key elements of Greece's overall policy on natural gas security. DESFA (the TSO) plays a major role in emergency planning and managing crisis situations. Interruption of gas for customers based on a priority list, fuel switching at power stations and the use of gas reserves stored at the LNG terminal are foreseen as emergency response measures in a gas crisis.

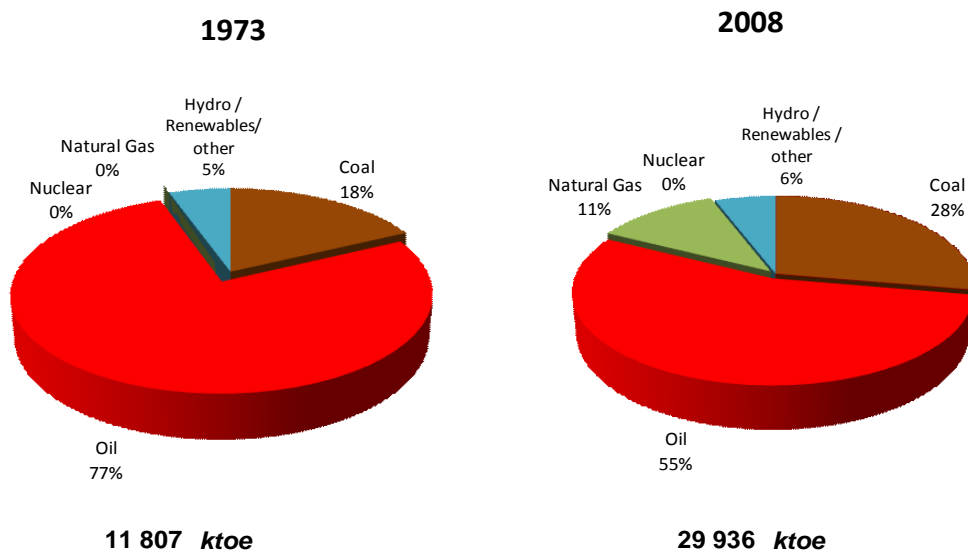
In order for new gas-fired power producers to be granted with a Production License, they are obliged to hold at least five days of back up reserves of dual fuel. Four out of seven thermal power generation units, which use gas as primary fuel, can switch to an alternative fuel.

1. Energy Outlook

Oil remains the dominant energy source in Greece, accounting for some 55% of the country's total primary energy supply (TPES) in 2008. Coal provided 28% of Greece's energy supply in the same year. The share of natural gas in the country's TPES has increased from 0.6% in 1990 to 11% in 2008.

Greece's TPES has almost tripled in the period from 1973 to 2008, with an annual average growth rate of 3%. The TPES is forecast to remain flat, at some 32 Mtoe until 2020, and the combined portions of oil and natural gas in TPES are expected to represent around 70% in 2020.

Total Primary Energy Supply

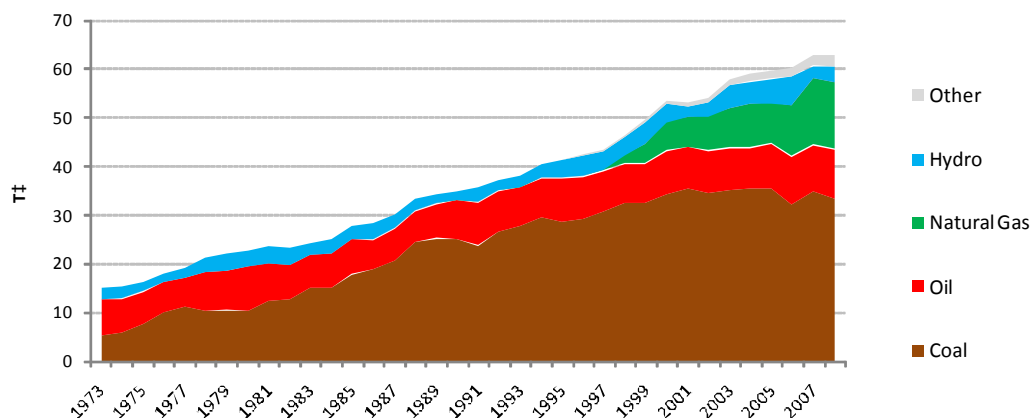


*Data excludes electricity trade.

Source: Energy Balances of OECD Countries, IEA

Coal is the principle source of fuel for the electricity generated in Greece. In 2008, it provided some 53% of total inputs to electricity generation. Natural gas is the second main source of fuel for electricity generation, contributing 22% of total inputs to electricity generation in 2008.

Electricity Generation, by Fuel Source



Source: Energy Balances of OECD Countries, IEA

2. Oil

2.1 Market Features and Key Issues

Oil reserves and domestic production

Greece does not have significant natural reserves of crude oil and very little indigenous oil production (some 1 kb/d in 2009). Oil is produced from the Prinos offshore oil field in the Kavala Gulf in the northern Aegean Sea.

Oil demand

Oil demand in Greece increased from 399 kb/d in 2000 to 450 kb/d in 2007, with an annual average growth rate of 1.7%. However, having peaked in 2007, the country's oil demand decreased to 429 kb/d in 2008 and 410 kb/d in 2009.

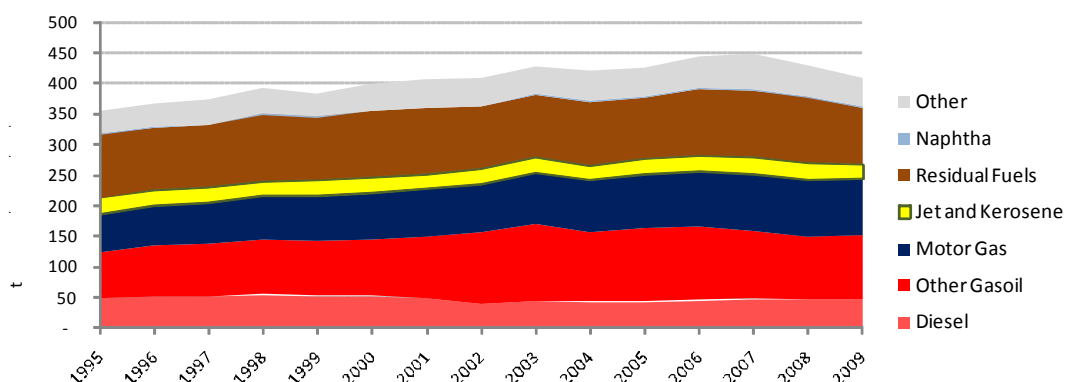
The transport sector consumed 46% of Greece's total oil demand in 2008. The ratio of the transport sector in the total oil consumption remained relatively flat at this level in the last decade. In terms of oil demand by product, demand for motor gasoline increased 24% in the period between 2000 and 2009, while demand for diesel dropped by 9% in the same period. In order to promote environmental protection, the circulation of vehicles using diesel has been prohibited in the two biggest cities in Greece, Athens and Thessaloniki (taxis are excluded from this regulation.)

Oil Demand in 2009 (kb/d)

LPG and Ethane	13
Naphtha	2
Gasoline	94
Kerosene	24
Diesel	45
Heating/other Gasoil	104
Residual Fuels	92
Other Products	35
Total Products	410

Source: Monthly Oil Statistics, IEA

Oil Consumption, by Product



Source: Monthly Oil Statistics, IEA

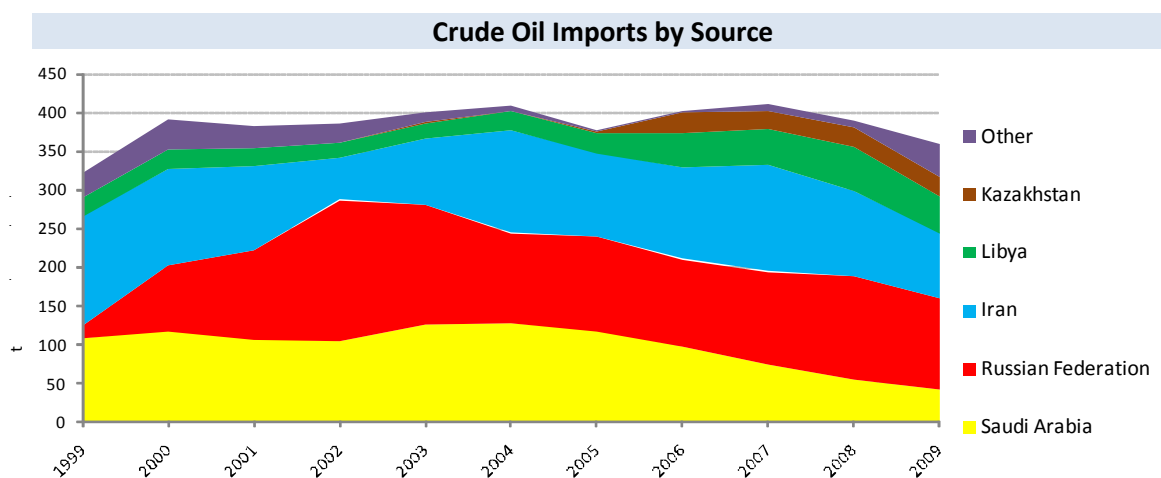
Imports/exports and import dependency

In 2009 Greece imported 554 kb/d of oil, which consisted of 358 kb/d crude oil, 53 kb/d NGLs and feedstock, and 143 kb/d refined products. OPEC countries such as Iran, Libya and Saudi Arabia, and the former Soviet Union (USSR) have been major import sources of crude oil.

Greece reduced its crude oil import dependency on OPEC countries from 71% in 2004 to 59% in 2009 (especially from Saudi Arabia; the Saudi share in Greece's total crude imports significantly dropped from 31% in 2004 to 12% in 2009). However, Greece increased its reliance on the former USSR as a crude oil supply source from 29% in 2004 to 40% in 2009. By country, Russia (33%) was the biggest supply source of crude oil in 2009, followed by Iran (24%), Libya (13%), Saudi Arabia (12%) and Kazakhstan (7%).

Roughly 40% of the refined product imports came from OECD countries, mainly from OECD Europe, in 2009, while some 16% of refined product imports for the same year were supplied from Russia.

Greece exported 20 kb/d of crude oil in 2009, exclusively to FYRO Macedonia. Greece's oil product exports increased by 57%, from 102 kb/d in 2004 to 160 kb/d in 2009. Greece is a net exporter of gasoline.



Source: Monthly Oil Statistics, IEA

Taxes

Compared with other OECD Europe countries, Greece has a relatively low tax on gasoline and diesel (55.5% and 47.4% in 2009, respectively). In the period of 1999 – 2005 excise taxes have been quite stable (at around 0.296 Euro and 0.245 Euro per litre) but since 2006 the Administration has gradually raised excise taxes on the two products.

Oil Company Operations

Two companies operate in the Greek refining industry: Hellenic Petroleum (70%) and Motor Oil Hellas (30%). The Greek Government owns 35.5% of Hellenic Petroleum capital, while there is no state control of Motor Oil Hellas.

There are 20 fuel trade companies operating in the retail market, of which the biggest ones include EKO (a subsidiary of Hellenic Petroleum), Shell, BP, Avin Oil (100% subsidiary of Motor Oil Hellas) and Jet Oil.

The Greek retail market is moving towards consolidation. In June 2009, Hellenic Petroleum announced the agreement to acquire BP's Ground Fuels business in Greece, including BP's nationwide network of branded service stations and storage facilities of 170 000 m³ (1.1 mb).

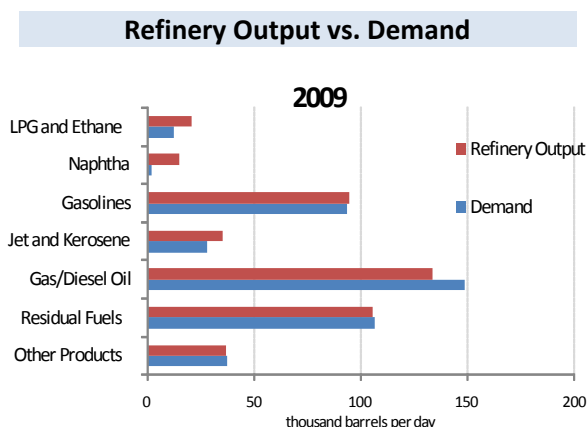
In September 2009, Motor Oil Hellas announced the agreement to acquire the majority of Shell's activities in Greece, including 700 gas stations and storage depots of 137 000 m³ (0.9 mb). With these two acquisitions, Hellenic Petroleum's retail network represents some 28% of the market, while Motor Oil's will capture approximately 21%.

2.2 Oil Supply Infrastructure

Refining

There are four refineries in Greece, with a total crude distillation capacity of around 490 kb/d. Roughly two-thirds of this capacity is owned by Hellenic Petroleum, including two refineries located in the Athens area and a third near Thessaloniki. The fourth refinery, owned by Motor Oil Hellas, is located on Corinth.

In 2009, the four refineries processed around 347 kb/d of crude oil, which meant that the overall capacity utilization rate was nearly 81%. In the same year, the composition of production from these refineries was motor gasoline (19%), gas/diesel oil (30%), residual fuel oil (28%) and LPG (3%). The gas/diesel oil deficit of Greece, which averaged at 16 kb/d in 2009, is diminishing due to the investments made for upgrading refinery capacities.



Ports and Pipelines

There are ten oil terminals in Greece. Seven of them are located in the Attiki Area (Athens) and the remaining three in the Salonica area. Six oil terminals can accept crude oils, of which four are located near the refineries; they are Aspropyrgos, Elefsis, Thessaloniki, Aghioi Theodori, Pachi (Megara) and Agia Trias.

There are two oil pipelines in Greece. The first, a 220-km, 16-inch crude pipeline with a capacity of 50 kb/d (2.5 Mt/yr), links the Thessaloniki port in Greece with the Octa refinery in the Former Yugoslavian Republic of Macedonia. It is owned and operated by Hellenic Petroleum. The second, a 53-km, 10-inch JET A-1 pipeline with a capacity of 42 kb/d, connects the Aspropyrgos refinery with Athens International Airport.

Except for jet fuels supplied to the Athens airport, nearly all inland transportation of crude oil and refined products is by ship and road. Products are also transported by rail in Greece specifically to the power plants. Rail is also used to transport local products to the Balkans.

There is an international pipeline project that is expected to be used for transporting Russian and Caspian oil from the Bulgarian Black Sea port of Burgas to the Greek Aegean port of Alexandroupolis. The construction of the pipeline is scheduled to start in 2011 and is estimated

to be completed by early 2013. This 300-km pipeline, with a capacity of 0.7-1 mb/d, would be an alternative export route for Russian oil by bypassing the Bosphorus Straits.

Storage capacity

At the end of 2009, Greece possessed a total storage capacity of 59.7 million barrels (9.5 million cubic meters) used for industry operations and mandatory industry stocks. Crude oil storage accounted for some 30% of the country's total storage capacity.

Roughly two-thirds of the total storage capacity was owned by Hellenic Petroleum at the end of 2009. The remaining portions were held by Motor Oil (21.8%), PPS (6.6%), BP Hellas (1.6%), Mamid Oil (1.6%), Shell Helas (1.2%) and other small operators.

All of the storage facilities owned by Hellenic Petroleum are certified tanks for emergency stocks and are used for the company's stocks as well as for stocks of the Cyprus Organisation for the Storage and Management of Oil Stocks (KODAP). A part of the storage facilities owned by Motor Oil is also used for maintaining stocks for third parties, such as the KODAP, foreign companies with term/spot commercial storage agreements and clients who require oil storage capacity to obtain retailing licenses under the existing Greek law (3054/2002).

Oil Infrastructure Map



The boundaries and names shown and the designations used on maps included in this publication do not imply official endorsement or acceptance by the IEA.

2.3 Decision-making Structure for Oil Emergencies

The Oil Crisis Management Committee forms the permanent core of the Greek National Emergency Strategy Organisation (NESO), which is supported by the Directorate of Petroleum Policy of the Ministry of Environment, Energy and Climate Change. The Oil Crisis Management Committee is chaired by the General Secretary of the Ministry of Environment, Energy and Climate Change, and is composed of 15 members, including the President of the Regulatory Authority of Energy (RAE), representatives of the Ministries of National Defense, Finance, Economy, and Transport, representatives from the three branches of the Armed Forces and representatives of refineries and retail trade companies. The Oil Crisis Management Committee is convened every three months in normal times.

The Directorate of Petroleum Policy plays an important role in preparing and implementing an emergency response plan and measures. The Directorate is responsible for interfacing with the IEA and the EU as well as with the domestic industry and regional authorities, and for collecting and processing data on emergency stocks.

In the event of an oil supply crisis, extraordinary meetings of the Oil Crisis Management Committee will be held at the Ministry of Environment, Energy and Climate Change. The Committee is responsible for the political decision whether Greece will participate in a proposed IEA collective action or not, and will determine emergency response measures to be taken. The Committee is tasked to draw and submit to the Minister of Environment, Energy and Climate Change an emergency action plan to tackle the crisis and to report to the Minister on the implementation of the plan.

2.4 Stocks

Stockholding Structure

Greece meets its stockholding obligation to the IEA and the EU by placing a stockholding obligation on industry. Under Law 3054/2002, importers of crude oil or oil products destined for the domestic market, as well as large end users (such as power plants) are required to hold oil stocks with a volume of equivalent to 90 days of their net imports made during the previous year. As of May 2010, two refiners (Hellenic Petroleum and Motor Oil), three traders (BP, Shell, Jet Oil) and one utility (PPC) are obliged to hold oil stocks.

Law 3054/2002 allows companies to include toward their domestic stockholding obligation the volume of oil transported by marine vessels within the Greek sovereignty space, on condition that the consignee is either the obliged stockholder or a third party that owns storage tanks certified for compulsory stocks. However, the Greek legislation stipulates that the aforementioned quantities of emergency oil reserves may vary following a decision by the Minister of Environment, Energy and Climate Change, in light of the country's international obligations.

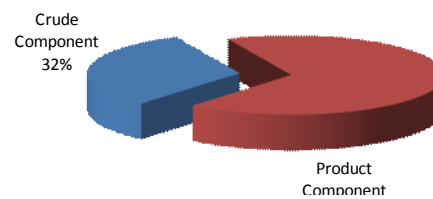
Under the Greek stockholding regime, an entity that is required to hold emergency oil reserves may agree to a contract with a third party who is the owner of certified storage facilities for the safekeeping of the total or a part of their statutory emergency oil reserves, after authorisation by the Ministry of Environment, Energy and Climate Change. Such a contract should be at least for one year and dedicated exclusively to the keeping of the emergency oil reserves.

Crude or Products

Roughly 70% of the Greece's emergency reserves (the oil stocks counting towards meeting its stockholding obligation according to IEA methodology) are held in the form of refined product.

Total Emergency Reserves, by type

May 2010



Source: Monthly Oil Statistics, IEA

Location and Availability

All compulsory stocks must be maintained within the Greek national territory. Greece does not have any bilateral stockholding agreements with other IEA Member countries. Furthermore, Greece has a strong preference to maintain physical stocks in its territory in order to ensure the security of supply. Therefore, there are no ticket agreements in Greece.

Compulsory stocks held by industry must be maintained in storage facilities that have been certified as emergency reserves storage tanks. But this does not mean that operational and/or commercial stocks must be kept separately. In practice, compulsory stocks in Greece are commingled with operational and/or commercial stocks.

Monitoring and Non-compliance

Under the Ministerial Decision D1/12565/2007 on Rules on Maintenance of Safety Stocks, the Directorate of Petroleum Policy of Ministry of Environment, Energy and Climate Change is responsible for the data collection for oil. The parties responsible for maintaining emergency stocks are required to submit monthly oil statistical reports in writing to the Directorate for Petroleum Policy, not later than the first business day following the twentieth calendar day of every month. The monthly reports include an emergency stock periodical report, a gravity report and inventory customs certificates.

The Ministerial Decision authorises the Directorate of Petroleum Policy to undertake spot checks of emergency stocks in certified tanks. Usually the quantities maintained by entities are cross-checked through the customs and tax authorities' official documents.

Stock Drawdown and Timeframe

The use of oil stocks held by the domestic industry would be central to Greece's emergency response policy.

Under Law 3054/2002, the Minister for Environment, Energy and Climate Change is authorised to decide on the release of compulsory industry stocks, based on the proposal by the Oil Crisis Management Committee. In case of an IEA collective action, the Oil Crisis Management Committee will draft a decision on the emergency response measures as well as on the manner and type of stocks to be released, and will propose this decision to the Minister for final approval, within 48 hours from the moment of the Notice of Activation under the ICRP.

The Draft Joint Ministerial Decision on the National Emergency Plan prescribes several stock release procedures during local supply disruptions, including temporary or mandatory reduction of the stockholding obligation by category of products, tender and allocation of emergency stocks to specific categories of customers or to specific geographic areas in the country.

During the period of implementation of the emergency action plan, the Oil Crisis Management Committee regulates the distribution of emergency oil reserves and supervises compliance with the plan and emergency measures.

Financing and Fees

The Greek government does not provide any financial support for the obliged stockholders. The costs of compulsory oil stocks are financed by the companies operating in the Greek market, and thus implicitly passed on to consumers through market prices. Information on the costs of obligatory stocks is not made public.

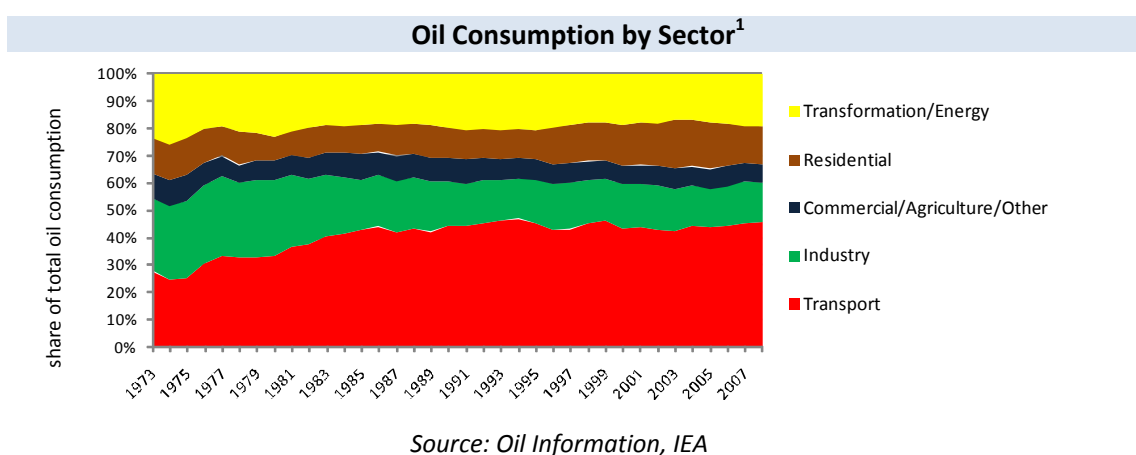
The Minister of Environment, Energy and Climate Change may occasionally decide to set a ceiling for fees charged by storage companies to entities without enough storage capacity.

3. Other Measures

3.1 Demand Restraint

Under the Law 3054/2002 and the Ministerial Decisions D1/9479/2003, D1/9480/2003 and D1/9481/2003, the Oil Crisis Management Committee may decide on the demand restraint measures to take and may supervise its implementation.

The Draft Joint Ministerial Decision on the National Emergency Plan includes a comprehensive list of possible measures that can be taken to reduce oil consumption in the short term. Promotion of the use of public transport, speed limit reduction, car-pooling and lowering heating temperatures are envisaged as voluntary demand restraint measures, which are expected to be encouraged by information campaigns through mass media. Compulsory measures considered are driving restrictions, limited opening hours of service stations, and restriction of fuel supply to retail companies.



¹ Total Consumption (including refinery consumption), does not include international marine bunkers.

3.2 Fuel Switching

Oil is used for electricity generation on many of the 200 inhabited islands of Greece. However, none of the oil-fired power plants in the country possess fuel switching capacity to alternative fuels, as natural gas is hardly available on the islands.

There is no specific policy or legislation for the promotion of short-term fuel switching from oil to other fuels in an emergency.

3.3 Others

Given that Greece has very little indigenous oil production, surge production of oil is not considered as an emergency response measure in the country.

4. Natural Gas

4.1 Market Features and Key Issues

Gas reserves and domestic production

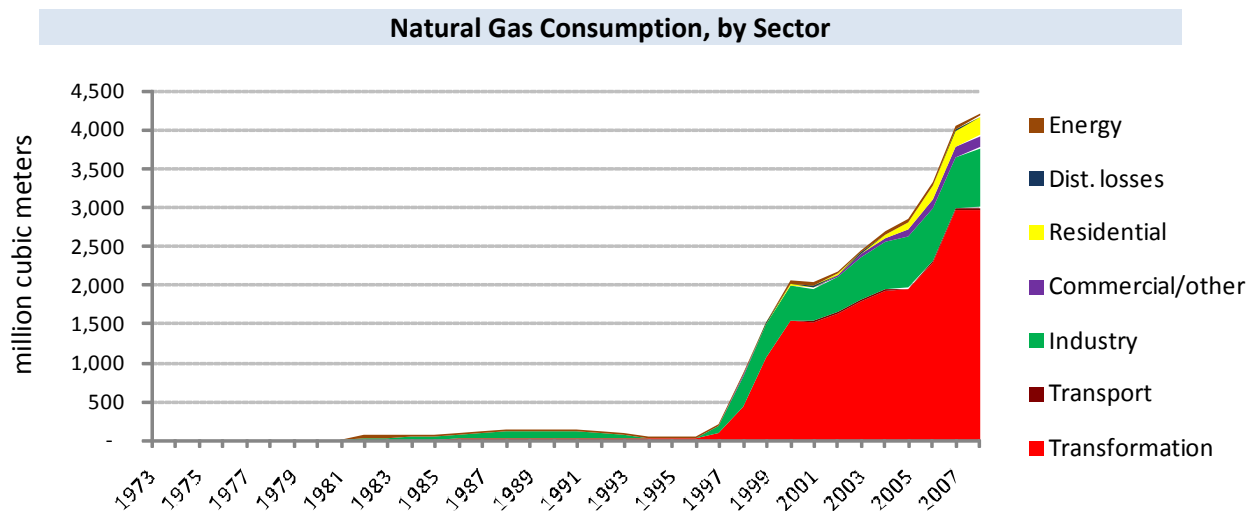
Greece's domestic production of natural gas is negligible. The South Kavala gas field, located in the Kavala Gulf of the Aegean Sea, produced merely 9 million cubic meters (mcm) in 2009 (0.02 mcm/d).

Gas demand

Since 1981 when indigenous production of natural gas started, the demand for natural gas steadily increased and stood at 4 208 mcm (11.5 mcm/d) in 2008. The annual demand grew at an average rate of 9.4% per annum between 2002 and 2008. The sharp increase of gas demand, especially seen since the mid-1990s, was primarily driven by growth in the demand for electricity and the subsequent construction of new, gas-fired power stations. In 2008, transformation (electricity generation) represented roughly 70% of total gas consumption. However, Greece's gas demand in 2009 fell to 3 528 mcm (9.7 mcm/d), which was a 16% decline from the previous year's level.

Natural gas demand is forecast to reach 5 930 mcm (16.2 mcm/d) in 2015 and 7 140 mcm (19.6 mcm/d) in 2020, which will be a 68% and 102% increase over the 2009 figure, respectively. The ratio of demand for electricity generation in total demand is projected to remain dominant at around 65% in 2015 and 68 % in 2020, respectively.

The daily peak demand in 2009 was 16.3 mcm/d, while the daily average demand in the year was 9.7 mcm/d. The daily peak demand in the summer of 2009 was 11.4 mcm d.



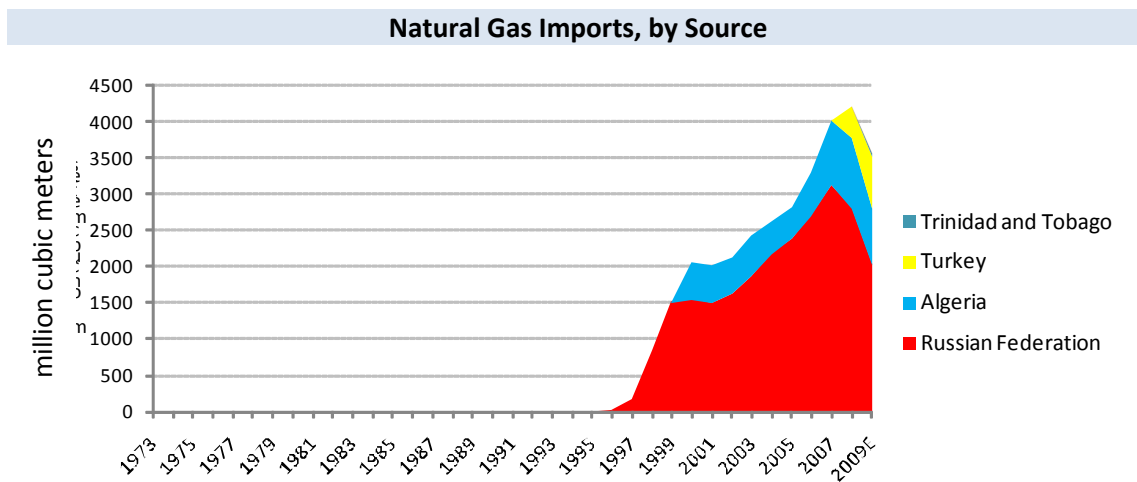
Source: Natural Gas Information, IEA

Gas imports

Greece's total natural gas imports in 2009 were some 3.6 bcm (9.7 mcm/d), roughly three-quarters of which were supplied by pipeline and the remaining portion was imported in the form of LNG. Russia has been the principal source of natural gas imports since Greece began to import gas in 1997. However, the share of Russian gas in total gas imports has gradually declined from 85% in 2005 to 57% in 2009, due to the increase of imports from Algeria and Turkey. Natural gas supplied from Algeria and Turkey accounted for around 22% and 20% of the total gas imports in 2009.

The Greek Public Gas Corporation, DEPA, has three long-term contracts with Russian Gazexport, Algerian Sonatrach and Turkish Botas for natural gas supply, totalling a volume of 4.25 bcm per year until 2016. The share of natural gas imported through the LNG spot market was about 8% of the total imports in 2009. In order to facilitate LNG imports from the spot market, DEPA has signed Master Agreements with IOCs for the supply of LNG, including with ENI, BP and Shell.

In May 2010, Greece signed a non-binding memorandum of understanding (MOU) with Qatar on LNG imports. The MOU includes plans to export Qatari LNG to Greece and to construct a 3.5-billion-euro LNG terminal with a capacity of 7 bcm per year in western Greece.



Source: Natural Gas Information, IEA

Gas Company Operations

In accordance with the legislative framework on the liberalisation of the natural gas market (Law 3428/2005), DEPA established the “National Natural Gas System Operator SA (DESFA SA)”, a 100% subsidiary of DEPA, in 2007. DESFA owns the existing gas infrastructure, and serves as the Transmission System Operator (TSO) as well as the LNG Operator (LSO).

Through its 100% subsidiary EDA, DEPA holds 51% of the shares in the three regional EPAs (local gas distribution companies), while private investors hold the remaining 49%. EPAs are responsible for extending the urban networks, as well as distributing gas to domestic and industry consumers with annual consumption below 9.3 mcm per year. EPA Attiki (Athens) is partially owned and operated by the consortium of Duke Energy and Shell Gas, and the EPA Thessaloniki and Thessaly are partially owned and operated by the Italian company ENI.

4.2 Natural gas supply infrastructure

Ports and Pipelines

There are three entry points for the natural gas transportation system of Greece. The first entry point (with a maximum import capacity of 5.8 bcm per year) is at Promahonas, located on the Greek-Bulgarian border, via which natural gas from Russia is imported by a pipeline through Ukraine, Moldavia, Romania and Bulgaria. The second entry point (2.3 bcm/yr) is at Kipoi on the Greek-Turkish border, which connects the Greek national natural gas transmission system with the corresponding Turkish transmission system and enables gas imports from Turkey. The third entry point (5.3 bcm/yr) is the LNG terminal located on the island of Revithoussa in the Gulf of Pachi.

These three entry points provide the Greek national gas transmission system with a maximum import capacity of 13.4 bcm per year. This capacity will be further increased to 23 bcm per year after the realisation of the Interconnection pipeline to Italy. However, the total volume of imported gas that can be fed into the national transmission system was estimated at 6.5 bcm per year in 2009, much lower than the maximum import capacity, mainly due to the limited transport capacity of the main transmission gas pipelines linked to southern parts of the country.

Being located in a strategic location for the delivery of Russian, Caspian, and Middle Eastern gas supplies to Europe, Greece is involved in international gas pipeline projects, such as the Greek branch of South Stream, Interconnector Greece-Bulgaria (IGB) and Interconnector Turkey-Greece-Italy (ITGI).

The LNG Regasification Terminal on Revithoussa Island has a normal Sustained Maximum Send-out Rate (SMSR) of 1 000 m³ LNG/h (14.4 mcm/d), which is almost equal to the level of peak gas demand in 2009 and roughly 50% higher than that of average daily gas demand. The peak SMSR (emergency rate) is 1 250 m³ LNG/h (18.5 mcm/d). LNG imports by Greece in 2009 were equivalent to 2.3 mcm/d, which indicates that only 15% of the normal capacity of the LNG terminal was used.

Storage

There are no underground storage facilities in Greece. The country's only gas storage facility is located at the LNG terminal on the island of Revithoussa. The combined storage capacity of the two LNG tanks in Revithoussa is 130 000 cubic meters of LNG, which is equivalent to 80 mcm of natural gas. The full capacity of this storage facility equates to 8 days of average gas demand and 5 days of peak gas demand in 2009.

Natural Gas Infrastructure Map



The boundaries and names shown and the designations used on maps included in this publication do not imply official endorsement or acceptance by the IEA.

4.3 Emergency Policy for Natural Gas

Diversification of supply sources and development of the natural gas transmission system are the key elements of Greece's overall policy on natural gas security. Law No. 3428/2005 on the liberalisation of the natural gas markets sets the regulatory framework of the natural gas market in Greece. The Law also transposed into the Greek legislation the EU Directive 2004/67/EC "concerning measures to safeguard security of natural gas supply".

Under Law No. 3428/2005, DESFA (the TSO) plays a major role in emergency planning and managing crisis situations that affect the National Natural Gas System. DESFA is exclusively responsible for the operation, maintenance, development and utilization of the National Natural Gas System. DESFA has drafted procedures for the event of a supply reduction in the Greek natural gas system. Emergency response measures, such as interruption of gas for customers based on the priority set by DESFA, fuel switching at power stations and use of gas reserves at the LNG terminal, are foreseen in the procedures.

Under the Network Code, DESFA will declare a gas emergency situation, and activate and terminate an Emergency Response Plan.

Strategic Gas Stocks and Drawdown

The use of gas available at the LNG tanks in Revithoussa is one of the emergency response measures that DESFA may implement in an emergency. Roughly a quarter of the existing storage space at Revithoussa LNG terminal, 30 000 cubic meters of LNG (equivalent to 18 mcm), is reserved by DESFA (TSO) for the purpose of maintaining the security of natural gas supply on a short-term basis. This portion of natural gas is intended to be used for coping with peak demand and sudden gas supply disruptions and also for balancing reasons, but it cannot cover more than one day of average or peak gas demand. DESFA can draw down this portion of stocks at the LNG terminal without obtaining approval of the relevant Minister.

Demand Restraint

Under the provisions of Law No. 3428/2005, DESFA and Customers are obliged to sign a contract for the interruption of natural gas supply by priority. In case of a gas emergency, there is a specific ranking of natural gas interruption, and dual-fired power plants and big industrial customers are the first to be cut off, according to this priority list.

DESFA may issue orders to interrupt the gas supply not only to big industrial customers, but also to any other customer if it estimates that it is necessary for the effective operation of the natural gas grid. That course of action is intended to ensure that households and other "small" customers are protected according to Directive 2004/67/EC.

DESFA has a load shedding plan for the interruption of gas supply to electricity production units. The plan has 24 alternative scenarios for the interruption of gas supply at the three natural gas entry points.

Fuel Switching

Fuel switching at power stations is also envisaged as an emergency response measure in a gas crisis. In order to be granted with a Production License, new gas-fired power producers are obliged to hold at least five days of back-up reserves of dual fuel (*i.e.* either diesel at a storage facility on the power plant's premises, or LNG reserves at the Revithoussa LNG Terminal).

Seven thermal power generation units, with a total capacity of 2 518 MW, use natural gas as primary fuel. Four of them, with a combined capacity of some 1 600 MW, are able to switch to an alternative fuel. The remaining three generation units belong to the Public Power Corporation and their capacity (some 930 MW) can be covered, if stopped because of a gas supply disruption, by other power plants that use lignite or hydro as primary energy source.

INTERNATIONAL ENERGY AGENCY

The International Energy Agency (IEA), an autonomous agency, was established in November 1974. Its mandate is two-fold: to promote energy security amongst its member countries through collective response to physical disruptions in oil supply and to advise member countries on sound energy policy.

The IEA carries out a comprehensive programme of energy co-operation among 28 advanced economies, each of which is obliged to hold oil stocks equivalent to 90 days of its net imports. The Agency aims to:

- Secure member countries' access to reliable and ample supplies of all forms of energy; in particular, through maintaining effective emergency response capabilities in case of oil supply disruptions.
- Promote sustainable energy policies that spur economic growth and environmental protection in a global context – particularly in terms of reducing greenhouse-gas emissions that contribute to climate change.
- Improve transparency of international markets through collection and analysis of energy data.
 - Support global collaboration on energy technology to secure future energy supplies and mitigate their environmental impact, including through improved energy efficiency and development and deployment of low-carbon technologies.
 - Find solutions to global energy challenges through engagement and dialogue with non-member countries, industry, international organisations and other stakeholders.

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International
Energy Agency

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