CHAPTER 4: Emergency response systems of individual IEA countries

The ability of the International Energy Agency (IEA) to co-ordinate a swift and effective international response to an oil supply disruption stems from the strategic efforts of member countries to maintain a state of preparedness at the national level. Energy security is more than just oil, as the role of natural gas continues to increase in the energy balances of IEA countries. The most recently completed cycle of Emergency Response Reviews (ERRs) reflected this change by assessing, for the first time, the member countries’ exposure to gas disruptions and their ability to respond to such crises. This chapter provides general profiles of the oil and natural gas infrastructure and emergency response mechanisms for 29 IEA member countries.

Each country profile is set out in the following sequence:

**Key data**
- Key oil data, 1990-2018
- Key natural gas data, 1990-2018
- Total primary energy source (TPES) trend, 1973-2012

**Infrastructure map**

**Country overview**

**OIL**
- **Market features and key issues**
  - Domestic oil production
  - Oil demand
  - Imports/exports and import dependency
  - Oil company operations

- **Oil supply infrastructure**
  - Refining
  - Ports and pipelines
  - Storage capacity

- **Decision-making structure**

- **Stocks**
  - Stockholding structure
  - Crude or products
  - Location and availability
  - Monitoring and non-compliance
  - Stock drawdown and timeframe
  - Financing and fees

- **Other measures**
  - Demand restraint
  - Fuel switching
  - Other

**GAS**
- **Market features and key issues**
  - Gas production and reserves
  - Gas demand
  - Gas import dependency
  - Gas company operations

- **Gas supply infrastructure**
  - Ports and pipelines
  - Storage

- **Emergency policy**
  - Emergency response measures
Finland

Key data

Table 4.8.1 Key oil data

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<td>0.0</td>
<td>0.0</td>
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<tr>
<td>Demand (kb/d)</td>
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<td>215.0</td>
<td>219.6</td>
<td>215.9</td>
<td>207.7</td>
<td>196.5</td>
<td>178.7</td>
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<td>41.3</td>
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<td>39.0</td>
<td>37.6</td>
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<td>Gas/diesel oil</td>
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<td>87.3</td>
<td>84.8</td>
<td>88.1</td>
<td>84.5</td>
<td>85.8</td>
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<td>Residual fuel oil</td>
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<td>35.3</td>
<td>34.3</td>
<td>24.5</td>
<td>20.5</td>
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<td>Others</td>
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<td>51.2</td>
<td>57.0</td>
<td>64.4</td>
<td>65.1</td>
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<td>Net imports (kb/d)</td>
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<td>219.6</td>
<td>215.9</td>
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<td>Refining capacity (kb/d)</td>
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<td>257.1</td>
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<td>Oil in TPES** (%)</td>
<td>34</td>
<td>29</td>
<td>30</td>
<td>26</td>
<td>26</td>
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* Forecast.
** TPES data for 2012 are estimates.

Table 4.8.2 Key natural gas data

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<td>Demand (mcm/y)</td>
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<td>4 199</td>
<td>4 435</td>
<td>4 700</td>
<td>4 118</td>
<td>3 671</td>
<td>3 439</td>
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<td>Transformation</td>
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<td>2 759</td>
<td>3 078</td>
<td>3 047</td>
<td>2 498</td>
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<tr>
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<td>1 060</td>
<td>952</td>
<td>1 171</td>
<td>1 128</td>
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<td>Residential</td>
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<td>59</td>
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<td>Others</td>
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<td>368</td>
<td>423</td>
<td>453</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Net imports (mcm/y)</td>
<td>2 681</td>
<td>4 199</td>
<td>4 435</td>
<td>4 700</td>
<td>4 118</td>
<td>3 671</td>
<td>3 439</td>
</tr>
<tr>
<td>Import dependency (%)</td>
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<td>100</td>
<td>100</td>
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<td>100</td>
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<td>Natural gas in TPES (%)</td>
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<td>11</td>
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<td>11</td>
<td>10</td>
<td>9</td>
<td>-</td>
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</tbody>
</table>

* 2012 data are estimates.
** Forecast.

Note: This section on the emergency response systems of individual member countries was written by the IEA. All countries provided valuable information and comments. All opinions, errors and omissions are solely the responsibility of the IEA.
Figure 4.8.1  Total primary energy source (TPES) trend, 1973-2012
This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.
Map 4.8.2  Gas infrastructure of Finland

This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the names of any territory, city or area.
Country overview

Oil has been a main energy source in Finland, accounting for some 25% of the country’s total primary energy supply (TPES) in 2012. Finland’s oil demand slightly increased from 215 thousand barrels per day (kb/d) in 2000 to 224 kb/d in 2007, and then decreased to 197 kb/d in 2012. The transport sector accounted for almost half of total oil consumption in 2011.

As Finland has no domestic oil production, it is entirely dependent upon crude oil imports. In 2012, its oil imports were around 328 kb/d, consisting of 206 kb/d of crude oil, 24 kb/d of natural gas liquids (NGLs) and feedstock, and 97 kb/d of refined products. Around 89% of the total crude oil imports came from the Russian Federation. In the country, there are two refineries with a total crude distillation capacity of around 265 kb/d. Finland was a net exporter of refined products, exporting around 163 kb/d of refined products in 2012.

Finland meets its stockholding obligation to the International Energy Agency (IEA) by holding government stocks and by placing a minimum stockholding obligation on industry. Under the relevant acts, the National Emergency Supply Agency (NESA) manages the public oil emergency reserves. Oil importers are obliged to hold at least two months of stocks based on an average of their imports from the previous year.

The use of emergency oil stocks is central to Finland’s emergency response policy, which can be complemented by demand restraint measures. Finland held 38 million barrels (mb) of oil stocks for oil emergencies at the end of April 2013.

The share of natural gas in the country’s TPES stood at 9% in 2012. Finland’s gas demand increased from 0.5 billion cubic metres (bcm) in 1974 to 5 bcm in 2005, and has steadily decreased to 3.7 bcm (10.1 mcm/d) in 2012. Not having any domestic natural gas production, Finnish gas demand is entirely met by imports from Russia supplied via a twin pipeline connection.

Key elements in Finland’s overall gas security policy are compulsory stocks in the form of oil products for fuel switching, control of excess supply and cut back of contractual supplies. The gas importer, gas plants and municipal users consuming above a certain amount of gas are each obliged to hold alternative fuel stocks corresponding to three month’s natural gas import/consumption. NESA also holds alternative fuel stocks for gas disruptions, and decides the amount of its stocks in consideration of the government’s objective to have stocks of imported fuels equivalent to five months’ consumption of all imported fuels. This covers stocks for industrial use on which there is no stockholding obligation. Substitute fuels for gas are light fuel oil, heavy fuel oil and propane gas.

The transmission system operator (TSO), Gasum Oy, is responsible for assuring gas supplies to protected customers who can only use gas by providing air-mixed propane gas. In case of a natural gas disruption, liquefied petroleum gas (LPG) stocks are also planned for use in the Porvoo refinery, one of the largest consumers of natural gas in the country. Small amounts of liquefied natural gas (LNG) stocks that have been domestically liquefied can also be made available during gas disruptions.

Oil

Market features and key issues

Domestic oil production

Finland has no domestic production of crude oil and its oil demand is fully covered by imports.
**Oil demand**

The country’s oil demand increased slightly from 215 kb/d in 2000 to 224 kb/d in 2007, and then decreased to 197 kb/d in 2012. Total oil demand is expected to decrease to some 179 kb/d in 2018.

In 2011, almost half of Finnish total oil demand was consumed by the transport sector, whilst the industry sector accounted for 23% and the transformation/energy sector for 14%.

![Figure 4.8.2 Oil consumption by sector, 1973-2011](image)

The demand for diesel has increased by 24% between 2003 and 2012, whereas demand for gasoline has decreased by 14% over the same period. Demand for heating oil/other gasoil and residential fuels dropped significantly by 27% and 57% respectively.

In Finland, 6% of transport fuels should be bio-components (in terms of energy content) whose raw materials are mostly imported.

![Figure 4.8.3 Oil demand by product, 1998–2012](image)
Imports/exports and import dependency

In 2012, Finland’s oil imports were some 328 kb/d, consisting of about 206 kb/d of crude oil, 24 kb/d of NGLs and feedstock and 97 kb/d of refined products.

Finland is highly dependent on Russia as a source for its crude oil imports, which accounted for 89% of total crude oil imports in 2012, with the rest imported from Norway. The import dependency on Russian crude oil significantly increased from 43% of total crude oil imports in 2000 to 89% in 2012, with a compound growth rate of around 7%.

Figure 4.8.4 Crude oil imports by origin, 2012

In 2012, refined product imports came from Russia (52%), Sweden (11%), Kazakhstan (8%) the Netherlands (6%) and Korea (4%). However, in the same year Finland was a net exporting country of refined products, exporting around 163 kb/d of refined products, 26% of which was shipped to Sweden.

Oil company operations

Neste Oil Oy, a majority state-owned company, is a key player in the domestic market and is the only crude importer owning both refineries in Finland. In the Finnish retail market, the share of Neste Oil Oy was around 33%, followed by Teboil (25%), ST1 (12%) and ABC (11%). In addition, North European Oil Trade Oy (NEOT) – owned by SOK and St1 Oy – acts as a wholesale company which deals with the procurement and logistics of oil products for certain retail companies.

Oil supply infrastructure

Refining

The two refineries in Finland, with a total crude distillation capacity of around 265 kb/d are the Porvoo refinery (206 kb/d) and the Naantali refinery (58.5 kb/d). In 2011, total crude throughputs averaged 231 kb/d, which indicates that the overall capacity utilisation rate was over 85%. In 2012, the refined product output from the two domestic refineries totalled some 291 kb/d. The composition of production from these refineries was gas/diesel oil (47%), gasoline (33%), residual fuel oil (8%) and other middle distillates (4%).

With the exception of gasoline, gas/diesel oil and residual fuels, domestic refinery production was insufficient to meet demand in the country. In 2012, domestic production of jet and kerosene was able to meet 78% of domestic demand, requiring...
imports to meet the remaining share. However, 40% of the refined oil product outputs, including gasoline and diesel oil, were exported in 2012.

**Figure 4.8.5 Refinery output vs. demand, 2012**

![Refinery output vs. demand, 2012](image)

**Ports and pipelines**

Finland has no cross-border oil pipelines or domestic oil pipelines. Imports of crude oil and petroleum products are mainly undertaken by tanker fleets, rail tanks and trucks. Of these transport routes, in 2011 over 91% of the feedstock used at Neste Oil’s refineries was supplied by sea, 7% by rail and the rest mainly by road; 70% of products to Neste Oil’s domestic customers was shipped by sea, 19% by road and the rest by rail.

Crude oils and refined products are imported through six main oil import terminals. Of these, only Porvoo and Naantali terminals, owned by Neste Oil, can import crude oils with a total crude oil import capacity of 19 million tonnes (Mt) per year (some 385 kb/d): 304 kb/d in Porvoo and 81 kb/d in Naantali. Russian crude oil is imported from the nearby Russian oil port of Primorsk, which is located 147 nautical miles from the Porvoo terminal.

The importing and exporting capacity of the Porvoo and Naantali terminals together is 18 Mt/year (some 300 kb/d based on the share of product imports): 15 Mt (250 kb/d) in Porvoo and 3 Mt (50 kb/d) per year in Naantali.

**Storage capacity**

Finland has a total storage capacity of over 63 mb (10 mcm), mainly in 25 coastal and major inland storage facilities. Major coastal terminals are located at the refineries in Porvoo (44 mb or 7 mcm) and Naantali (6 mb or 1 mcm), and at Inkoo (3.1 mb or 0.5 mcm), Kokkola (2.5 mb or 0.4 mcm), Kemi (1.6 mb or 0.2 mcm) and Hamina (0.6 mb or 0.1 mcm). Around two-thirds of the all storage facilities are in the form of underground rock cavern storage.

While the major storage facilities are owned mostly by the industry, the public stockholding agency NESA owns more than half of the storage capacity necessary for storing public stocks.
Decision-making structure

The Department of Energy in the Ministry of Employment and the Economy is responsible for general energy issues related to the security of supply in normal times as well as during supply disruptions. The department forms the core of the Finnish national emergency strategy organisation (NESO).

The NESO also includes personnel from the NESA, the Ministry of Transport and Communication, and industry. The Security of Supply Act (1992) provides the legal basis for co-operation between NESA and the industry, which is made through a pooling system such as the Oil Pool and Power and District Heat Pool. The Oil Pool updates contingency plans as well as general guidelines for a disruption, and conducts training and seminars.

During an emergency, the Council of State will make a decision to release public stocks, based on a proposal by the Ministry of Employment and the Economy. Obligated industry oil stocks may be released upon NESA’s approval in case a shortage of oil could endanger the operations of the holder of the compulsory stocks.

Stocks

Stockholding structure

Finland meets its stockholding obligation to the IEA by holding government stocks and by placing a minimum stockholding obligation on industry. NESA manages public oil emergency reserves under the Act on the Security of Supply (1390/1992).

According to the emergency reserve target set by the Government Decision on the Objectives of Security of Supply issued on 21 August 2008, the country should hold a total of five months’ stocks of imported fuel consumption of oil, natural gas and coal. Even though there is no official objective for individual fuels, the government makes efforts to maintain stocks for each fuel at close to five months of consumption.

While oil importers are required to maintain compulsory oil stocks corresponding to two months’ imports based on the average of the previous year, NESA holds the public stocks corresponding to the remaining balance of the stockholding target. The stockpiling obligation applies to the imports of crude oil, other condensates for refineries, diesel oil, light fuel oil, gasoline (motor and aviation) and jet fuel. Based on the Act on the Compulsory Stockholding of Imported Fuels (1070/1994), oil importers who annually import less than 39.5 kb (5,000 tonnes) of kerosene/jet fuels, less than 84.5 kb (10,000 tonnes) of motor gasoline and less than 147.5 kb (20,000 tonnes) of crude oil or other products are exempted from the obligation to hold compulsory stocks. NESA is responsible for ensuring the implementation of the oil stockpiling obligations. It is empowered to determine the quantities of oil to be stockpiled on an annual basis and to supervise the compulsory stocks and their use.

Crude or products

At the end of April 2013, Finland held some 38 mb of oil stocks (19 mb of government stocks and 19 mb of industry stocks), equal to 210 days of 2012 net imports (120 days of government stocks and 90 days of industry stocks), to meet its IEA obligations. Middle distillates accounted for 66% of the total public stocks, followed by crude oil (26%) and motor gasoline (6%). In terms of industry stocks, crude oil was the main product held (24%), followed by middle distillates (23%). Compulsory stocks are commingled with commercial and operational stocks.
A crude oil importer has an obligation to hold stocks in the form of crude. However, it can apply for permission from NESA to substitute up to 50% of this crude oil stock obligation with oil products. Likewise, importers of oil products have an obligation to hold stocks of the same products, but can apply for permission to substitute their obligation to hold a particular product by other finished products. Substitution of oil products by crude oil is not allowed.

**Location and availability**

Finland has bilateral agreements with Sweden, Denmark, Estonia and Latvia. Although Finnish oil importers may hold up to 20% of stocks in the countries which have concluded bilateral agreement with Finland, as of 2013 no compulsory stocks are held abroad. Public stocks maintained by NESA are not allowed to be held outside the country. Public stocks of crude oil are located in both refineries, although most are stored at the Porvoo refinery.

For the minimum operating requirements, Finnish oil refineries hold 2 weeks of feedstocks and other oil importers hold 10-14 days of product stocks on top of the compulsory stocks.

**Monitoring and non-compliance**

NESA conducts regular on-site audits to monitor physical availability and the quality of compulsory stocks.

Companies can be fined if they fail to comply with their stock obligations in terms of quality, quantity and location of oil products.

**Stock drawdown and timeframe**

The Act on the Security of Supply (1390/1992) requires a decision by the Council of State to draw down public stocks during an oil supply disruption. The Council of State will make a decision based on a proposal made by the Energy Department of the Ministry of Employment and the Economy in close co-ordination with the Oil Pool of the Finnish NESO. The amount of drawdown is determined based upon estimates of imports, exports and estimated consumption. The government’s decision could be made in two to four days.

Upon receiving the stock release order from the government, NESA would release public stocks to oil refineries, oil companies and major consumers through public tenders. Foreign companies are also allowed to participate in the tendering.

For the industry obligation, NESA may, upon request, authorise industry holders of compulsory stocks to use their obligated stocks if the holder’s production or business would be at risk. It is estimated that such a decision could be made in two days. Decisions on how the compulsory stocks should practically be released are made by the stockholder. The government can also temporarily release compulsory industry stocks to meet international commitments such as IEA and EU obligations.

**Financing and fees**

Public stockpiling costs, including operation and management fees, are financed by a levy called the precautionary stock fee. It is charged on end-user prices of gasoline, diesel, fuel oils, coal, natural gas and electricity. The level of the stock fee is EUR 2.86 per tonne for low-sulphur fuel oil, EUR 6.73 per kilolitre (kL) for motor gasoline, EUR 3.53 per kL for light fuel oil and diesel oil and EUR 2.86 per kL for heavy fuel oil.
The total annual budget of NESA amounts to around EUR 50 million, around 20% of which is used for stockholding of energy resources.

The Finnish government does not provide financial support for building compulsory industry stocks. All refiners and importers must self-fund the operational costs of meeting emergency requirements. These costs are implicitly passed on to final consumers in market prices.

Other measures

Demand restraint

Demand restraint is considered as a secondary emergency response measure that could complement an oil stock release in Finland. As Finland has abundant amounts of emergency oil stocks, demand restraint measures would only be deployed in case of a long-lasting, severe supply disruption.

Finland’s demand restraint measures would range from light-handed measures on a recommendation basis (e.g. lowering of room temperature in space heating and limitations in ventilation and warm water), to heavy-handed measures made by compulsory orders (e.g. lowering of speed limit, lowering of room temperature, limitations in use of cars and rationing of traffic fuels/light and heavy fuel oils in space heating, industrial use and agricultural use).

Measures based on recommendations can be implemented immediately by the authorities responsible, while full operations of compulsory measures require one to three months of preparation.

Plans for fuel rationing have been regularly updated to take account of changes in the Finnish oil market, according to the Act of Security of Supply.

Fuel switching

Short-term fuel switching from oil to other fuels is not regarded as an emergency response measure in Finland, as the ratio of oil used for power generation to Finland’s total oil consumption was only 0.6% in 2012. There is little potential to switch away from oil to other fuel sources.

Gas

Market features and key issues

Gas production and reserves

Apart from a small amount of biogas production, Finland has no domestic production of natural gas. With a single gas import link, Finland has been importing all its natural gas from a single source, Russia, since 1974.

Gas demand

Finland’s demand for natural gas increased from 0.5 bcm in 1974 to 5 bcm in 2003, and then decreased to 3.7 bcm (10.1 mcm/d) in 2012.

In 2011, the transformation sector was the largest consumer of natural gas in Finland, representing about 61% of the country’s total gas consumption, while the industry and
the energy sector represented 27% and 10%, respectively. Finnish daily peak gas demand stood at some 22.1 mcm/d on 18 February 2011, and the hourly peak consumption was 0.96 mcm/h on 8 January 2010.

**Figure 4.8.6** Natural gas consumption by sector, 1973-2011

![Graph showing natural gas consumption by sector, 1973-2011.](image)

**Gas import dependency**

Because of the absence of natural gas production, Finnish gas demand is entirely supplied by imports, all of which have come through a twin pipeline connecting with Russia since 1974. The amount of natural gas imports from Russia equal domestic consumption.

A single importer in the country, Gasum Oy, has agreed a contract to import Russian gas to Finland until the end of 2026. The maximum annual importing volume of the contract is 5.5 bcm.

**Gas company operations**

Gasum Oy is responsible for imports, transmission and wholesale trading of natural gas in Finland. It is the sole importer and wholesale supplier. The company is owned by a consortium of Fortum (major electricity company: 31%), OAO Gazprom (25%), the Government of Finland (24%) and E.ON Ruhrgas International GmbH (20%).

A subsidiary of Gasum Oy runs a secondary market called Gas Exchange, where customers can make direct transactions with each other. This market is open to gas users procuring over five mcm per year and certain retail sellers. Around 5% to 10% of total gas consumption is traded on the Gas Exchange. Although there are no interruptible contracts in Finland, Gasum Oy has a product “Gasum Miinus” used to buy back fixed deliveries through the Gas Exchange to reduce load. The TSO, Gasum Oy, acts as a clearing house to monitor the market.

There are over 30 regional distribution companies for regional consumers and other small-scale users in the retail market for gas in Finland. Some distributors are partly owned by Gasum Oy. In 2010, there were around 37 000 customers of natural gas, around 92% of which are households using natural gas for cooking. However, the share of those consumers in total consumption is below 1%, while 25 power plants accounted...
for around 45% of the total consumption, followed by heavy industry (42%) and district heating plants (9%). The Porvoo refinery, owned by Neste Oil Oy, is one of the largest consumers of natural gas.

Gas supply infrastructure

Ports and pipelines
All natural gas is imported from Russia through a twin pipeline system that can be operated separately. The maximum annual import capacity of the pipeline of 82.1 GW (around 8.2 bcm/y, 22.5 mcm/d or 0.95 mcm/h at net caloric value) in the domestic network is determined by a domestic compression centre. However, the hourly peak utilisation reached around 0.96 mcm/h in January 2010, thereby exceeding the maximum technical capacity. The normal utilisation rate of the Finnish gas pipeline network is about 85%. Finland has experienced a gas supply disruption only once during the past 20 years – this lasted one day and resulted from a pipeline accident near St Petersburg in the summer of 2007. At the time Gasum Oy used linepack gas to maintain gas supplies to consumers.

The transmission system operated by Gasum Oy has approximately 1 314 km of pipeline within Finland. Including the distribution grid, the total length of the gas pipeline grid is around 3 100 km. The system has three gas compressor stations with a compressor capacity of 64 megawatts (MW). The natural gas receiving station in Imatra measures the amount of natural gas brought into the country. The other two compressor stations are located in Kouvola and Mäntsälä with the central control centre located in Kouvola. The gas pressure of the existing pipelines is 30-54 bars. There are around 200 interfaces which connect with transmission pipelines, 131 of which are pressure reduction stations in the network.

The gas grid is currently confined to the southern region of Finland, but Gasum Oy is planning to expand its natural gas transmission network to the western part of the country, mainly to the cities of Turku and Naantali. The length of the pipeline extension will be about 200 km. In 2011, a new gas transmission pipeline was completed between Lempäälä and Kangasala (34 km). Gasum Oy has also completed the construction of a new pipeline from Mäntsälä to Siuntio (89 km).

In addition, a biogas production plant in Kouvola was connected to the natural gas transmission network in October 2011. The plant’s biogas production capacity is about 7 gigawatt hours (GWh), or 0.6 mcm per year.

There is no third-party access to the gas pipelines. It will be applied if the gas network is connected to Baltic countries and other European countries, or if more than 25% of gas is supplied by another importer.

The Balticconnector project to connect Inkoo in Finland with Paldiski in Estonia, with a total capacity of 2 bcm per year, is under discussion in the context of the Baltic Energy Market Interconnection Plan (BEMIP) which was initiated by the European Commission in 2008. It will allow Finland to access gas markets and storage facilities in the Baltic States.

Storage
Finland has no large-scale gas storage capacity in the country. All natural gas storage facilities in Finland are in the form of pipelines and spherical storages for daily balancing and peak shaving, which amounts to around 10 to 14 mcm. In addition, Gasum Oy operates an LNG storage facility with a capacity of 2 000 m³ for LNG produced in
Porvoo. As this plant is not equipped with any sending capacity to the gas network, the produced LNG would be delivered by trucks or fed into the network through mobile LNG vaporisers with a capacity of 75 MW (or 0.18 mcm/d). This is used only for peak shaving, fuel for cruise ferries and industry.

A potential future connection to the Baltic countries via the Balticconnector project may create possibilities for gas storage in Latvia, as Finland’s geological structure makes domestic storage very expensive to build.

Emergency policy

Key elements in Finland's overall gas security policy are compulsory stocks in the form of alternative fuels for fuel switching, control of excess supply and cut back of contractual supplies.

The Act on Compulsory Stockholding of Imported Fuels (1994) sets the standard of gas supply security for suppliers. The gas importer (Gasum Oy) and gas plants are required to hold alternative fuel stocks corresponding to three months of natural gas imports. Municipal users who consume over 15 mcm of natural gas per year are also obliged to hold alternative stocks corresponding to three months of consumption. Substitute fuels are light or heavy fuel oil and propane gas. Industry users consuming gas as raw material have no obligation. In the event of a gas supply disruption, the release of compulsory alternative fuel stocks would be decided by NESA.

According to the Act on Security of Supply (1992), the NESA holds alternative fuels for gas disruption, and it decides the amount of its stocks in the light of the government’s objective to have stocks of imported fuels corresponding to five months’ consumption of all imported fuels. It covers stocks for industrial use on which there is no stockholding obligation. An emergency supply fee of EUR 0.084 per MWh is levied on natural gas users in order to maintain the public stocks of alternative fuels.

The NESO has a permanent natural gas section composed of members representing Gasum Oy (the TSO), natural gas users in the communities and industrial users of natural gas, the Finnish Gas Association, NESA and Neste Oil Oy.

Emergency response measures

The Finnish TSO has an early warning system linked with a Russian control centre which is located 150 km from Finland. Through another data connection system with Russia, Gasum Oy is able to monitor pipeline flow to 500 km within Russia. This system allows Gasum Oy to monitor real time gas flows in Russia and receive early warning of potential disruptions in order to implement contingency plans by switching to the parallel gas pipeline or by deploying emergency response measures.

When a shortage of gas supply is anticipated, the TSO will first endeavour to curb consumption by increasing the price of excess gas and implementing a buy-back system through the Gas Exchange. If these measures are insufficient to mitigate the impact of a gas disruption, the TSO will reduce the contractual capacities of all its customers on a pro rata basis, except for protected customers (detached houses and other residential properties that directly use natural gas), as most residential buildings cannot use substitute fuels. Consumers can also reduce their own consumption more than required by the TSO, and they can sell their quota to other customers through secondary market trade.

In the event that the natural gas supply is totally interrupted, NESA can give permission to release compulsory stocks of alternative fuels, according to the Act on Compulsory
Stockholding of Imported Fuels. Public stocks of alternative fuel stocks for natural gas held by NESA would be released by a decision of the government according to the Act on the Security of Supply. Over 40% of natural gas consumption can be switched to light fuel oil within 8 hours of fuel switching.

An air-propane mixing plant has been built in Porvoo to provide protected customers with air-mixed propane gas. The plant can be activated only when the pressure in the transfer pipelines falls below 7 bars. The gas mixture capacity of the plant is equivalent to 350 MW (or 0.84 mcm/d), by which the gas demand of protected customers (200 MW or 0.48 mcm/d) can be covered.

The total emergency stock of LPG is 36 500 tonnes (46.7 mcm of natural gas), around 70% of which is owned by NESA. In addition to protected customers, LPG stocks are also envisioned for use in the Porvoo refinery in case of a natural gas disruption, as it is one of the largest consumers of natural gas.