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:

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

**Infrastructure map**

**Country overview**

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  - Oil demand
  - Imports/exports and import dependency
  - Oil company operations
- Oil supply infrastructure
  - Refining
  - Ports and pipelines
  - Storage capacity
- Decision-making structure

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- Crude or products
- Location and availability
- Monitoring and non-compliance
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- Financing and fees

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- Gas supply infrastructure
  - Ports and pipelines
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- Emergency policy
- Emergency response measures
Estonia

Key data

Table 4.7.1 Key oil data

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<td>4.8</td>
<td>10.1</td>
<td>10.9</td>
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<td>Demand (kb/d)</td>
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<td>21.3</td>
<td>25.2</td>
<td>25.6</td>
<td>25.5</td>
<td>26.0</td>
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<td>6.5</td>
<td>6.7</td>
<td>6.4</td>
<td>6.0</td>
<td>6.7</td>
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<td>Gas/diesel oil</td>
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<td>8.4</td>
<td>12.8</td>
<td>12.6</td>
<td>13.7</td>
<td>14.7</td>
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<tr>
<td>Residual fuel oil</td>
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<td>3.7</td>
<td>5.1</td>
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<td>Others</td>
<td>1.8</td>
<td>1.5</td>
<td>2.0</td>
<td>1.5</td>
<td>1.6</td>
<td>1.8</td>
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<tr>
<td>Net imports (kb/d)</td>
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<td>16.6</td>
<td>20.4</td>
<td>15.5</td>
<td>14.6</td>
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<td>175</td>
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<td>Import dependency (%)</td>
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<td>78.0</td>
<td>81.0</td>
<td>60.5</td>
<td>57.2</td>
<td>54.6</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>-</td>
</tr>
<tr>
<td>Oil in TPES** (%)</td>
<td>17</td>
<td>14</td>
<td>14</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>-</td>
</tr>
</tbody>
</table>

* Forecast.
** TPES data for 2012 are estimates.

Table 4.7.2 Key natural gas data

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<td>0</td>
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<td>Demand (mcm/y)</td>
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<td>979</td>
<td>689</td>
<td>627</td>
<td>670</td>
<td>532</td>
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<td>Transformation</td>
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<td>464</td>
<td>503</td>
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<td>55</td>
<td>67</td>
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<tr>
<td>Others</td>
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<td>27</td>
<td>73</td>
<td>60</td>
<td>62</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Net imports (mcm/y)</td>
<td>712</td>
<td>812</td>
<td>979</td>
<td>689</td>
<td>627</td>
<td>670</td>
<td>532</td>
</tr>
<tr>
<td>Import dependency (%)</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Natural gas in TPES (%)</td>
<td>11</td>
<td>14</td>
<td>15</td>
<td>10</td>
<td>9</td>
<td>10</td>
<td>-</td>
</tr>
</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 4.7.1  Total primary energy source (TPES) trend, 1990-2012
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 4.7.2 Gas infrastructure of Estonia

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.
Country overview

Oil and natural gas provide less than a fifth of Estonia’s total primary energy supply (TPES); oil accounted for 9% and gas for 10% of TPES in 2012. Estonia has no gas production or oil production. Nevertheless it produces shale oil from oil shale. Shale oil is used as a blending component in bunker fuel to lower sulphur content and as refinery feedstock. Oil shale is also extensively used for power generation and represented around 70% of Estonian TPES in 2011.

Oil consumption in Estonia averaged roughly 26 thousand barrels per day (kb/d) in 2012, concentrated in the transport sector (72%) and primarily in the form of diesel oil. In 2012, some 670 million cubic metres (mcm) of natural gas were consumed in Estonia. A little over half (57%) of the total natural gas usage was by the transformation sector.

The Liquid Fuel Stocks Act (LFA) is the key piece of legislation for oil stock release and other emergency measures for fuel oils. The amendments to the LFA to align the legislation with International Energy Agency (IEA) requirements were approved at the end of October 2013.

In Estonia, roughly 80% of all oil stocks that would be considered for the IEA 90-day calculation were held by the Estonian Oil Stockpiling Agency (OSPA) while the rest were held by industry. These were commercial stocks as Estonia does not place a stockholding obligation on industry. Emergency measures available to the Estonian government in event of an oil supply disruption are limited to the release of stocks from its public stockholding agency. The OSPA, established in 2005, is tasked with establishing, maintaining and holding 90 days of compulsory oil stocks to fulfil Estonia’s international obligations. The OSPA is a legal entity governed by private law, whose capital belongs entirely to the state. Shareholder’s rights are exercised by the Ministry of Economic Affairs and Communications and represented by the Minister of Economic Affairs and Communications. OSPA stockholding and administration costs are covered through a stockpiling fee paid directly to the OSPA by oil companies. This fee is included in oil prices paid by consumers. The purchasing costs of oil are covered by the state budget by increasing the share capital of the OSPA and by using funds received from the sale of oil stocks.

With no domestic production (except shale oil) or refining, short-term surge production is nonexistent. There is also no real scope for short-term switching away from oil use, as transportation represents nearly three-quarters of all oil consumption. A study to identify Estonian demand restraint measures was carried out in the summer of 2013. Based on this analysis a demand restraint plan that lists all demand restraint measures, including description of risks, costs, and responsibilities was finalised in October 2013. Amendments to the LFA enacted on the 1 of November 2013 now allow Estonia to implement demand restraint plans in case of an emergency.

During the period from May to October, Estonia is supplied with gas directly from the Russian Federation. From November to April, gas is supplied from the Inčukalns underground storage facility in Latvia. In the event of a gas emergency, Estonia’s options are very limited as it imports only Russian gas, either directly or indirectly through Latvia. Estonia has recently evaluated its standing with regards to the N-1 standard of the European regulation (Regulation 994/2010), which is designed to test a country’s ability to cope if its most important piece of infrastructure is disabled. Estonia fared rather poorly but has now analysed this from a regional perspective, including the other Baltic States, and as a whole the Baltics do meet the standard. There are ongoing regional discussions to build a liquefied natural gas (LNG) terminal; once this is realised, together with the unbundling of gas in Estonia they can help strengthen Estonia’s security of supply.
Oil

Market features and key issues

Domestic oil production

Estonia holds significant reserves of oil shale and has an almost century-long history of using this resource for its energy needs. Its oil shale extraction industry is the most developed in the world. Estonia has been generating electricity from oil shale since 1924. Oil shale represented 70% of Estonian TPES in 2011 (for power generation). Estonia also produces shale oil from oil shale, which is used as a blending component in bunker fuel to lower sulphur content and as refinery feedstock. In 2012, shale oil production amounted to 11.8 kb/d. With the current high prices for crude oil and electricity in Europe, the production of shale oil/liquid fuels from oil shale is more profitable than using it for power generation. Therefore shale oil producers aim to increase production considerably by 2015. Development plans, submitted by the producers, suggest an increase in the volume of shale oil production by a factor of 2.6 by the end of the decade compared to 2011 levels.

Figure 4.7.2 Oil consumption by sector, 1990-2011

Oil demand

Oil demand in Estonia declined sharply from 1990 to the end of the decade, as the consumption of heavy fuel oil, which accounted for over 50% of demand, decreased significantly. Since then oil demand has remained relatively stable averaging 25 kb/d since 1997. In 2000, Estonian oil demand sank to its lowest level in the last 15 years, recording 21 kb/d. Conversely, in 2007, before the start of the financial crisis, consumption of oil products reached its highest level (29 kb/d). In 2012, Estonian oil demand stood at 26 kb/d and is likely to increase moderately in the coming years, reaching 29 kb/d by 2018.

Diesel demand has been increasing steadily since the late 1990s. In 2000, it represented 19% of demand and reached 34% in 2012. At present, it is the only oil product registering growth.
Demand for other gasoil has averaged 5 kb/d in the last 12 years. In 2012, it represented 17% of oil demand in Estonia. Its consumption is also expected to continue rising, albeit very moderately. Combined gas/diesel oil represents the bulk of Estonian demand, currently accounting for 57% of demand.

The share of motor gasoline in oil consumption has declined considerably since 2000. In 2000, it represented 33% of oil demand, while in 2012 this figure was 26%; this is partly the result of the progressive dieselisation of the vehicle fleet as in other European countries.

The demand for residual fuels has averaged 5 kb/d since the turn of the century and currently accounts for 7 kb/d.

**Figure 4.7.3 Oil demand by product, 1998–2012**

**Imports/exports and import dependency**

Most oil products consumed in Estonia are imported and originate from refineries located in neighbouring countries, namely Lithuania and Finland. In 2011, Lithuania provided 45% of Estonia’s total oil imports, while other countries of the former Soviet Union (FSU) and Finland were the source of 15% and 20%, respectively. It is worth noting that Estonia has reduced its reliance on imports from Russia over the last few years. In 2006, it imported about 46% of its oil from Russia (about 11 kb/d). Since then imports have been reduced significantly reaching only 1 kb/d in 2011.

Although Estonia covers the majority of its demand with imported oil products from neighbouring countries, because it exports most of its shale oil, it reduces its net-import dependence, and therefore the amount of oil it would need to hold to fulfil the IEA 90-day net-import obligation. Based on full-year data from 2012, Estonia’s import dependence is estimated at 59%.

There were plans in 2013 to produce diesel from oil shale. These plans would see Estonia producing up to 34 kb/d after 2017, or 6 kb/d more than the current oil demand. Nevertheless, because of the uncertainty surrounding the European Union’s Fuel Quality Directive (Directive 98/70/EC), these plans have been put on hold.
Oil company operations

Estonia’s liquid fuels market is unregulated and competitive. There are ten oil importers in the market. The wholesale market is dominated by three players: Orlen, Statoil and Neste Eesti. Together they import about 85% of all oil products. At the retail level, the market is characterised by a large number of service stations in proportion to the size of the country. There are around 500 filling stations (on average only 3 500 citizens per station compared to the European Union average of 5 000); 128 of these are unstaffed. The five largest operators are Alexela, Statoil, Neste, Olerex and Lukoil, which together operate 65% of all stations. The remaining filling stations are either family owned or operated by small retailers, many of them unstaffed. Statoil has the largest share of the retail market (26.4%), followed by Neste (23.5%), Alexela (14.5%), Olerex (14%) and Lukoil (9.6%). Small stations, representing 35% of retail outlets, account for only 12% of the market.

Oil supply infrastructure

Refining

Although there is no crude oil production in Estonia, and it has no refineries, plans were developed for two refineries in the coming years to further refine shale oil for the production of transportation fuels. However, because of uncertainties regarding the Fuel Quality Directive, these plans have been put on hold.

Ports and pipelines

Most fuels are imported by rail from the Mažeikiu refinery in Lithuania (Orlen Lietuva), which is the only refinery in the Baltic States, or by ship from Finland (the Neste refinery in Porvo). Fuels are distributed throughout the country by tanker trucks. Estonia has no international oil pipeline connections and remains an export route for Russian oil products (mainly heavy fuel oil), although trade through Estonia has been declining since 2007.

Estonia’s main oil terminals are located in Tallinn, Muuga and Paldiski. The country relies heavily on its numerous ports and railways to transport products. The most important ports handling oil products are: the Port of Tallinn which handles petroleum products mainly at the Muuga harbour (although to a lesser extent also at Paldiski South and Paljassaare Harbours); the Port of Sillamäe, which is the most easterly port in the European Union; the port of Miiduranna; and the port of Kopli. All are equipped with
loading and storage facilities. Some of these oil terminals also have a developed rail infrastructure connected to the main Estonian rail network.

The oil terminal operators of the Port of Tallinn provide storage services for petroleum and petroleum products, consolidation of large consignments and blending services. The Port of Tallinn is used to trans-ship oil products from Russia, Belarus and Kazakhstan to various destinations around Europe (primarily the Netherlands). In 2010, the port handled 25.8 million tonnes (Mt) of oil products (mostly heavy fuel oil) or 500 kb/d on average. It has the capacity to ship up to 40 Mt of liquid fuels a year.

Storage capacity

Estonia has extensive storage capacity because of its very active oil transit business. Since May 2007 oil transit has significantly decreased, freeing up storage space and thus making space for more Estonian stocks to be held in Estonia. In 2006 the oil transit volume per year exceeded the volume of Estonia’s 90-days oil stocks requirement approximately 137-fold.

The Port of Tallinn has a total storage capacity of 2 mcm for oil products, mainly diesel and gasoline. Storage capacity along the Estonian coast is a little over 3 mcm, or roughly 20 million barrels – this figure includes all major Estonian ports. Among the other Estonian ports, the Port of Sillamäe has the largest capacity with 0.5 mcm for the storage of oil products.

Estonia also has storage facilities inland. These storage sites are concentrated in three main areas: Maardu (close to Tallinn), Viljandi and Tartu. Combined, they have a total capacity of about 130,000 m³, mostly dedicated to the storage of gasoline and diesel.

In total, Estonia has considerable storage capacity with over 3.2 mcm capacity, most of it concentrated along the coast and more specifically in the Port of Tallinn.

Decision-making structure

The most effective emergency response instrument during an oil supply disruption for Estonia would be the release of its public emergency stocks. The government, on the advice of the Minister of Economic Affairs and Communications, decides on the stockdraw. The decision is approved beforehand by the crisis management committee of the government. Amendments to the Liquid Fuel Stocks Act (LFA), which strengthen Estonia’s emergency policies and procedures, entered into force on the 1 November 2013. These amendments envisage the creation of a national emergency strategy organisation (NESO) to deal more effectively with oil supply crises; it also contains some enhancements to current practices. The amendments allow for the rapid deployment of demand restraint plans. The enhancements align Estonia with IEA accession requirements.

The OSPA, a public stockholding agency, established in 2005 to fulfil Estonia’s international obligations, is tasked with establishing, maintaining and holding 90 days of compulsory oil stocks. OSPA stockholding and administration costs are covered through a stockpiling fee paid directly to the OSPA by oil companies. This fee is included in oil prices paid by consumers. The purchasing costs of oil are provided by the government by increasing the share capital of the OSPA and by using funds received from the sale of oil stocks.
**Stocks**

**Stockholding structure**
All the stocks are established and held by the state company, the OSPA (the Agency). Estonia does not place a stockholding obligation on industry. It is worth noting that the District Heating Act requires district energy suppliers with projected annual heat production above 500,000 megawatt hours (MWh) to hold liquid fuel reserves amounting to three days of consumption. At the time of writing, only one company has this obligation.

**Crude or products**
All the stocks are in the form of final products in four categories: diesel, gasoline, jet and heavy fuel oil. No crude oil is stockpiled. In February 2013, the Agency held around 235,000 tonnes of petroleum products in stock. At the end of 2012, according to IEA net-import calculations, the Agency held 189 days of net imports. Middle distillates account for about 65% of all oil stocks held by the OSPA, while motor gasoline accounts for 34%.

**Location and availability**
All the storage sites which are above-ground facilities, most in sea terminals, are rented by the Agency. Roughly half of the stocks are held under bilateral agreements in foreign countries: Denmark, Finland and Sweden. The stocks are held separately from the industry’s commercial stocks.

**Monitoring and non-compliance**
The OSPA inspects the stocks on a regular basis (including inspections without advance notification). For that purpose independent inspectors are contracted both in Estonia and abroad. The inspections consist of volume audits and quality analyses. Any violations detected by storage operators can be severely penalised, with the storage agreement foreseeing heavy financial penalties as well as options for contract termination.

**Stock drawdown and timeframe**
According to the national crisis management regulations, the decision-making process shall not take more than 72 hours. Most of the communication can be managed online without a need for on-site meetings.

The stocks are sold at the market price at the time of delivery. The time estimated for deliveries from overseas is no more than 27 days. The transportation of the stocks to Estonia is to be arranged by the OSPA.

In case of ticket agreements stocks are sold to the market players in the same way as the stocks owned by the OSPA. However, in the case of tickets, the Agency buys the stocks from the ticket seller and then sells these stocks to the market players. In cases where the market player is also the ticket seller, then it has the right to use the stocks in the volume indicated in the sales offer.

**Financing and fees**
Every year, the management board calculates the new stockholding obligation based on the latest oil consumption/net-import data. The fulfilment of the obligation is analysed in every year’s budget. It is then approved by the supervisory board of the OSPA. Estonia had a transitional period for the establishment of oil stock between 2003 and 2009; 1 January 2010 was the target date for reaching the 90 days of oil stocks. The 90 days
were based on oil consumption in 2008. Because of the decrease in oil consumption after 2008, the total stock level was (and still is) above 100 days.

Procurement of stocks is financed from the state budget and is accounted for as share capital of the Agency. The operation and maintenance costs are financed from the oil stockholding fee, which is collected from the oil market players.

In 2012 the stockholding costs were in range of EUR 5.7 million. The average storage fee was approximately EUR 15/m³/year. This figure relates to the final products stored above ground.

Other measures

Demand restraint
In the event of international supply disruptions, Estonia is able to reduce the consumption of motor fuel by 7% to 10% through demand restraint measures, depending on the nature of the interruption of supply, in addition to the reduction that would be caused by price increases. The programme defines the savings potential, costs and target groups of different measures.

Estonia’s demand restraint programme identifies mainly "soft" measures related to raising awareness and changing consumption choices and regulatory measures that would not entail a limitation of human rights and changes in the existing legislation: reduction of the speed limit, promotion of public transport and increasing the frequency of public transport, promotion of sustainable driving methods and encouraging carpooling.

Other
With no domestic production or refining, short-term surge production is nonexistent in Estonia.

Gas

Market features and key issues

Gas production and reserves
Estonia is not a gas producer and is fully dependent on imported gas from Russia, which is supplied by pipelines directly from Russia or from storage facilities in Latvia.

Gas demand
During the period from May to October, Estonia is supplied with gas directly from Russia. From November to April, gas is supplied from the Incukalns underground storage facility in Latvia.

In 2011 Estonia consumed about 627 mcm of gas, one of the lowest levels of consumption registered in Estonia since the mid-1990s (estimates for 2012 suggest consumption reached 670 mcm that year). More than half of Estonian gas consumption is used in the transformation sector, primarily for heat generation in Estonia. The use of natural gas for electricity generation is extremely modest at only 2% of total gas consumption.

Between 2004 and 2008 gas consumption was above 900 mcm a year, but declined sharply afterwards. This was partly owing to the general economic downturn, but
the greatest impact was the cessation of economic activity of the fertiliser producer Nitrofert AS in February 2009. In 2007 the share of industrial consumption was 36% of the total, while in 2009 this figure plummeted to 21%. Nitrofert represented close to 20% of the total consumption of natural gas in Estonia. Nitrofert resumed operations in December 2012, although it is still unclear whether it will scale up its ammonia and urea production to pre-2009 levels.

Figure 4.7.6  Natural gas consumption by sector 1990-2011

As Estonian gas consumption is primarily destined for heat generation, Estonia uses up to five times more gas in winter than in summer. During the peak winter months, demand can rise to over 7.0 mcm/day, which is greater than the maximum drawdown capacity from the Inčukalns gas storage facility.

The maximum daily consumption of gas for heating in the past 20 years was in the winter of 2006 with 6.7 mcm/day. The maximum daily gas consumption in spring (April) 2010 was 2.147 mcm/d, and the minimum daily consumption of 0.5 mcm/d was in July 2010. In February 2012, the daily peak consumption reached 5.7 mcm, representing the highest daily consumption for the last five years.

Gas import dependency

Estonia imports the totality of its gas from Russia. Although Estonian legislation permits any market participant to import gas, Eesti Gas is essentially the only gas importer and trader/reseller in the country.

The Estonian government is exploring the possibilities for increasing the reliability of natural gas supply and is co-operating closely with regional governments and key energy stakeholders in promoting regional market integration with neighbouring EU member states.

Gas company operations

The Estonian gas market has been open since 1 July 2007; this was essentially a market opening in name only and there is no competition in the gas market. The vertically integrated operator Eesti Gaas is a dominant market player for both wholesale and retail
markets. Eesti Gaas established the independent system operator (ISO) EG Võrguteenus, which leases the Eesti Gaas assets necessary for the provision of transmission services. Eesti Gaas is the only wholesaler in Estonia and imports gas from a single supplier (Gazprom) under a long-term contract. Supply volumes of natural gas in the current contract represent up to 7 mcm/day until the end of 2015.

Estonia, along with Latvia, Lithuania and Finland, was exempt from the ownership unbundling requirements under EU Directive 2009/73/EC until it is directly linked to the interconnected systems of the EU member states. The Estonian parliament, however, made the decision not to apply this exemption, and will require ownership unbundling of the gas transmission network from supply and distribution by 1 January 2015.

Gas supply infrastructure

Ports and pipelines

Estonia has operational interconnections with the Russian natural gas network in Värskas, and with Latvia in Karksi with a maximum capacity of 11 mcm/day. The Estonian gas system has another interconnection with Russia in Narva (in the northeast), which has been closed because of limits in maximum pressure on the Estonian border and is used only by special agreement with Gazprom. According to a Gazprom Transgaz statement in late autumn 2012, reconstruction work has been carried out in Russia, which allows an increase of gas pressure in pipes up to 29 bar, making it also possible to use gas through the Narva interconnection at a maximum of 3 mcm/d throughout the winter period.

The gas network in Estonia is 2 314 km long, 878 km used for transmission and 1 436 km for gas distribution. There are three gas-metering stations in Värskas (from Russia with 4 mcm/day at 40 bar inlet pressure), Karksi (from Latvia) and Misso (see transit section below) and 36 gas distribution stations. The system is owned by Eesti Gaas, and operated by EG Võrguteenus, which provides transmission and distribution services, as well as operating the gas metering systems on the Estonian border.

EU Regulation no. 994/2010, which covers the security of natural gas supply, requires maintaining gas supplies in the event of disruption of the single largest gas infrastructure, i.e. the fulfilment of the N-1 criterion, including events of peak demand. The individual risk assessment carried out by Estonia showed that Estonia would not fulfil the standard; it scored 60%. Nevertheless, in a regional risk assessment carried out in collaboration with Lithuania and Latvia, when all three countries were considered as a whole in the event of a disruption of the single largest gas supply infrastructure – the natural gas supply line from Minsk to Vilnius – the infrastructure standard N-1 scored 129.73%.

To secure a continuous energy supply, the Estonian National Development Plan of the Energy Sector until 2020 foresees the need to diversify the use of energy sources and to construct new natural gas and LNG infrastructures in order to fulfil the N-1 requirement.

As a net importer of natural gas from a single source, Estonia is working closely with other governments in the region to diversify its sources of gas supply. Projects currently under negotiation include an LNG terminal in the Gulf of Finland. The new connections and terminal could cover the potentially greater regional demand of 11 bcm/year by 2030, with a share of almost 6 bcm/year of the Baltic States’ demand.

Storage

Estonia has no domestic gas storage facilities. It uses the Inčukalns underground gas storage facility in Latvia, which supplies gas to major consumers in Estonia, Latvia, Lithuania and northwest Russia, primarily for heat generation.
Inčukalns is the only functioning natural gas underground storage facility in the Baltic States. It has a total capacity of 4.47 bcm; about 2.32 bcm of this is active at present. It has a maximum drawdown capacity of about 7 mcm/d. According to the owner of Inčukalns, it is possible to increase its active capacity to 3.2 bcm.

The daily quantities of gas delivered from Inčukalns depend on the season and technical limitations. Increase in demand because of extremely low outside temperatures affects supplies to large consumers of Inčukalns gas storage not only in Estonia but also in Latvia, Lithuania and Russia. The most critical period for Estonian gas supply from the Inčukalns gas storage is spring (April), when the drop in gas volumes creates lower pressure on the Estonian border, affecting the delivery of gas.

**Emergency policy**

**Emergency response measures**

Estonian legislation states that gas supplies to household customers may not be interrupted or limited during the period from 1 October to 1 May. The same requirement applies to supplies of residential space heating, which can use no fuel other than gas. The only exemption to this rule is in the case of danger to life, health, property or environment or an agreement between parties.

Since 1 July 2008, those district heating companies with an annual estimated production volume of over 500 000 MWh per network area are legally obliged to hold a supply of alternative heating fuel for three days, in order to secure an uninterrupted heat supply. From 2012 Tallinna Küte AS has been obliged to keep liquid fuel reserves. Until 2012 the same ruling also applied to Eesti Energia’s Iru power plant, but under the new contract its projected production volume fell below 500 000 MWh; it is therefore no longer required to hold alternative fuel reserves.

The requirements for the quality of gas supply were established by amendments to the Natural Gas Act at the beginning of 2007. The amendments set a limit on sequential supply disruptions, which should not exceed 72 hours, as well as an annual total duration of disruptions which may not be longer than 130 hours in total.

According to data from EG Võrguteenus in 2011 there were 708 interruptions in total: 376 were planned during works, 255 were at the request of the sales department of Eesti Gaas, while 77 cases were emergency disruptions. None of the disruptions lasted over 12 hours.

As part of EU Regulation EU no 994/2010, Estonia prepared the *Risk Assessment of Estonian Gas Supply* (2010), and in co-operation with Latvia and Lithuania, the *Joint Risk Assessment of Gas Supply of Estonia, Latvia and Lithuania* (2012). The joint risk assessment provides an outlook for the regional energy mix and the functioning of the regional gas market. It examines the possibilities for physical gas flows, assesses the existing physical natural gas infrastructure and the political and administrative risks.

It examines different risk scenarios, risk impact and response scenarios, establishing a supply disruption risk matrix, and defines gas supply disruption risk mitigation measures which are part of the Preventive Action Plan.

The Estonian Preventive Action Plan and the Emergency Plan as part of the EU regulation was enforced by a Ministerial Decree in June 2013. Estonia is conducting consultations on the joint plans at the regional level with Latvia and Lithuania.