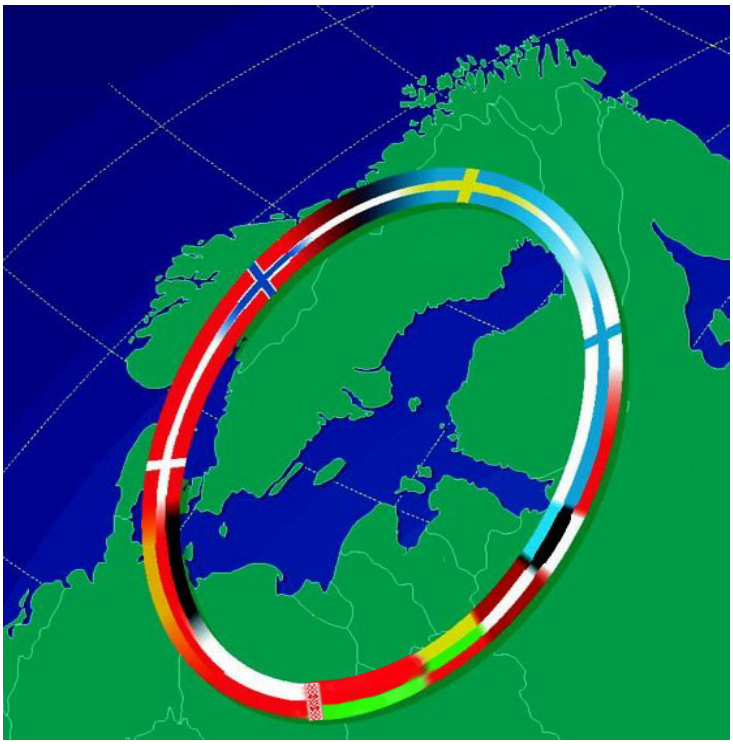
BALTREL

Annual Report
2006



BALTREL

1. BALTREL IN SUMMARY

What is BALTREL?

A professional association of power companies in the Baltic Sea Region (BSR): transmission system operators, generation companies, energy holdings.

Vision

Interconnected, liberalized and harmonized regional electricity markets in the Baltic Sea Region with high level of security of supply and clean environment.

Mission

To provide the platform for dialogue and promotion of interests (creation of benefits for) of the association stakeholders.

Strategic goals

- To ensure fair competition in the electricity markets of the Baltic Sea Region;
- To achieve high level of security of electricity supply in the BSR, primarily through better coordination and information exchange;
- To remove boundaries (barriers) among regional markets and secure stronger harmonization (of market legislation) and physical interconnections;
- To facilitate stable investment climate (in the power sector) in the BSR;
- To create an efficient and mutually acceptable interface for parallel operation of the EU and CIS regional electricity markets within the BSR;
- To move towards a common open electricity market of the BSR as a scaled model of (or as an intermediate step to) a pan-European electricity market;
- To coordinate the market development route (to secure compatibility) with other European regional markets in preparation for integration into the pan-European market.

New challenges of BALTRELL

- To ensure bigger influence of the association on political and decision-making processes in the power sector of the BSR and on the European level;
- To attract new stakeholders into the association, including ministries and regulatory authorities;
- To agree on appropriate financial model to sponsor future studies and activities of the association in order to achieve the strategic goals.

BALTREL competences

- Regional electricity markets: Nordic, Baltic, Western Europe (Germany), Eastern Europe (Poland), Russia and Belarus.
- Segments: generation and wholesale markets, transmission and system services.

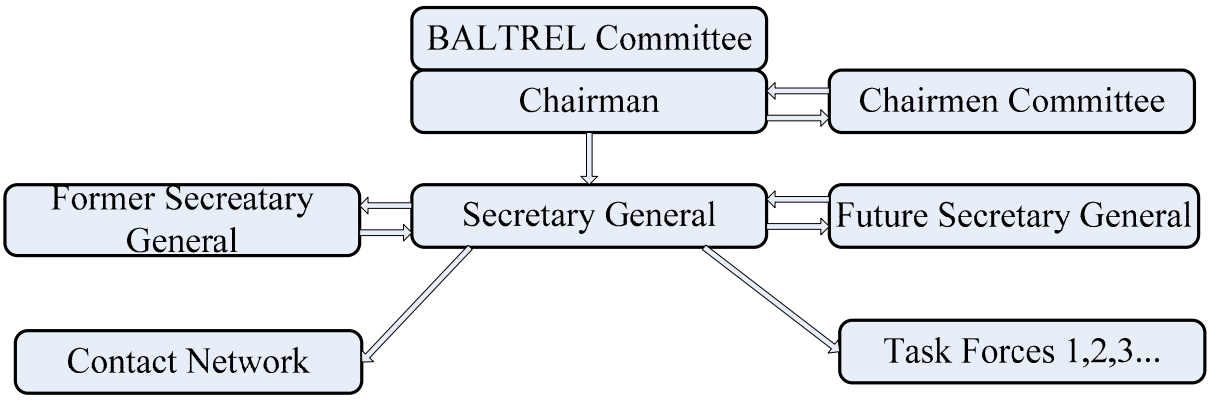
Deliverables

- Annual (Market) Reports on the status of development of electricity markets;
- Studies on Specific Topics;
- Position Papers, Discussion Papers, Proposals and Recommendations;
- List of prospective interconnection links;
- List of prospective generation projects,
- Organization of the seminars or workshops.

Chairmanship

- 1998/2002 -Vattenfal AB
- 2002/2005 -Fortum Power and Heat Oy
- 2005/2006 -AS Latvenergo
- 2006/2007 -AB Lietuvos Energija
- 2007/2008

Organization



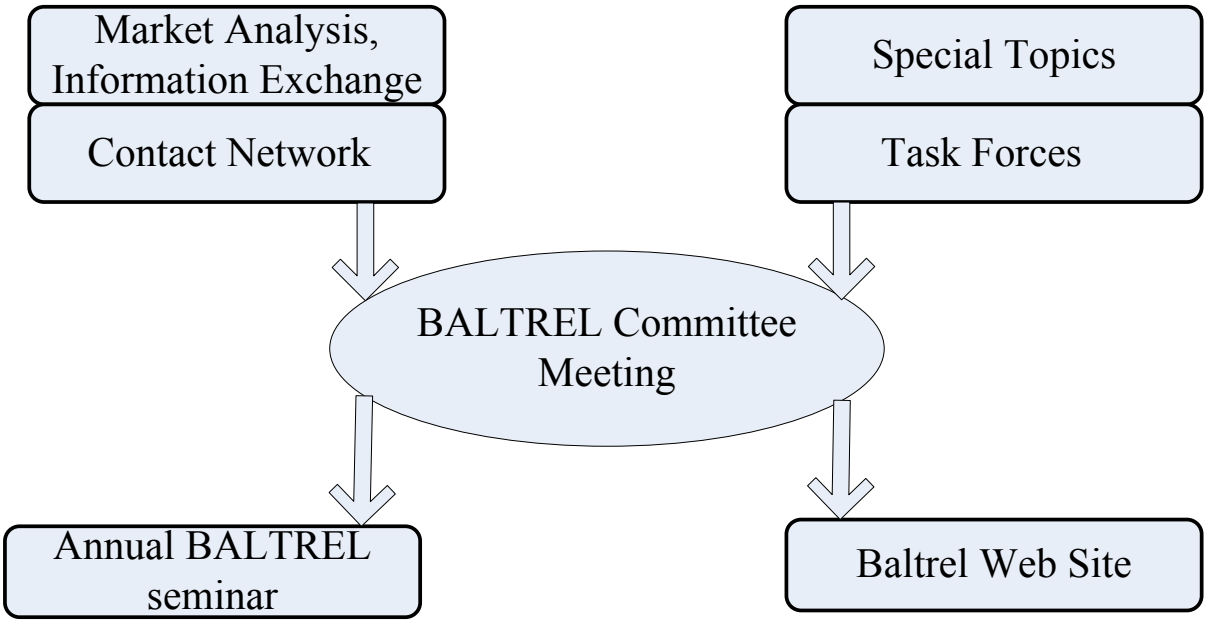
Responsibilities

- **BALTREL Committee:** meet once a year, elect a new Chairman, Secretary General, Chairmen Committee, approve Market Reports, developed materials and Working Program, decide about allocation of resources, tasks and Special Topics for studies, utilization of results, communicate with the EU and CIS institutions and organizations;
- **Chairman:** leads and represents BALTREL;
- **Chairmen Committee:** steers the activities, Chairman + former and future Chairmen;
- **Secretary General:** secretary of the association chairs the Contact Network, responsible for organization of the seminars and meetings, cooperation with other

organizations responsible for accomplishment of the Working Agenda. Supported by the former and future Secretaries;

- **Contact Network:** prepare a Market Report, exchange information between the BALTREL Members;
- **Task Forces:** execute tasks of the BALTREL Committee, conduct studies and analysis on Special Topics and prepare the contribution to the Seminar.

Workflow Chart



Current Topics

- Feasibility of the integrated BSR electricity market;
- Interdependence between electricity markets and security of supply;
- Feasibility of interconnections policies on electricity markets;
- Influence of environmental policies on electricity markets;
- Adequacy of generation and transmission assets within the BSR;
- Possible effect of synchronous operation of UCTE, Baltic and CIS markets.
- Comparison of congestion management mechanism with market transparency requirements based on the amended EU Congestion Management Guidelines

Prospective Topics

- Political, environmental and technical consensus on general guidelines between EU and CIS (Russia and Belarus);
- Compatibility and necessity for harmonization of market models and legislation within the BSR;
- Ability of electricity market models to produce correct price signals and create a healthy investment climate for new generation sources and interconnections;
- Non-discriminative measures to reduce market concentration and ensure new market entrants.

Working Program for 2005/2008

2005/2006

The BALTREL Working Program for 2005/2006 includes two complex and essential fields to be studied. The Task Force 1 has analyzed the problems of merging electricity markets in the Baltic Sea Region. The impact of the electricity market on the security of supply is in the scope of this study. The Task Force 2 has studied the political and regulatory issues relevant to the emission trading that can influence the electricity market, particularly to the development of the Emission Trading Scheme.

2006/2007

The Working Program of BALTREL in 2006/2007 is assigned to analyzing the issues of market-based balancing of power supply and demand, as well as availability of sufficient generating and transmission capacities, including the perspectives of cross-boarder interconnections, compatibility of environmental regulations, including emissions trading, congestion management in merged electricity markets in the Baltic Sea Region.

2007/2008

- Intensive work with authorities on the:
- Harmonization of market legislation and policies;
- Promotion of construction of necessary interconnections;
- Enhancement of security of electricity supply.

2. REPORT FROM THE SECRETARY – GENERAL

In the ninth year of the BALTREL activities, consistent steps have been taken to accomplish the main goals of the organization - to interconnect the power companies around the Baltic Sea into a power ring, to develop an efficient integrated electricity market in the region and to ensure the reliability of electricity supply.

The necessity to take these steps was also promoted by the tightening EU requirements established for security of electricity supply and infrastructure investments, designation of the roles and responsibilities of the market players. Significant progress was made towards the implementation of the Working Program Task Force 1. The BALTREL companies decided to assess the market-based balancing of power supply and demand as well as the availability of sufficient generating and transmission capacities, including cross-boarder interconnections, which are the most important requirements for normal functioning of an electricity market.

Close cooperation and efficient exchange of information among the power companies resulted in preparation of the report which presents the status of security of electricity supply, cost-efficient balancing services and compensation mechanism of the third country impact by transit power flows which can be consequent upon cross-border trade, the needs for transmission and generation investments as well as for enhanced power trading arrangements in the BALTREL countries.

Successfully accomplished targets will serve as a cornerstone for new challenges to be met in the coming year, mainly aimed at further analysis and coordination of actions to be taken in order to increase the security of electricity supply, to develop a transparent electricity market, to work out trading and balancing arrangements.

I would like to thank my colleagues for their initiative, keenness to achieve realistic results in strengthening the energy sector of the Baltic Sea Region and their competent input in our cooperation.

Ramūnas Bikulčius

Secretary General

3. NATIONAL REPORTS

3.1. Belarus

3.1.1. Energy policy

Electric-power industry of the Republic of Belarus (including generation, transmission, distribution and operational-dispatching control) is under government regulation. Functions of government regulation in the area of tariff policy are fulfilled by the Ministry of Economy of the Republic of Belarus.

The Ministry of Energy of the Republic of Belarus is responsible for power industry's effective functioning, elaboration of proposals on guidelines in the field of energy policy and their implementation, taking measures on providing of energy safety as well development and realization of investment strategy.

The State Energy Concern BELENERGO is a vertically integrated state power company responsible for power generation, transmission and distribution of electricity in the country. It consists of 37 companies including 6 regional power companies, RUP "ODU" (National Power Control Centre), research and development institutes, maintenance and mounting organizations.

BELENERGO is also the importer and the exporter of electric power.

Transmission assets are in the State ownership. They are assigned to the regional power companies through the right of economic management.

In 2005 the State Program on modernization of Belarusian power system, energy saving and increasing of own fuel sources utilization by 2010 (further the State Program) is adopted by the decree of the President of Republic of Belarus. Some measures are provided by the Program on use of local fuel and development renewable energy sources including HPP of small and middle capacity, wind power plants, and plants using biomass, biogas and all kinds of waste.

There is no liberalization of electricity markets at present.

In the framework of parallel operation BELENERGO has close international contacts both with CIS countries (Russia, Ukraine) and Baltic countries (Latvia, Lithuania, Estonia). Transit of electricity is fulfilled from Russian Federation through transmission grid of Belarus to EC countries (Latvia, Lithuania) and also in inverse direction. The five-side agreement is signed in 2001 between power companies of Belarus, Russia, Estonia, Latvia and Lithuania on parallel operation of the power systems.

3.1.2. The electricity market

In 2006 the course of carrying out the balanced pricing policy with the flexible regulation by state was kept in Belarus.

The present legislative and methodological system of tariffs formation and calculation of expenditures for electrical and thermal energy from the sources of The State Energy Concern "Belenergo" corresponds to the existing vertically integrated structure of managing the electric power industry, where the regional power companies realize the full technological cycle from generation to realization of energy power to consumers. Under such organizational structure of managing the electric power industry the tariffs and prime cost are formed and declared for the end users for the usefully supplied energy and include the in-house generation, purchasing of energy from abroad, transmission, distribution and realization.

Tariffs on electricity:

Consumers	Household	Industrial	Others, including an agriculture
Tariffs Eurcent/kWh	3,13	5,36	4,91

3.1.3. Electricity production and consumption

Electricity production

The structure of the electricity production in 2005 is presented in the following table:

Type of plant	Gas/Oil	Hydro	Others	Total
Electricity production 2005, GWh	30905,8	24,1	851,4	31781,3

Electricity Consumption

The structure of the current electricity consumption in 2005 is presented in the following table:

Consumers	Household	Industrial	Others, including an agriculture	Total
Consumption 2005, %	18,6	61,3	20,1	100

3.1.4. Transmission grid

Transmission grid in Belarus consists of 220 – 750 kV lines. 330 kV lines are the main part of the transmission grid. One line (Belorusskaya – Smolenskaya NPP) operates at 750 kV, another line built for 750 kV (Belorusskaya – Ignalinskaya NPP) operates at 330 kV. 220 kV lines which are mainly in western part of the country will be gradually replaced by 330 kV grid.

Transmission capacity of the existing lines is sufficient for electricity supply in the country. The main infrastructure problem is electricity transfer from Russia to Baltic countries, Kaliningrad area and Belarus through so called Smolensk section under great deficiency of the region caused mainly by maintenance of the Ignalinskaya NPP's remaining unit. The problem will become sharper after 2009 because of decommissioning of Ignalinskaya NPP. Load flow through the section is limited and it is permanently monitored. Cross-border trade through the section is planned taking into account the entered limitations.

The section Belarus – Ukraine was closed in 2006 by opening of two 330 kV lines connecting power systems of the countries. Reconstruction of 330 kV substation Kolyadichi near Minsk was completed, and the controlled shunt reactor of 180 MVAr capacity at substation Miradino was commissioned.

3.1.5. The largest investments in the industry in 2006

858,4 billion roubles of capital investments have been assimilated over the year in the energy system at the expense of all sources of investing.

The index of growth of investments into the fixed capital was 118,6 % to the corresponding period of the last year.

765,5 billion roubles of fixed assets were introduced, i.e. 110,6% to 2005 in comparable prices.

The construction and installation works were fulfilled in volume 457,7 billion rubles (122,3 % to the level of 2005).

3.1.6. Emissions trading, allocation of emission allowances and others environmental issues

The Belarus energy policy provides the following measures for environment protection:

- improvement of normative-legislative base in accordance with standards of the Republic and world standards;
- providing further reduction of the energy object pollutions by the introduction technical and organizing action;
- development of the environmental monitoring system and operative management, covering all sources of the pollutions.

Amounts of pollutions from the generating sources of The State Energy Concern "Belenergo" in 2006 are presented in table below.

	SO2	NO2	NO	CO	Solid	Total
Emissions of pollutants, thousand t/year	23,8	30,1	5,2	5,3		64,9

The increase of the fuel consumption and the share of black oil in the annual balance, use of the domestic fuels led to the growth of total emissions of pollutants per 8311,708 tonnes in comparison with 2005.

On the whole the state of the cities air pools correspond to CIS and WHO standards on average annual concentrations.

In view of the connection to Kyoto Protocol in Belarus was developed the approved by the Government the Plan of Measures on realization of regulations of Kyoto Protocol to the Frame Convention of UN on climate change for 2005-2012. The proposals under projects of joint realization within the framework of economic mechanisms given by Kyoto Protocol are preparing. In energy sector the Plan of measures on preservation of the environment and rational use of natural resources on the objects of Concern "Belenergo" for 2006-2010 was developed.

3.1.7. Compability of environmental rules and emissions trading

Issue	Answer with possible comments
How are the SO_2, NOx and dust emissions from power generation regulated? (E.g. is this based on the EU Directive on Large Combustion Plants or is the principle of best available technology (BAT) applied?) What major impacts will these regulations have on the future availability of the generation capacity?	The norms of contaminants emissions produced by boiler plants are regulated by national standarts of the Republic of Belarus: "Boiler plants. The plants operating on gaseous, liquid and solid fuel. The norms of contaminants emissions" "Boiler plants. The plants operating on biomass. The norms of contaminants emissions"
Do the environmental regulations (e.g. limits for the maximum temperature of cooling water) have major impacts on the summer-time availability of the generation capacity?	no
For countries using emissions trading (ETS) in reducing the CO_2 emissions: • How big were the power and heat sector CO_2 emissions under ETS during 2006? • How much CO_2 allowances is allocated to the power and heat sector for the year 2008 (excl. new entrant reserves)? • How big is the total new entrant reserve for the years 2008-2012? • How is the CO_2 allowance allocation from the new entrant reserve determined during 2008-2012 for new power plants? • How big use of the Kyoto Mechanisms (CERs and ERUs) is allowed for the power companies during 2008-2012?	The emission trading is not used in our country. Not determined yet. Not determined yet. Not determined yet.
For countries outside the ETS, what measures are used or planned to reduce the CO_2 emissions from power generation and heat production?	The implementation of new generation capacities will plan with using of Gas and Steam Combine Cycle technology.
Is it possible or planned to use the Joint Implementation (JI) mechanism to finance	Joint Implementation mechanism to finance power generation investments is planning to

power generation investments? Are Green Investment Schemes planned with financing by AAU sales (governmental emissions trading)?	use since 2008.
Which targets are set for the use of renewable energy sources? What measures are used or planned to promote renewable energy in power generation?	It is planning to increase the use of renewable energy sources by 25% in the balance of power consumption till 2012. Including: The construction of 12 MW hydroelectric power station on the Neman river (Grodno) – 2010; The construction of 25 MW hydroelectric power station on the Zapadnaja Dvina river – 2012; The implementation of 1,5 MW wind power station in 2008; The implementation of 2,5 MW fire-wood plant on the Severnaja power station (Vitebsk) in 2009.
Is international trading (e.g. of Guarantees of Origin or green certificates) possible in fulfilling the target for renewable energy or in financing additional renewable energy generation?	International trading with using of Guarantees of Origin or green certificates is not planning at least till 2010.

3.2. Denmark

3.2.1. Electricity market

In 2006, two important steps were taken towards improving integration with the German electricity market as Energinet.dk, Nord Pool Spot, the German power exchange and the two TSOs in Northern Germany agreed to establish a market coupling between the Nordic and the German power exchanges. The market coupling is expected to become operative in the fourth quarter of 2007. Furthermore, in September, the Elbas market opened for electricity trade on the Kontek Link between Eastern Denmark and Germany close to the operating hour.

However, attempts to establish a market-based solution for managing congestion in the Swedish transmission grid were unsuccessful. Congestion is often transferred to the Oresund interconnection, which according to Copenhagen Economics has cost electricity consumers in Eastern Denmark at least DKK 725m over the past five years.

Eastern Denmark implemented the daily market for manual regulating power reserves on 1 July, with Western Denmark following suit on 1 February 2007. The portfolio for the reserves will then consist of long-term contracts using a starting incentive for new suppliers, mid-term contracts covering the supply of a basic amount of the reserves and a daily supply covering the variable part of the reserves.

In 2006, Western Denmark became a full member of the Nordic regulating power market as Eastern Denmark has been since 2002.

3.2.2. System operation and operation

A large part of Denmark was hit by a glaze storm on 19 and 20 January. The glaze settled on overhead lines in the transmission and distribution systems. The result was galloping lines, and consequently, occasional outages and consumer interruptions. There was an estimated 140,000 cut-offs, some of which affected consumers more than once for shorter periods of time.

At the end of the year, weather conditions caused a critical production surplus in Western Denmark. Large amounts of wind resulted in wind turbines contributing large amounts of power, and since Northern Germany was experiencing similar conditions, it was not possible to export the surplus. Almost all measures in the emergency plan for critical power surplus were implemented, and in the end distributed power plants and wind turbines were disconnected.

Some situations threatening the security of supply occurred over the year. Especially important is the situation in Europe on 4 November where a fault in Northern Germany caused a power outage affecting 15 million consumers for several hours. No consumers were affected in Denmark, but the situation could well have escalated under unfavorable circumstances. Situation analyses have revealed areas of improvement in the Danish electricity system and the operational and emergency procedures to be observed.

There have been two cases of anchoring around the submarine cables between Zealand and Sweden with a resulting risk of damage. Furthermore, there was an almost simultaneous failure in two central power plants in Zealand on 3 November.

Since the foundation of one single national TSO for electricity and gas in Denmark in October 2005, Energinet.dk has worked towards establishing one common control centre for electricity. This means that the two existing control centers in Eastern and Western Denmark are presently undergoing a harmonization and strategy process in preparation for the relocation in 2008.

3.2.3. Grid development

In the autumn of 2006, Energinet.dk launched an EU call for tenders relating to the main components of the Great Belt power link between Eastern and Western Denmark. Public authority treatment has not been completed. The new link is expected to be operational in 2010. The Great Belt power link is one of Nordel's five prioritized cross-sections.

Energinet.dk is in the process of designing the power connections for two new offshore wind farms with a capacity of 200 MW each at Horns Rev in Western Jutland and Rødsand south of Lolland, respectively. The offshore wind farms and the power connections are expected to be operational in 2009.

To ensure a robust electricity system and an improved transmission capacity between Denmark and Germany Energinet.dk is planning the reconstruction and expansion of an existing single-circuit 400 kV overhead line in Southern Jutland. Public authority treatment is in progress, and the new overhead line is expected to be ready for operation at the end of 2009.

Energinet.dk and Svenska Kraftnät have reconstructed the HVDC interconnection Konti-Skan 1 in order to increase transmission capacity between Jutland and Sweden.

Capacity has been increased from 270 to 380 MW. The reconstructed interconnection was put into trial operation in June.

3.2.4. Electricity consumption

Electricity consumption in Denmark, including losses in the transmission grid, aggregated 36.0 TWh - 2.5 percent more than in 2005.

3.2.5. Electricity production

Overall electricity production totaled 45.7 TWh – 20 percent more than I 2005. In net figures, Denmark exported 6.9 TWh.

3.3. Finland

3.3.1. Energy Policy

The Finnish Parliament approved in June 2006 the government's updated energy and climate strategy. The Parliament urged the government to start to work out a long-term energy and climate strategy extending till year 2050, and not to exclude any energy source, incl. nuclear, from the assessments. The government was also urged to use steering mechanisms and to determine targets in promoting renewables.

In order to compensate for the effects of the EU emissions trading on industrial power prices, the electricity tax on industrial power use was cut by 50% to € 2.2/MWh from January 2007. A temporary feed-in support system for peat-fired condensing power, also affected by the emissions trading, was set up from May 2007 until the end of 2010.

A new government was formed in April 2007 after the parliamentary elections. It emphasized in its programme the development of carbon-free and low-emission electricity generation. In May 2007, the government started the preparation a long-term climate and energy strategy, which is planned to be presented to the Parliament in spring 2008. The strategy will take into account the EU targets on improving energy efficiency, increasing the share of renewable energy and reducing the greenhouse gas emissions.

3.3.2. Electricity Market

Due to a dry hydrological situation in the Nordic area and temporary shut-downs of some Swedish nuclear reactors, the Nord Pool spot price rose in 2006 to € 48.6/MWh (€ 29.3/MWh in 2005). The average total electricity price in Finland for a typical household customer (5000 kWh/a) based on public prices including grid fees and taxes was 10.69 cent/kWh at the beginning of 2007 (9.97 cent/kWh on 1.1.2006).

According to the new EU Congestion Management Guidelines in force since the beginning of 2007, Nord Pool increased the market transparency of grid and generation outages with all incidents of at least 100 MW now publicly reported.

Nord Pool has also agreed with the German power exchange EEX and the relevant TSOs to implement market coupling between the power exchanges with the operation expected to start by the beginning of 2008. This will further optimize the use of the interconnections between the Nordic and Continental power markets.

Nordel, the joint organization of the Nordic TSOs, agreed in February 2007 on harmonized principles for balance management. The harmonization applies to the cost base, calculation and pricing of the imbalances and the fee structure. The scheme is planned to enter into force by January 2009. Nordel also proposed harmonized Nordic guidelines for possible peak load arrangements. Any such arrangement should be transitory with a fixed expiring date.

In its three-year forecast published in June 2007, Nordel estimates that the Nordic electricity system is able to meet the estimated energy consumption and peak demand even without imports in average conditions. In dry hydrological situations energy imports are needed from neighbouring countries.

3.3.3. Electricity Production and Consumption

The Finnish power demand increased in 2006 by 6.5% to 90.1 TWh. The year 2005 demand had been affected by a labour dispute in the Finnish pulp and paper industry. The Finnish power generation in 2006 was 78.6 TWh and the net imports were 11.5 TWh. Combined heat and power (CHP) covered 35% of the generation, while nuclear power covered 28%, conventional condensing power 22% and hydropower 14%. The share of wind power was 0.2%.

New hourly peak demands were reached both in January 2006 (14860 MW) and in February 2007 (14955 MW). In order to secure the capacity balance before the commissioning of the Olkiluoto 3 nuclear unit, a temporary capacity reserve system was introduced from the beginning of 2007 until February 2011. About 600 MW of peaking condensing capacity was contracted to the system for the first three winters.

The construction of the 1600 MW Olkiluoto 3 nuclear power unit has continued with the start-up now expected by the end of 2010. Decisions have also been made on some new CHP plants to be taken into operation during 2008-2010.

Fortum and TVO started in spring 2007 Environmental Impact Assessment processes for a possible new 1000-1800 MW nuclear power unit to their sites in Loviisa and Olkiluoto. Additionally, a new company Fennovoima Oy was set up in June 2007 by E.ON Suomi, the metal industry companies Outokumpu and Boliden and the local utilities Rauman Energia and Katternö in order to build a nuclear power plant in Finland. The company has started to look for possible sites for the plant.

3.3.4. Transmission and Interconnections

During 2006, Finland imported 11.5 TWh of electricity from Russia. On the interconnectors with Sweden, there was a net import of 1.6 TWh on the northern AC lines, a net export of 1.9 TWh on the Fenno-Skan DC link and an import of 0.2 TWh to the Åland Islands. On the 220 kV line to northern Norway, 150 GWh was imported and 84 GWh was exported.

The 350 MW Estlink DC interconnector to Estonia was commissioned at the end of 2006 with commercial power trade started in January 2007. The link has been used mainly for imports to Finland. In December 2006, the Finnish Ministry of Trade and Industry rejected an application by United Power Oy to build a 1000 MW sea cable link from Russia to Finland based on e.g. requirements on reciprocity.

The new 800 MW DC link Fenno-Skan 2 to Sweden is expected to be commissioned during 2010. Fingrid is also planning a new 400 kV AC line from northern Finland to Sweden, as well as internal grid reinforcements due to demand and generation growth.

3.3.5. Environmental issues

The Finnish CO_2 emissions under the EU emissions trading scheme (ETS) were 44.6 $MtCO_2$ in 2006, while the allocation of CO_2 allowances during 2006 had been 45.5 $MtCO_2$.

The European Commission's decision on the Finnish National Allocation Plan for the next EU ETS period 2008 - 2012 was released in June 2007. The total allocation was cut to 37.6 $MtCO_2$/a from 39.6 $MtCO_2$/a proposed by Finland. The share of the allowed use of the CDM/JI credits was limited to 10% of the total allocation.

According to the new proposal published in July 2007 by the Ministry of Trade and Industry, the annual allocation during 2008-2012 for condensing power would be 3.1 Mt/CO_2, while this was 9.5 Mt/CO_2 during 2005-2007. The total allocation for all new entrants during the whole period 2008-2012 is proposed to be 7.0 Mt/CO_2.

3.4. Lithuania

3.4.1. Energy Policy

Lithuania became the member of EU on May 1, 2004. The EU has made the closure of Ignalina Nuclear Power Plant (NPP) a pre-condition for Lithuania EU-membership. Unit 1 of Ignalina NPP was shut down on December 31, 2004. Lithuania power industry lost 1300 MW of installed capacity.

In August - September period, Unit 2 of Ignalina NPP was not operated because of its maintenance and there was no electricity generation from the nuclear power plant in Lithuania for more than month. The remaining power plants were able to meet all inland electricity demand in Lithuania, but it was more costly to buy natural gas and generate electricity in Lithuania, than to import electricity.

During the maintenance period of the Ignalina NPP Unit 2, generation in Lietuvos Power Plant (the biggest thermal power plant in Lithuania) was increased, because it was necessary to maintain the reliability of parallel operation of the Baltic power systems. The price of energy produced in Lietuvos Power Plant was quite high and was not attractive on the market. This period of maintenance of the Ignalina Unit 2 indicated that it could be very problematic to ensure reliable operation of the Baltic power system after the closure of Ignalina NPP in 2009. After the closure of the Ignalina NPP Unit 2 in 2009, Lietuvos PP should become the main generation source in Lithuania. However, due to the recent increase of prices of imported fossil fuel, the country should seek for the alternative solution, i.e. the construction of a new nuclear facility. The Prime Ministers of Lithuania, Latvia and Estonia signed the Communiqué on 27th of February, 2006, where the following energy cooperation objectives were stated:

- To prepare a common energy strategy of the Baltic States by the end of 2006;
- To make common efforts necessary to fully integrate the Baltic electricity market and to harmonize the Baltic market rules with the Nordpool area market rules by 2009;
- To cooperate fully on and support the construction of interconnectors between the Baltic and other EU counties;

The state owned power companies Lietuvos Energija, Latvenergo and Eesti Energija signed the Memorandum of Understanding and started preparation of the feasibility study for the construction of a new nuclear power plant in the Baltic States. The feasibility study was finished at the end of 2006.

3.4.2. Electricity Market

The trade in electricity is carried out in the domestic market as well as through export and import. In Lithuania electricity is traded at:

- The wholesale electricity market, by concluding bilateral sale-purchase agreements between electricity producers and suppliers. Electricity complying with public service obligations (PSO) is traded at the wholesale market as well. They can sell or buy deficient or surplus quantities of electricity at the auction.
- The retail electricity market, by concluding bilateral sale-purchase agreements between eligible customers and suppliers.

In 2006, the players of Lithuanian electricity market were:

- Producers - 9
- Suppliers - 8 (3 public and 5 independent, although 24 have got the supplier's license)
- Eligible consumers – 4, although all, except households, have the right to be eligible
- Lietuvos Energija as the Transmission System Operator, Market Operator and Exporter/Importer.

Transactions concluded with electricity suppliers are for trading in the following three types of electricity:

- Contractual electricity, that is bought or sold in accordance with bilateral contracts signed between Producers and Suppliers.
- Public Service Obligations (PSO) electricity, that is bought from the power plants included in the Public Service Obligation List, and sold to all Suppliers.
- Additional electricity, which is bought by the market operator and sold to the suppliers and transmission system operator if the quantities of contractual electricity and electricity complying with public service obligations electricity are not sufficient. Additional electricity is sold at the auction arranged for producers by the market operator.

In 2006 in the Lithuanian wholesale electricity market electricity suppliers bought 0.46 billion kWh of electricity more year-on-year, i. e. 10.3 billion kWh.

Under direct bilateral contracts, the largest quantity of electricity (5 billion kWh) was sold by Ignalina NPP, and purchased by the distribution company Rytų Skirstomieji Tinklai (2.4 billion kWh).

The National Control Commission for Prices and Energy (an independent regulator) sets the price caps for the transmission, distribution services, the PSO electricity and the dominating producer for a three-year period. Relevant companies set tariffs within the established price cap. The tariffs may be revised every year. Tariffs and price caps are available at www.regula.is.lt.

3.4.3. Electricity Production and Consumption

In 2006 total generated output in Lithuania power plants equaled 12.45 TWh and decreased by 2.33 TWh.

Electricity production in 2006, distributed by different energy sources:

- Hydro power- 6.51 %
- Nuclear power- 69.48 %
- Thermal Power- 23.9 %
- Wind power- 0.08 %
- Other renewables- 0.24 %

The domestic demand in 2006 was 10.34 TWh and increased 0.23 TWh

The total 9.19 TWh energy net consumption distributed by different user categories:

- Households – 26.01 %
- Industry – 34.06 %
- Transport– 0.22 %
- Services – 37.98 %
- Agriculture, transport and etc. – 1.74 %

3.4.4. Transmission and Interconnections

The Lithuanian power system is quite strongly connected with Latvia (4 lines of 330 kV), Belarus (5 lines of 330 kV) and with the Kaliningrad region of Russia (3 lines of 330 kV). The physical connections between Lithuania and the UCTE or Nordel grid are still missing.

In June 2005 based on the decision of the European Parliament, the interconnection project of Lithuania and Polish power grids was included in the list of priority in the European Union. In September 2005, Lietuvos Energija and Polskie Sieci Elektroenergetyzne (Poland) - as well as the Ministry of Economy of Lithuania and Ministry of Economy of Poland signed a Communiqué. The power companies continued their work on the interconnection of the grids of Poland and Lithuania.

On December 8, 2006 Lietuvos Energija and Polskie Sieci Elektroenergetyczne signed an Agreement on establishing a joint venture with the aim to implement the interconnection project of the Lithuanian and Polish Power Systems. Half – year period was spent by the working group, made up of both company representatives for the preparation of legal, financial and technical analysis and documents, which are necessary for the establishment of the joint venture for the interconnection project.

“This is a big move forward and the beginning of actual works, which has revived decade-long negotiations. The importance of this interconnection is constantly increasing. This is also confirmed by European Commission, which has enlisted the project into the revised Quick Start program, - says Mr.Rymantas Juozaitis, General Director of Lietuvos Energija – the signatory of the Agreement. According to him, the establishment procedures of

the joint venture are to be finished by end of the 2008, while the fully functional and powerful electricity transmission line is expected by 2011.

The construction of the missing chain will complete the Baltic Power Ring, interconnecting Lithuanian, Latvian, Estonian, Finnish, Swedish and Polish power systems, helping to ensure operation security and reliability of the Baltic power grids.

The project is targeted to build more than 500 km of high-voltage electricity transmission lines in both countries and construct a 1000 MW back-to-back converter in Lithuania.

Currently the route of the line in Lithuanian territory is projected as the 53 km line and consists of the 330 kV voltage double circuit power line from Kruonis Pumped Storage Plant to Alytus and 48 km of the 400 kV double circuit power line from Alytus to the borderline with Poland.

The feasibility study for constructing a 1000 MW undersea DC cable across the Baltic Sea was launched to interconnect Sweden and Lithuania. Findings from a pre-feasibility study had shown the potential benefits from the project. This project would create favorable conditions for electricity exchange between the power systems of Lithuania and Sweden.

The international study for synchronous interconnection of the power system of UPS/IPS with UCTE was started in 2005. Eleven UCTE and seven UPS/IPS power systems are involved in the study. The main objective of the study is to assess the feasibility of synchronous operation between the two biggest power systems in Europe - the UCTE and UPS/IPS. Completion of the study is scheduled for 2008.

Development of the transmission grid:

The integration of the Lithuanian power system with the Western European market and the development of regional co-operation are among the main Lietuvos Energija's goals. It is projected to develop the transmission grid by interconnecting it with the Polish power system. Efforts are being made to establish a common electricity market in the Baltic States by using the potential of these power systems for the integration with markets of Western Europe and Scandinavia.

Major investment trends:

- Rehabilitation and development of the transmission grid;
- Implementation of new technologies;
- Rehabilitation and development of power plants.

Rehabilitation of the transmission grid:

In 2006 investments in refurbishment of the grid equaled to EUR 45 million. No new lines were built, no constructions of new substations were completed in the national transmission grid during 2006, all investments were allocated only for the refurbishment projects.

3.4.5. Environmental issues

According to the National Energy Strategy, the main directions are to increase the share of natural gas and local fuel in the balance of the primary resources, to ensure safe operation of Ignalina Nuclear Power Plant, to reduce emissions and to develop the taxation system.

The implementation of the EU ETS in Lithuania was characterized by several actions in 2005. Lithuania initiated the establishment of the legal framework and Greenhouse Gas Emission Allowance Registry in January 2005.

By order of the Minister of Environment the Republic of Lithuania No. D-231 "On the Approval of Guidelines of the Procedure for the Issue and Trade in Greenhouse Gas Emission Allowances", the implementation of Directive 2003/87/EC, establishing a scheme for greenhouse gas emission allowance trading was approved.

Due to the fact that the use of CER and ERU (Kyoto units) is possible through the transposition of the EU linking directive in national legislation, the Directive had been adopted in national law by issuing the revised version of the above mentioned order of the Minister of Environment. This order entered into force on November 11, 2005. The document stipulated that Lithuanian's NAP should set the maximum amount of CERs and ERUs which may be used by operators in the Community scheme as a percentage of the allocation of the allowances to each installation.

The Ministry of Environment carries the main responsibility for the planning, preparation and implementation of the NAP. Regarding the fulfillment of the order, NAP for the first pilot period was approved in the end of 2004, on 27 December. Allowances were distributed to 93 Lithuanian operators of installations (36 796 184). The number of allowances distributed among the enterprises participating in emission trading scheme in the three year period from 2005 to 2007 is 36.80 Mt. Allowances are distributed to the enterprises free of charge in the following portions: 40% in 2005, 30% in 2006 and 30% in 2007. It is foreseen that 93.5% of the total quantity of allowances will be allocated free of charge, 1.5% - transferred by auctioning, 5% of the allowances i.e. 1,839,815 t, will be transferred to the reserve intended for new market entrants. For one year allowances from reserve will be granted to new market entrants by applying benchmarks to one installed power unit (MW: t of production per day and so on). Auctions of allowances will be organized by authorized Lithuanian institutions and they will be open to all potential buyers.

The projected CO_2 pollution emitted by enterprises participating in the emission trading system in 2005-2007 will account for (including projected CO_2 pollution emitted by new installations):

- In industrial enterprises 14.03 Mt
- In energy enterprises 22.76 Mt.

It represents 35.7 % of the total greenhouse gas emissions in Lithuania.

The foreseen increase of their share is related first of all to the closure of the first unit of Ignalina NPP and with higher production output of fossil fuel-fired power stations covered by the emission trading scheme.

The total projected quantity of allowances that have been allocated to the existing installations of the electrical power generating sector in the period 2005 to 2007, after considering the technical saving potential, is 12.32 Mt. The total amount of allowances allocated to enterprises participating in the activity of heat and electricity supply will reach 98.5 % of the forecasted CO_2 emissions, whereas 1.5 % will be allocated by auction.

The free allocation of allowances issued to electric and thermal power generating installations (the main task of which is to supply power to the power and thermal grid and/or

sell electric power to other legal or natural persons) have been calculated by multiplying the amount of energy planned to supply from comparative pollution unit per one unit of energy. The comparative pollution benchmark depends on the type of enterprise.

It is expected that Kyoto Protocol mechanism - joint implementation projects - will be implemented in Lithuania and they will help to achieve a reduction in greenhouse gas emissions from those economy sectors which are not covered by the emission-trading scheme.

According to the recently published verified CO_2 emissions data Lithuania's emissions trading sector emitted 6.6 million tonnes of carbon dioxide in 2005, 7 million tonnes less than it was allocated.

By implementing the investment projects in 2006 the following facilities were constructed and launched into operation:

- Household waste water treatment facilities with the capacity of 40 m3/24h and industrial waste water treatment facilities for potential pollution with oil products with the capacity of 15l/s in the Kruonis Pumped Storage Plant;
- Industrial waste water treatment facilities for pollution from the parking lot with the capacity of 4 l/s in the Panevėžys transformer substation;
- Household waste water treatment facilities with the capacity of 60 m3/24h in Dubingiai Conference and Seminar Centre due to which biological oxygen demand was reduced from 150mg/l to 20mg/l and the total nitrogen content from 50mg/l to 20mg/l.
- In Klaipėda some of the 110kV overhead lines were replaced by an underground cable of 1200 m length.

3.5. Latvia

3.5.1. Energy Policy

The Electricity Market Law was approved on 25 May 2005. It stipulates the relationships between market participants and system operators, their rights and responsibilities, defines the main principles of trading, public service obligations, power system auxiliary services, authorization procedure for new generation and transmission capacity, change of supplier, etc.

3.5.2. Electricity Market

The dominant role in Latvian electricity market is still played by AS Latvenergo, which is the holding company, comprised of several joint stock companies, responsible and licensed for electricity (2070 MWel) and heat (1610 MWth) production and trading, as well as for telecommunication services. In addition, in the electricity sector of Latvia there are about 15 other companies, which have trading licenses, 9 companies, which have been licensed for distribution services and about 205 small electricity producers with the total capacity of 135 MWel. In the Latvian electricity market, AS Latvenergo has the share of about 65%-70% in electricity production and 98% in power supply at the moment.

The reorganization of the Latvian electricity sector goes in line with EU Directive 2003/54/EC by implementing the minimum requirements on legal separation of transmission

and distribution system operators. Transmission was legally separated from AS Latvenergo in 2005. Reorganization of seven regional electricity distribution subsidiaries of AS Latvenergo into one legally independent joint stock company AS Sadales tikls is completed by the 1 July 2007. Generation and trading are the business units of the holding company AS Latvenergo.

Starting from 1 July 2007, all the consumers in Latvia have the right to be eligible. In this respect, the market is fully liberalized legally. Nevertheless, at this stage situation on the electricity market of Latvia could not be characterized as fully similar with those in developed electricity markets, such as Scandinavian for instance. It still assumes prices regulation at retail level, non market-based support to priority generation (these are cogeneration and renewable), as well as absence of liquid day-ahead, forward, intra-day and balancing market. Moreover, just very few of the eligible customers have used their right to change a supplier. In fact, at the moment they just informed about their wish to do so. The major reasons of such poor liquidity are as follows: small size of the Latvian electricity market (currently, annual electricity demand is only 7 TWh), high level of concentration and significant intervention of the state by means of different support schemes and public service obligations. Others than AS Latvenergo producers are involved mostly into the regulated (subsidized) market via different support schemes (cogeneration, renewable energy).

Taking into account the size of the Latvian electricity market, it is not recommended to artificially break down the dominating player, but is rather recommended to broaden electricity market by integration of the Latvian electricity market into the Common Baltic Electricity Market (CBEM) and later on merging of the CBEM with other regional markets of the Baltic Sea Region (BSR).

In the free electricity market segment, currently available alternatives include foreign suppliers: Eesti Energia AS (Estonia), AB Lietuvos Energija (Lithuania), Belenergo (Belarus) and InterRAO (Russia). For the export supplies, Ignalina NPP is cooperating with AB Lietuvos Energija. After re-connection of Belarus and Ukraine power systems, some possibilities of power exchanges with Ukrainian suppliers are considered. Commissioning of Estlink cable at the end of 2006 will open new possibilities for power exchange with Nordic market.

At the moment, an Estonian electricity trading company is licensed for business in Latvia. Latvenergo, in its turn, has created a trading company in Estonia. Both companies are concentrating their activities at acquiring large customers with big consumption of electricity.

Power exchange with day-ahead and forward prices does not exist in Latvia at the moment. That is why there are no officially published wholesale electricity price indexes to be analyzed. Power traders conclude bilateral power purchase agreements at fixed prices or with the reference to the price indexes of the neighboring power exchanges, for example NordPool. Wholesale electricity price level in the Baltic (and Latvian) electricity market nowadays is lower, than in PolPX, Nordpool and EEX Phelix, but is higher than that of the Russian Power Exchange ATS.

The major drivers, which caused the increase of wholesale electricity prices in Latvia in last years, were the growth of fuel prices, decommissioning of the first unit of Ignalina NPP and introduction of CO_2 emission allowance market. Potentially, the lowest electricity prices in Latvia can be expected during the spring flood period, when Latvia has a surplus of power, originated from Daugava Hydro Power Plants.

The first interconnection between the Baltic States (Estonia) and the Nordic market (Finland) is the Estlink DC submarine cable. This is the first step to the markets coupling, increasing the mutual interaction of two markets.

The allocation of RES-E obligation is not favorable for Latvia. Proposed non-market based support schemes for RES-E and cogeneration might limit the development of liquid electricity market in Latvia. Announcement of tender for new generation capacity to safeguard the security of electricity supply is an ultimate measure, which would further reduce the competition in the electricity market. Potential growth of electricity consumption will require more energy and more CO_2 quotas, which can create additional costs to electricity producers. Latvian NAP2 should take the possible new entrance into account. Reallocation of CO_2 emission allowances between countries taking import/export exchanges in the reference year into account was never considered by the EU trading scheme.

3.5.3. Electricity Production and Consumption

The total electricity production was 4670 GWh in 2006. 57% of electricity was produced by HPPs and 41% - by CHPs. 1% of electricity was produced by wind power plants as approximately 0.5% was produced by other renewable energy sources.

The electricity net consumption was 6293 GWh. The largest customer sector is the commercial sector (services) – 39.7%. There is very stable increase of demand in last years in Latvia. In 2006, the electricity consumption increased by 6.7%.

3.5.4. Transmission and Interconnections

There was made reconstruction of 330/110 kV substation Rezekne in the east of Latvia. A new 110 kV substation Zunda (2x25 MVA) is to be commissioned in July of 2007. Construction works of new 330 kV substations at Plavinu HPP and at Riga CHP-2 are under way. These substations are to be commissioned in 2008.

There are no new interconnections between Latvia and neighboring countries.

3.5.5. Environmental issues

In 2006, the Latvian Government approved “The Guidelines for Using Renewable Energy Sources in the period of 2006-2013”. Main stress is made on optimization of Latvian renewable energy sources potential use taking into consideration economical, geographical and technical opportunities as well as the development plans of energy sector. While performing this, the EC Directives, goals and requirements concerning RES-E are to be observed.

According to the Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 “On the promotion of electricity produced from renewable energy sources in the internal electricity market”, the goal set for Latvia, that is the percentage of electricity produced from RES-E in the year 2010 is 49,3% of electricity consumption in the state. This is very ambitious goal for Latvia, which will be difficult to achieve.

Latvenergo, which is by far the largest producer on the Latvian market, produced 60.1% of electricity from RES-E in 2006. Due to this ratio, the intensity of CO_2 emissions was 0.141t/CO_2/Mwhel in 2006, which is one of the best indicators among European utilities.

The year 2006 was the first full year of operation of the newly built combined cycle Riga CHP-1. This modern gas-fired power plant proved the efficiency of modern equipment by reducing specific emissions of CO_2 per kWh of electricity produced by 48% compared with those of the previous years when the old power plant was in operation. Specific emissions of NOx have been reduced by 40%.

3.6. Norway

3.6.1. Energy Policy

The integrated Nordic electricity market is today better functioning than any other regional market for electricity in the world. Norway is part of this market and hence the Norwegian market is well functioning, too. Even though there is an agreement among the Nordic authorities that the market functions rather well there is still room for improvement. This calls for closer co-operation between the authorities.

Important issues to discuss further include among others the need for a development of the market structure in generation and wholesale supply, transmission infrastructure and congestion management and a common Nordic retail market for electricity.

3.6.2. Electricity Market

Stat Nett has started the process of introducing an intra-day market in Norway.

The Elbas market is planned to open during the first half of 2008, subject to the approval of the Norwegian authorities.

3.6.3. Electricity Production and Consumption

The total electricity generation in Norway throughout 2006 was 121,7 TWh, of which nearly 100% is hydropower. This is much less than in the wet year 2005. In 2006 it was a net import of 0.9 TWh as opposed to 2005 where it was a net export of 11.5 TWh. The total consumption of electricity in Norway in 2006 was 122.5 TWh, which is about 1 TWh more than the year before.

3.6.4. Interconnections

The work with the NorNed cable between Norway and the Netherlands is well under way. The NorNed project was launched 1 January 2005 and is projected and owned by the transmission system operators (TSOs) Stat Nett in Norway and TenneT in the Netherlands. The completion is planned for fourth quarter of 2007.

NorNed will be an open interconnection, which will be utilized via market coupling of the Dutch and Nordic markets This will be handled by the power exchanges APX and NordPool.

3.6.5. Environmental issues

Directive 2001/77/EC (RES - Directive) entered into force 1st of Sep 2006 in Norway.

3.7. Poland

3.7.1. Energy Policy

In March 2006 the Polish Government approved the Program for the Electricity Sector. It provides for general directions on the Polish power market restructuring and development including establishment of two strong consolidated energy groups, and further possible consolidation of smaller generators and distributors. With reference to the market developments it is proposed in this Document:

- to introduce new market mechanism for the development of the generation investments,
- to strengthen competencies of the national energy regulator,
- to develop interconnections,
- To promote new sustainable and cost effective power generation technologies.

One of the Programme's objectives is consolidation of power sector companies involving creation of powerful players with capacity to carry out key investment projects in Poland and to join and be active in the European electricity market.

The Polish Energy Group is the very player, which, due to the merging of operations of the Polish Power Grid Company (PSE SA) - the power sector leader - with BOT - the generation market leader - and distribution companies, makes up a company with know-how unique for whole Poland.

Creation of the Polish Energy Group is led by the Polish Power Grid Company. It comprises 11 electricity companies with the combined value of assets totaling approx. PLN 38 billion.

3.7.2. Electricity Market

According to the Polish Energy Law Act, on the 1st of July 2007 the electricity market was opened for all customers who are now eligible for changing electricity supplier.

Actually 308 companies possesses license for trading electricity. Since July 1st 2007, when the distribution system operators are separated, the supplies to final customers are totally in the hands of already existing traders and new entities, eg. separated from distribution companies.

The Polish power market forms a part of the Central and East European electricity market made up of individual markets of the Czech Republic, Hungary, Slovakia, Austria, Slovenia and, partially Germany.

During 2006 a coordinated auction procedure for cross-border capacities was conducted on the basis of multilaterally agreed rules and in accordance with the EU legislation. In auction processes TSOs allocated yearly, monthly and daily available transmission capacity on profiles between PSE-Operator S.A., CEPS a.s., SEPS a.s., VET GmbH and E.ON Netz GmbH. The regional cooperation was further developed in respect to regular framework for dialogue with TSOs and Regulators in the Central East Europe Region, concerning especially congestion management and transparency issues, under regional initiatives and minifora. The current congestion management mechanism is designed as explicit cross-border capacity auction coordinated with the neighboring TSOs.

One of the problems that are being solved now to help liberalization of Energy Market in Poland is dissolution of Long-Term Power Purchase Agreements (KDT).

Long-Term Power Purchase Agreements (KDT) was reached between electricity generating units who won tendering procedures and the Polish Power Grid Company (Polskie Sieci Elektroenergetyczne S.A.) in the years 1994-1998. The Agreements provided electricity generators with appropriate levels of income which allowed them to get financing for the best investment schemes.

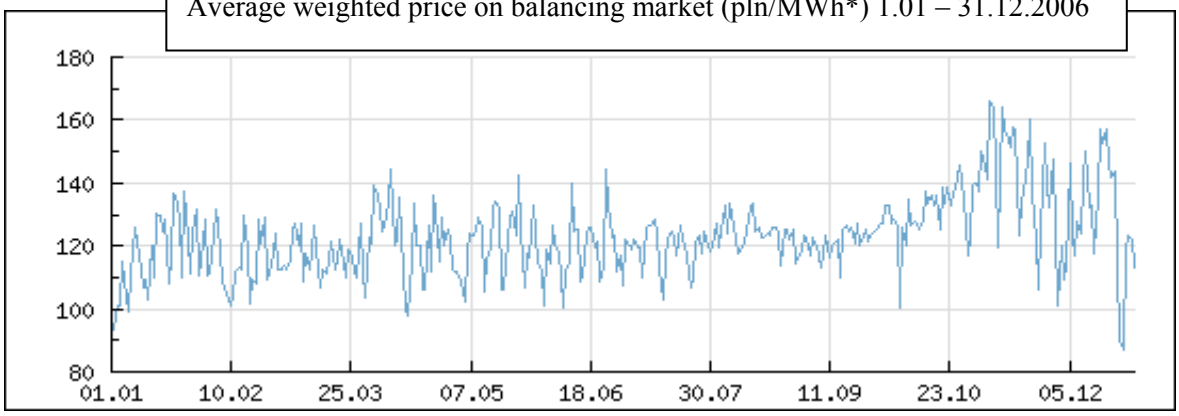
At present Long-Term Power Purchase Agreements cover 50 per cent of electricity generation (about 55 TWh ouf of 110 TWh sold to end-users) which hampers the liberalization of the Polish market and, simultaneously, exposes Poland to the European Commission's objectives of using forbidden public assistance.

On 24 May 2007 the Polish Parliament accepted the Ministry of Economy's bill on the termination of Long-Term Power Purchase Agreements (so called "KDT"). The solutions

proposed by the Ministry of Economy will help to remove one of the main barriers to a growth of competition on the electricity market in Poland.

The structure of the electricity market now, comprises three mutually supplementary parts: the active energy market (bilateral, power exchange and balancing), the financial market (financial contracts and derivatives) and technical market (regulated ancillary services and must run generation). The examples of electricity prices traded on balancing market and on Warsaw Power Exchange are presented below.

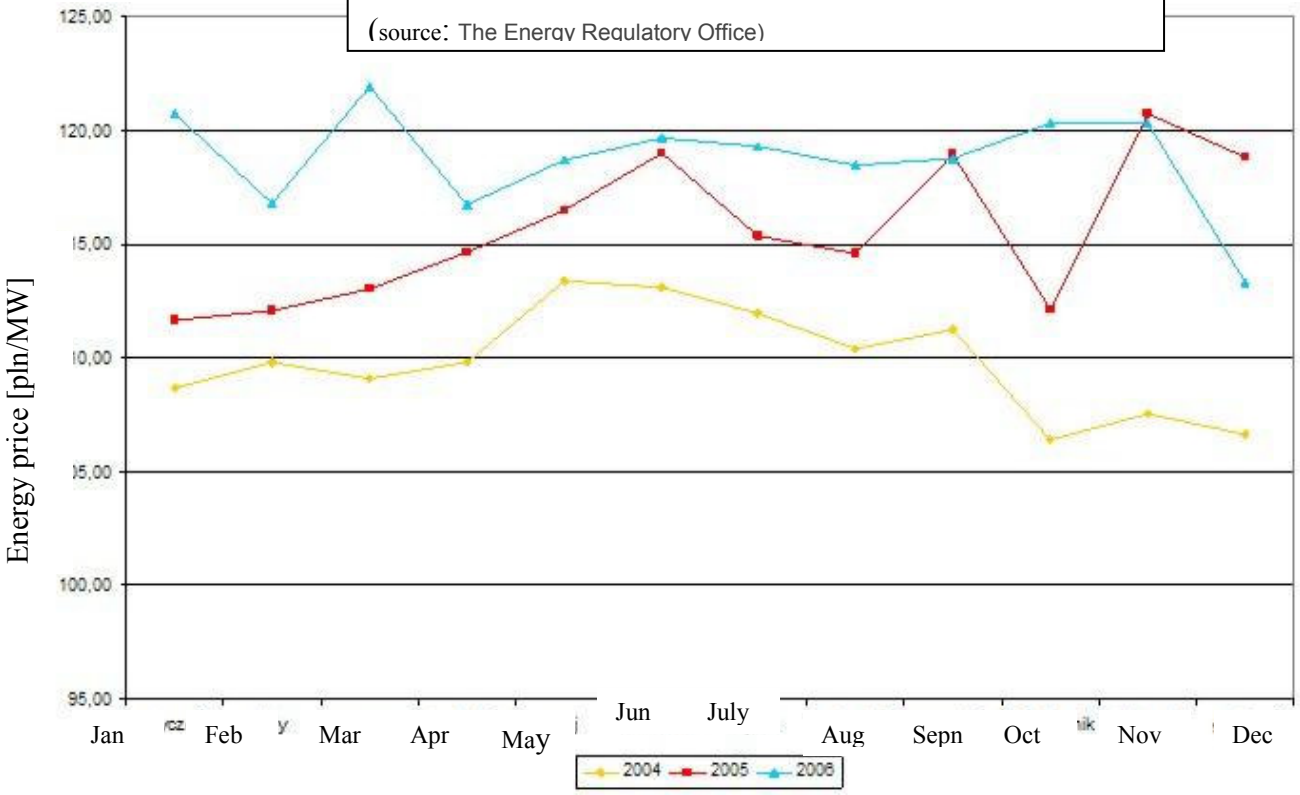
Average weighted price on balancing market (pln/MWh*) 1.01 – 31.12.2006



Source: http://www.cire.pl/RB/ceny/index.php*/ Average rate of exchange as of 31.12.2005: 3,83 pln/eur

Electricity prices on Power Exchange in 2004, 2005, 2006

(source: The Energy Regulatory Office)



3.7.3. Electricity Production and Consumption

Annual net values in GWh	**2006**
Hydro power capacity	2794
Nuclear power capacity	0
Fossil fuel power capacity(*)	145736
including lignite sources	49198
including hard coal sources	92414
including gas sources	4124
including oil sources	0
including mixed oil / gas sources	0
including non attributable sources	0
Renewable energy sources (excl. hydro power) capacity	325
including wind farms	218
Non Clearly Identifiable Energy Sources Capacity	0
Net Generating Capacity	**148855**
Physical imports	4774
Physical exports	15775
Physical exchanges balance	**-11001**
Pumped storage	-1357
Consumption	**136497**

Source: UCTE, PSE-Operator

3.7.4. Transmission and Interconnections

No new international tie lines were put into operation. Radial operation of 220 kV line Bialystok Ros between Poland and Byelorussia was still suspended since July 2004.

The following elements of the HV grid were put into operation: 1. Transformer 400/220 kV, 330 MVA in Olsztyn substation (03.10.2006). 2. Transformer 220/110 kV, 160 MVA in Konin substation (31.12.2006).

3.7.5. The largest investment in 2006 in the industry

The following generation units were put into operation:

- Cisowa Wind farm with output of 50 MW (30.04.2006).
- Unit with output power of 87 MW in CHP Zeran (01.07.2006).

3.7.6. Emissions trading, allocation of emission and others environmental

Year 2006 was the first full year of the system of trading in property rights under the RES guarantees of origin.

Poland prepared the IV National Communication under the United Nations Framework Convention on Climate Change. The results of the inventory of greenhouse gas emissions for

the period of 1988 – 2004 and projection scenarios for GHG emissions up to 2020 have been presented in the report.

In the middle of 2006 Poland joined the EU ETS formally and in practice. Furthermore, the draft NAP for the trading scheme's second phase has been submitted to the EC at the end of June. Till the end of the year the Commission has not taken the decision concerning the NAP II.

According to the legal obligations expressed in the ordinance of Minister of Economy (November 2006) the share of electricity from RES in total electricity sold to the end-users increases every year from 5.1% in 2007 to 10.4% by 2010 - 2014 (an increase in relation to the previous one from 2005 – 4.8% and 9.0% respectively).

Under the provisions of amended Energy Law all power companies dealing with generation of electricity or selling energy to the end-users on the territory of Poland are obliged to buy and submit to the President of the Energy Regulatory Office guaranties of origin confirming that electricity has been generated at renewable sources for the purposes of their cancellation.

The task of running a register of green certificates and organization of trade in property rights under the green certificates was commissioned to the Towarowa Giełda Energii S.A. (Polish Power Exchange).

Sources: PSE-Operator SA, UCTE, The Energy Regulatory Office, Ministry of Economy

3.8. Russia

3.8.1. RAO USER

In 2006, the greater part of the structural reform in the power sector was completed. Measures were taken to establish electricity market participants and introduce new rules for the wholesale and retail electricity markets. The electricity reform entered a new phase providing for massive investment.

The sector reform is being implemented along the following lines:

- reform of the wholesale and retail electricity and capacity markets and development of competition in the sector;
- restructuring of the regional energos;
- creation of the electricity market infrastructure;
- establishment of the companies which will make up the final sector structure;
- reorganization of OAO RAO "UES of Russia".

3.8.2. Results of the Structural Reform

The measures under the sector reform programme approved by the Russian Government and the resolutions of the General Shareholder Meeting of RAO "UES of Russia" helped achieve significant progress in all aspects of the reform:

- unbundling of regional energos by lines of business;
- creation of wholesale generation companies (WGCs);
- creation of territorial generation companies (TGCs);
- consolidation of the Unified National Electricity Grid (UNEG) facilities;

- consolidation of the dispatching system;
- restructuring of the energy retailing operations;
- restructuring of the repair & maintenance and services businesses.

3.8.3. Unbundling of Regional Energos by Businesses

By 31 December 2006, the Board of Directors of RAO "UES of Russia" had approved the restructuring of 71 regional energos, 64 of which had completed their corporate unbundling. As a result of their reorganization, 260 new companies were established.

In 2006, the Board of Directors of RAO "UES of Russia" approved the restructuring plan for OAO "Tyvaenergo", and the Management Board took individual divisions on the strategy for development and restructuring of the isolated regional energos, OAO "Kolymaenergo" and OAO "Magadanenergo".

As the regional energos' unbundling is virtually completed and the continued interregional integration of the new companies is well underway, the Board of Directors of RAO "UES of Russia" approved the liquidation of the management companies spun off from the reorganized energos. As of 31 December 2006, the Company liquidated 34 out of its 37 management companies. It is planned that the regional energos' reorganization and liquidation of the management companies will be completed in 2007.

3.8.4. Establishment of WGCs

Pursuant to Direction of the Russian Federation Government No. 1254-r, dated 1 September 2003, seven wholesale generation companies were created, six of which were based the thermal generation assets (thermal WGCs) and one on the basis of the hydropower assets (OAO "HydroWGC").

3.8.5. Thermal WGCs

In 2005, the Board of Directors of RAO "UES of Russia" approved the parameters for the establishment of all six thermal WGCs, i.e. the terms and ratios for conversion of regional energos' shares into shares in the respective thermal WGCs. The shareholders of the AO-power plants of all thermal WGCs approved the plants' merger with the respective WGCs.

In 2006, all thermal WGCs completed their establishment and AO-power plants merged with the WGCs. Today, all thermal WGCs work as consolidated operational companies.

3.8.6. Hydro WGCs

In 2005, the Board of Directors of RAO "UES of Russia" approved the post-reform model for operation of OAO "HydroWGC". After the establishment of OAO "HydroWGC" is completed, the company will manage its branches (hydropower plants). Under the Russian legislation, the Russian Federation is to hold at least 50 percent plus one share in OAO "HydroWGC".

Pursuant to the shareholder resolution approved at the AGM of RAO "UES of Russia" on 28 June 2006, in order to establish OAO "HydroWGC" and increase the state's interest in the company to the level required by the legislation; RAO "UES of Russia" is taking steps to acquire additional shares in OAO "HydroWGC". Payment for such shares will be made in the form of cash, shares and property of hydropower plants owned by RAO "UES of Russia".

3.8.7. Establihment of TGCs

As of December 31, 2006, the following corporate transactions had taken place: TGC-3 (OAO "Mosenergo") completed its establishment; OAO "TGC-4", OAO "TGC-5", and OAO "TGC-14" achieved their intended final structure after the consolidation of their regional generation subsidiaries; OAO "TGC-12" was set up on the basis of the assets of OAO "Kuzbassenergo"; OAO "Yeniseyskaya TGC" (TGC-13) implemented the first phase of its formation. Process is underway to establish other territorial generation companies (OAO "TGC-1", OAO "TGC-2", OAO "Southern Generation Company TGC-8", and OAO "TGC-10) as corporate groups, which will subsequently merge with and into their holding companies. The final structure of OAO "TGC-9" was achieved in February 2007, OAO "TGC-6" completed the process in March 2007. OAO "Volzhskaya TGC" (TGC-7) completed its group restructure.

3.8.8. Consolidation of the Unified National Energy Grid Facilities

In order to administer the Unified National Energy Grid (UNEG) facilities, RAO "UES of Russia" established in 2002 a wholly-owned subsidiary, OAO "Federal Grid Company " (OAO "UES FGC"), and contributed its UNEG assets to the capital of OAO "UES FGC".

The consolidation of the transmission business within OAO "UES FGC" was due to the need to comply with the federal laws providing that all UNEG-related facilities must be operated by a dedicated entity.

2006 saw the establishment of the transmission (trunk grid) companies (TCs) on the basis of the UNEG-related assets spun off in the course of the regional energos' reorganization.

In August 2006, the shares in 42 TCs owned by OAO RAO "UES of Russia" were transferred to OAO "UES FGC" as payment for new shares in FGC. The remaining TC shares owned by RAO "UES of Russia" will be paid for the next issue of new shares of OAO "UES FGC", and distributed to OAO "UES FGC" under the balance sheet for the separation of OAO RAO "UES of Russia". As provided by Russian law, the state must hold at least 75 percent plus one share in OAO "UES FGC".

The Board of Directors of RAO "UES of Russia" approved modifications to the model for consolidation of TCs and ITCs and the single-phase merger of the TCs and ITCs with and into OAO "UES FGC" simultaneously with the final phase of reorganization of OAO RAO "UES of Russia".

On 1 January 2006, OAO "UES FGC" was granted its own tariff for electricity transmission via the UNEG networks. The property of the transmission (trunk grid) companies was used by OAO "UES FGC" under usage agreements.

3.8.9. Formation of IDCs

By end-2006, over 90 percent of the regional distribution companies (RDCs) to be spun off from the regional energos completed their establishment.

The next stage provides for the consolidation of the RDCs into interregional distribution companies (IDCs). In 2004-2005, RAO "UES of Russia" established four wholly-owned subsidiaries, OAO "Center and North Caucasus IDC", OAO "North-West IDC", OAO "Urals and Volga IDC", and OAO "Siberia IDC". In August 2006, RAO "UES of Russia" created another wholly-owned subsidiary, OAO "Southern Grid Company" to operate the grid and retail companies in the South of Russia during the transitional reform period.

In 2006, OAO "UES FGC" produced a comprehensive Strategy for the development of the electricity distribution facilities until 2015. The Strategy envisages a new configuration for the IDCs and increase in their number.

3.8.10. Consolidation of Dispatching System

Under the Russian Federation Government's order, the Rules for dispatch control in the electricity industry entered into force with effect from 15 May 2006.

By end-2006, OAO "UES SO-CDA" completed the establishment of its branches, Regional Dispatch Administrations (RDAs). The property owned by the regional energos (except for the independent and islanded energy companies) which is needed for the RDA operation was leased to OAO "UES SO-CDA".

It is planned that OAO "UES SO-CDA" will purchase the RDA property it is currently leasing before the end of the second phase of OAO RAO "UES of Russia" reorganization. The purchase will be financed with the money provided in the System Operator's service fee.

3.8.11. Restructuring of the Energy Retail Business

An important constituent of the electricity reform is the demonopolization and development of competition in energy retailing.

After the regional energos' reorganization, the energy retail companies started to operate as independent legal entities purchasing electricity on the wholesale market and selling it to the end consumers.

In 2006, work was continued to implement pilot projects to dispose of shares in the energy several retail companies.

As of December 31, 2006, the regional regulators assigned the status of guaranteeing supplier to all RAO UES energy retail companies. Under Russian law, guaranteeing suppliers are obliged to enter into electricity supply or sale contracts with any consumer who submits a request to that effect.

In 2005, as a measure to improve the financial stability of energy retail companies, shares of the remaining ERCs were transferred for fiduciary management to TGCs for a term of one year. On 8 December 2006, the Board of Directors extended the fiduciary management agreements until the sale of the ERC shares.

Also, the Board of Directors of RAO "UES of Russia" approved the Company's Strategy for energy retail companies. According to the Strategy, the principal option will be the sale of ERC shares through a public auction, with the reserve price not lower than the fair market value determined by an independent appraiser.

3.8.12. Electricity market Development

On 31 August 2006, the Russian Federation Government adopted its Resolution No. 529 On Improving the Operation of the Wholesale Electricity (Capacity) Market and Resolution No. 530 On Approval of the Rules for the Operation of the Retail Electricity (Capacity) Markets During the Transitional Period, which became effective on 1 September 2006.

Under the new Rules for the Wholesale Electricity (Capacity) Market, with effect from 1 September 2006, the regulated segment of the wholesale market was transformed into a system of regulated contracts. The price set for each of such contracts is the tariff charged by the generation company for the electricity supplied by it. In September through December 2006, 5,175 regulated contracts were concluded on the marketplace.

The deviations segment, which previously operated as part of the regulated sector of the wholesale electricity (capacity) market, was transformed into a balancing market for electricity (capacity). The main function of the balancing market is to minimize the amounts of electricity scheduled for generation and consumption in real time, based on the price bids and offers submitted by suppliers and market participants with regulated consumption.

The competitive trading segment of the new wholesale electricity (capacity) market has become the foundation for the day-ahead market, in which unregulated prices are calculated

on the basis of bids and offers. The volumes of electricity scheduled for consumption and production that are not included in the regulated contracts are traded each hour at unregulated prices.

At its meeting held 30 November 2006, the Russian Federation Government approved the wholesale market liberalization phase-in schedule (expressed as percentages of electricity included in the aggregate electricity (capacity) balance for 2007 approved by the Federal Tariff Service of Russia). This phase-in schedule was incorporated in Resolution No. 205 of the Russian Federation Government, dated 7 April 2007.

The Rules for the retail markets provide that guaranteeing suppliers of electricity will be designated in each region of Russia. These market participants will be obliged to conclude a public contract to supply electricity on standard terms with any consumer based in its territory which requests the guaranteeing supplier to do so.

The Rules for retail market operation set out the new pricing principles for the retail electricity market. Deregulation of the retail electricity market should be carried out in step with the wholesale market deregulation so that the market signals reach the end consumers of electricity and give them adequate information on the actual cost of electricity. This is needed to enable sound investment decisions to be taken and to provide incentives for energy saving measures. All consumers, except for households and similar consumer groups, have started to purchase part of their electricity needs at unregulated prices.

The households will continue to pay for electricity at the tariffs set by the State regulator until at least 2011.

3.9. Sweden

3.9.1. Energy Policy

The main challenges for the Swedish energy policy are the energy issues and the impact they will have on the climate changes. The aim is to create an energy system that reduces the use of fossil fuels and the CO_2 emissions and stops the green house effect. One important part of the energy policy includes measures to a more efficient use of energy in the future.

Renewable power generation will be added to the Swedish energy system during the coming years. Accordingly, a lot of measures are now taken to facilitate a larger introduction of wind power in the Swedish system.

The energy policy should give long term rules for the players on the energy market.

3.9.2. Electricity Market

The turnover in the NordPool spot market increased from 176 TWh in 2005 to an all time high level of 251 TWh in 2006. This corresponds to 63.3 % of the total Nordic demand. This is an increase from 45 % in 2005.

The price on the spot market and the financial market showed big variations over the year. The electricity price is highly dependent on the hydro situation in the Nordic countries, the temperature (the demand) and the price on the CO_2 allowances.

Normally the price is high in the winter period with low temperatures and high demand. In 2006 the inflow in the hydro reservoirs was very low in the spring time. During this period the price for the CO_2 allowances increased very much. Problems with some nuclear plants and a very dry summer increased the price even more leading to the unusual situation with high electricity price during the summer with a peak of the year in the end of August at about 75 euros/MWh.

In October the situation changed and the inflow was unusually high, warm weather, the nuclear power plants were taken into operation again and the price for the CO_2 allowances

decreased. This development led to falling prices during the autumn and the beginning of the winter.

3.9.3. Electricity Production and Consumption

The shortage of water in the hydro reservoirs resulted in low hydro power generation in Sweden in 2006. Also the nuclear power generation was lower 2006 than in 2005 caused by the problems that occurred in one nuclear plant resulting in a stand still for some of the reactors.

The total electricity generation in Sweden was 140.3 TWh in 2006 compared to 155.0 TWh in 2005. Hydro power generation amounted to 61.2 TWh (72.0 TWh 2005) and nuclear power generation to 65.0 TWh (69.8 TWh). 13.2 TWh was generated by other thermal power plants.

Wind power generation was very close to 1 TWh. 6 % of the generation was produced from bio fuels.

The Consumption was about 1 TWh lower in 2006 compared to 2005, 146.4 and 147.6 respectively.

The net import was 6.1 TWh in 2006 compared to an export of 7.4 TWh in 2005.

3.9.4. Transmission and Interconnections

Three of the five large projects that was the result of the common Nordic System Development Plan in 2002 are located in Sweden. Two of them are interconnections to Norway and Finland. The projects have had very rapid progress and are now in the phase of getting permissions.

Another large project is the restructuring of the grid around Stockholm. A program for rebuilding the 400 kV substations has also been started. In addition to these projects there are a number of large projects now being planned resulting in substantially larger investments in the transmission grid in Sweden in the near future.

3.9.5. Environmental issues

In 2003 the system with green certificates was introduced. The aim is to increase the yearly production from renewable energy sources with 17 TWh until 2016 compared with the 2002 level. Up to 2006 the estimation is that it has resulted in an increase with 5 TWh.

The increase in renewable energy sources will continue with a larger introduction of wind power to the Swedish power system.

4. STATISTICS

4.1. Belarus

Installed capacity Installed capacity on 31 December 2006, MW

	MW	Change 2004-2005 MW
Installed capacity	**7713,50**	**-5,3**
Hydropower	**9,12**	–
Nuclear power	–	–
Thermal power	**7713,50**	**-5,3**
• Condensing power – Coal	–	–
• Condensing power – Natural Gas and fuel oil	3489,50	17,5
• CHP	4224,0	-22,798
Wind power	–	–
Other renewables	–	–
Total	**7722,62**	**-5,3**

The list of new capacity taken into operation in 2006

Name of plant	Location	Type of plant	MW	GWh / per annum	Fuel
Installation of turbogenerator	Baranovichi	CPP	12		Natural gas
Modernization of power-generating unit #1 with capacity increase	Lukoml HPP	HPP	15		Natural gas
Installation of gas-expansion machine № 2	Lukoml HPP	HPP	2,5		Compressed gas
Reconstruction of 12 MW turbogenerator	Beloruskaya HPP	HPP	6		Natural gas
Putting into operation of equipment for fire-wood and peat	Beloruskaya HPP	HPP	1,5		Fire-wood, peat
Gas-turbine unit installation	CPP "Severnaya" in Grodno	CPP	6		Natural gas
Putting into operation of turboset	Mini-CPP in Osipovichi	CPP	1,2		Waste wood

Putting into operation of turboset	Zelva HPS	HPS	0,15		

The list of capacity under construction or decided

Name of plant	Location	Type of plant	MW	GWh / per annum (growth))	Fuel	Year
Reconstruction of CPP in Pinsk with installation of steam turbine and boiler for fire-wood burning	Brest Region	CPP	2,7	20,1	Fire-wood	2007
Modernization of power-generating unit № 2. Lukoml HPP	Vitebsk Region	HPP	15	80	Gas, oil	2007-2008
Belorusskaya HPP, installation of steam turbine and boiler for fire-wood burning	Vitebsk Region	HPP	1,5	2,27	Fire-wood	2006-2007
Modernization boiler-room in Zhlobin with installation of gas-reciprocating engine	Gomel Region	CPP	26,1	195,7	Gas	2006-2007
Gomel CPP-2. Installation of gas-expansion machine	Gomel Region	CPP	4	15,92	Gas	2006-2007
Grodno CPP-2, modernization of 60MW steam turbine with capacity increase	Grodno Region	CPP	10	76,7	Gas, oil	2006-2007
Construction of Grodno HPS on the Neman river	Grodno Region	HPS	17	84,4	Water	2006-2009
Modernization of Lidskaya CPP with gas-turbine installation	Grodno Region	CPP	25	209	Gas	2006-2007
Modernization of boiler-room in Vileyka with installation of steam turbine and boiler for fire-wood burning	Minsk Region	CPP	2,4	15,27	Fire-wood	2006-2007
Reconstruction of Minskaya CPP-3 with installation of combined-cycle plant – 220	Minsk Region	CPP	223	1686	Gas	2006-2007

Existing interconnection lines

ADJACENT COUNTRY **Belarus s/s – Adjacent country s/s**	**U, kV**	**Transmission capacity, MW**		**Thermal capacity,** **MVA**	**Length, km**
		Import (To)	**Export (From)**		
RUSSIA					
Smolensk Section		1000	1200		

Belorusskaya – Smolenskaya NPP	750			996	418
Vitebsk – Talashkino	330			787	132
Kritchev – Roslavl	330			940	102
Polotsk – Novosokolniki	330			570	160
LITHUANIA		1400	2200		
Grodno – Alitus	330			787	75
Molodechno – Vilnus	330			787	119
Smorgon – Ignalinskaya NPP	330			810	159
Polotsk – Ignalinskaya NPP	330			1080	159
Belorusskaya – Ignalinskaya NPP	750(330)			810	343
UKRAINE		800	800		
Mozyr – Chernobyl NPP	330			940	112
Gomel – Chernigov	330			787	103
POLAND					
Ross – Bialystok	220			230	99

Imports and exports of electricity in 2006, GWh

	Imports GWh	**Exports GWh**
Russia	2,345	0,055
Lithuania	0,631	0,013
Latvia	0,001	
Ukraine	2,502	
Poland	0	1,051
Total	**5,479**	**1,119**

Electricity generation in 2006, GWh

Total	**30929,8**
Hydropower	**24,1**
Nuclear power	–
Other thermal power	**30905,7**
• condensing power – Coal	–
• condensing power – Natural Gas and fuel oil	16331,7
• CHP	14574,0
Wind power	–
Other renewables	–

Electricity consumption in 2006, GWh

Gross consumption	**36140,54**
Total losses (in grid, transformers, etc)	7394,54
Net consumption	**28746,0**
- Households	5334,98
- Industry (including energy sector)	17616,76
- Transport	759,38
- Agriculture	1639,21
- Others	3395,67

Population (million)	**10**

4.2. Finland

Installed capacity 31 December 2006, MW

Total	**16,544**
Hydropower	3,044
Nuclear power	2,671
Condensing power	3,301
CHP, district heating	3,737
CHP, industry	2,924
Peaking gas turbines etc.	781
Wind power	86

New capacity in 2006, MW

Total	**79**
Hydropower	27
CHP, industry	48
Wind power	4

Interconnections (existing or under construction)

Countries/Stations	**Voltage**	**Capacity / MW**		**Length**
	kV	**From Finland**	**To Finland**	**km**
Finland - Norway				
Ivalo - Varangerbotn	220 AC	100	100	228
Finland - Sweden				
Petäjäskoski - Letsi	400 AC	1200	1600	230
Keminmaa - Svartbyn	400 AC	included above	included above	134
Ossauskoski - Kalix	220 AC	included above	included above	93
Rauma - Forsmark	400 DC	550	550	233
Tingsbacka - Senneby	110 AC	80	80	81
Rauma - Finnböle (2010)	*500 DC*	*800*	*800*	*300*
Finland - Russia				
Yllikkälä - Vyborg	2 x 400 AC	-	1400	2 x 67
Kymi - Vyborg	400 AC	-	included above	132
Imatra - GES 10	110 AC	-	100	20
Nellimö - Kaitakoski	110 AC	-	60	50
Finland - Estonia				
Espoo - Harku	150 DC	350	350	105

Imports and exports of electricity 2006, GWh

	Imports	Exports
Russia	11,549	-
Sweden	3,676	3,767
Norway	150	84
Estonia	4	7
Total	**15,379**	**3,858**

Electricity generation in 2006, GWh

Total	**78,590**
Hydropower	11,342
Nuclear power	21,982
Condensing power	17,547
CHP, district heating	14,505
CHP, industry	13,064
Peaking gas turbines etc.	3
Wind power	147

Electricity consumption in 2006, GWh

Total consumption	**90,111**
Occasional power to electric boilers	56
Gross consumption	**90,055**
Losses	3,398
Net consumption	**86,657**
Housing	20,900
Industry (incl. energy sector)	50,163
Trade and services (incl. transport)	14,694
Other (incl. agriculture)	900

Population (million)	**5.3**

4.3. Lithuania

Installed capacity on 31 December 2006, MW

	MW
Total installed capacity	**4984**
Hydropower(including PSP)	**1028**
Nuclear power	**1300**
Thermal power	**2621**
• Condensing power – Coal	-
• Condensing power – Natural Gas	1800
• CHP district heating	721
• CHP industry	100
Wind power	**19**
Other renewables	**16**

New capacity taken into operation in 2006

Name of plant	Location	Type of plant	MW	Fuel
Vilniaus energija	Vilnius	CHP	12	Biomass
Achema hidrostotys	Jonava	Wind	16	

Existing interconnections between neighbouring countries

Country / Stations	Rated Voltage [kV]	Currently practically available transmission capacity, MW		Length of line, km
		Import	Export	
Lithuania-Latvia	330	**1,170**	**1,540**	
Klaipeda-Grobine	330	789	789	119
Siauliai-Jelgava	330	789	789	88
Panevezys-Pliavine	330	789	789	127
Ignalina NPP-Liksna	330	943	943	60
Lithuania-Belarus	330	**970**	**1,850**	
Alytus-Grodno	330	789	789	74
Vilnius-Molodecno	330	943	943	119

Ignalina NPP-Smorgan	330	943	943	158
Ignalina NPP-Belarus	330	1,143	1,143	343
Ignalina NPP-Polosk	330	1,091	1,097	168
Lithuania-Russia	330	**680**	**680**	
Kruonis-Sovietsk	330	1143	1143	197
Jurbarkas-Sovietsk	330	943	943	53
Klaipeda-Sovietsk	330	789	789	100

Imports and exports of electricity in 2006, GWh

	Imports	**Exports**
Total	1550	1980

Electricity generation in 2006, GWh

Total	**12450**
Hydropower	**810**
Nuclear power	**8650**
Other thermal power	**2950**
• condensing power – Coal	-
• condensing power – Natural Gas	990
• CHP	1960
Wind power	**10**
Other renewables	**30**

Electricity consumption in 2006, GWh

Gross consumption	**10340**
Total losses (in grid, transformers, etc)	1090
Net consumption	**9250**
- Households	2390
- Industry (including energy sector)	3190
- Transport	20
- Services	3490
- Agriculture	160

Population (million)	**3.34**

4.4. Latvia

Installed capacity on December 2006, MW

	MW	Change 2005-2006
Total installed capacity	**2,205**	
Hydropower	**1,563**	
Nuclear power	**-**	
Thermal power		
• Condensing power – Coal	**-**	
• Condensing power – Natural Gas	**-**	
• CHP	**605**	**-13**[1]
Wind power	**26**	
Other renewables	**11**	

The list of capacity under construction or decided

Name of plant	Location	Type of plant	MW	Fuel	Year
Riga CHP-2 renovation	Riga	CHP	+200	Gas	2009

Existing interconnections between neighbouring countries, Rated Capacity

Country / Stations	Rated Voltage [kV]	Transmission Capacity Currently practically available[2] [MW]	
		Import	Export
Latvia-Estonia	330 kV	1200	900
Latvia-Russia	330 kV	300	300
Latvia-Lithuania	330 kV	900	900

[1] Riga CHP-2 renovation – 60MW and Imanta CHP + 47MW

[2] Only available transmission capacity should be put here. Other not yet commissioned capacity is discussed in the next table.

Imports and exports of electricity in 2006, GWh

	Imports GWh	Exports GWh
Lithuania	2966	1532
Estonia	1483	189
Russia	184	404
Belarus	0,07	0,07
Total	**4633**	**2125**

Electricity generation in 2006, GWh

Total	**4670**
Hydropower	2668
Nuclear power	-
Other thermal power	
• condensing power – Coal	-
• condensing power – Natural Gas	-
• CHP	1930
Wind power	45
Other renewables	26

Electricity consumption in 2006, GWh

Gross consumption	**7012**
Total losses (in grid, transformers, etc)	718
Net consumption	**6293**
- Households	1728
- Industry (including energy sector)	1812
- Transport	126
- Services	2499
- Agriculture	128

Population (million)	**2,3**

4.5. Norway

Installed Capacity, MW

Total installed capacity	**28974**
Hydropower	28391
Thermal power	255
Wind power	328

New capacity taken into operation in 2006

Name of plant	**Location**	**Type of plant**	**MW**	**GWh/per annum**
Blåfalli kraftverk	Hordaland	Hydro	+150	+107
Kløvtveit	Hordaland	Hydro	10	41
Grunnåi	Telemark	Hydro	15	54
Uleberg	Aust-Agder	Hydro	9	38
Oftedal 1+2	Vest-Agder	Hydro	9	31
Breiava	Rogaland	Hydro	15	54
Rødne	Rogaland	Hydro	9	36
Kjøllefjord/Gartefjell	Finnmark	Wind	40	150
Valsneset	Sør-Trøndelag	Wind	12	36

Interconnections under construction or planned

Country/Stations	Rated Voltage, kV	Currently practically available transmission capacity, MW		Length of line, km	
		Import	Export		
Norway-The Netherlands					
Feda-Emshaven	± 450 kV DC	700	700	580	Construction, 2007
Norway-Denmark					
Kristiansand-Tjele	HVDC	600	600	245	Feasibility study
Norway-Sweden					
Nea-Järpströmmen	420 kV AC	+200	+200	100	Commissioning, mid 2009
Norway-Germany		700/1400?	700/1400?		Feasibility study

Imports and exports of electricity in 2006, GWh

	Imports	Exports
Sweden	7,178	7,667
Denmark	2,327	1,130
Finland	84	150
Russia	215	
Total	**9,804**	**8,947**

Electricity generation in 2006, GWh

Total	**121,715**
Hydropower	119,919
Wind power	673
Thermal power	1,123

Electricity consumption in 2006, GWh

Gross Consumption	**122,572**

Population (million)	**4,68**

4.6. Poland

Installed capacity Installed capacity on 31 December 2006, MW

Installed capacity	MW	Change 2006 vs. 2005, MW
Hydropower	2 203	10
Nuclear power	0	0
Thermal power	32 480	-67
• Condensing power – Coal	29 260	102
• Condensing power – Natural Gas	769	0
Renewables	135	
Industial generation	2 494	- 49
Total	34 964	116

The list of new capacity taken into operation into 2006

Name of plant	Location	Type of plant	MW 1)	GWh / per annum	Fuel
Żerań	Warsaw	CHP	86		Hard Coal
Tymien	Tymień	Wind farm	50		renewable

1) Maximum net output

The list of capacity under construction or decided

Name of plant	Location	Type of plant	MW 1)	GWh / per annum	Fuel	Year
Pątnów II	Pątnów	Condensing power	440		Lignite	2007
Łagisza	Łagisza	Condensing power	460		Hard Coal	2008
Bełchatów II	Bełchatów	Condensing power	789		Lignite	2009

1) Maximum net output

Existing interconnections between neighbouring countries, Rated Capacity

Country / Stations	Rated Voltage [kV]	Transmission Capacity Currently practically available[3] [MW]		Length of line [km]
PL – DE/SK/CZ [2)]		**NTC import**	**NTC export**	
Summer 2006		0	1600	
Winter 2006/2007		0	900	
Summer 2007		0	900	
PL – DE				
Krajnik - Vierraden	220~			26
Krajnik - Vierraden	220~			26
Mikulowa - Hagenwerder	400~			15
Mikulowa - Hagenwerder	400~			16
PL – CZ				
Dobrzen - Albrechtice	400~			157
Wielopole - Nošovice	400~			87
Kopanina - Liskovec	220~			85
Bujaków - Liskovec	220~			85
PL – SK				
Krosno Iskrzynia - Lemešany	400~			122
Krosno Iskrzynia - Lemešany	400~			122
PL – UA				
Rzeszów – Chmielnicka	750~	3)	3)	396
Zamość - Dobrotwor	220~	4)	4)	99
PL – BY				
Bialystok – Roś		3)	3)	96
PL – SE (Slupsk – Stärno)	450=			254 (cable)
Summer 2006		600	0	
Winter 2006/2007		600	250[5)]	
Summer 2007		600	100	

1) NTC - Net Transfer Capacities.
2) Interconnections with DE, SK, CZ is treated as one profile DE/SK/CZ and that's why one value is given.
3) Interconnections presently not in operation
4) Radial connection
5) Depending on generation condition in the system

The list of interconnections (a) taken into operation in 2006, (b) under construction or (c) planned

No interconnection.

[1]Only available transmission capacity should be put here. Other not yet commissioned capacity is discussed in the next table.

Imports and exports of electricity (physical energy flows) in 2006, GWh

	Imports GWh	Exports GWh
DE	2 548	722
CZ	42	10 181
SK	4	3 374
UA	840	0
BY	1043	0
SE	264	1 500
Total	**4 774**	**15 775**

Electricity production and consumption

Annual net values in GWh	**2006**
Hydro power capacity	2794
Nuclear power capacity	0
Fossil fuel power capacity(*)	**145736**
including lignite sources	49198
including hard coal sources	92414
including gas sources	4124
including oil sources	0
including mixed oil / gas sources	0
including non attributable sources	0
Renewable energy sources (excl. hydro power) capacity	325
including wind farms	218
Non Clearly Identifiable Energy Sources Capacity	0
Net Generating Capacity	**148855**
Physical imports	4774
Physical exports	15775
Physical exchanges balance	**-11001**
Pumped storage	-1357
Consumption	**136497**

Source: UCTE, PSE-Operator

Population (million)	**38,122**

4.7. Russia

Installed capacity Installed capacity on 31 December 2006

	MW	Change 2004-2005 MW
Installed capacity	**220882.0**	**1655.6**
Hydropower	**44827.0**	**130.1**
Nuclear power	**23742,0**	**0.0**
Thermal power	**151016.4**	**1525.5**
• Condensing power – Coal	52379	798.0
• Condensing power – Natural Gas	81178	550.4
• CHP		
Wind power	**10.2**	**0**
Other renewables	**1286.4**	**0**
Total	**220882.0**	**1655.6**

The list of new capacity taken into operation in 2006

Name of plant	Location	Type of plant	MW	GWh / per annum	Fuel
Severozapadnaya TPP	**Saint Petersburg**	**Thermal**	**450**		**gas**
Pravoberezhnaya TPP5	**Saint Petersburg**	**Thermal**	**180**		**gas**
Chelyabinskaya TPP3	**Chelyabinsk**	**Thermal**	**180**		**gas**
Khabarovskaya TPP3	**Khabarovsk**	**Thermal**	**180**		**coal**
Irganaiskaya HPP	**Dagestan**	**Hydro**	**146**		**-**

The list of capacity under construction or decided

Name of plant	Location	Type of plant	MW	GWh / per annum	Fuel	Year
Ivanovskaya TPP	**Ivanovo**	**Thermal**	**325**		**gas**	**2007**
Boguchanskaya HPP	**Krasnoyarsk Region**	**Hydro**	**3000**			**2010**
Irganayskaya HPP	**Dagestan**	**Hydro**	**40**			**2008**
Bureiskaya HPP	**Talakan village**	**Hydro**	**995**			**2007**
Mobile Thermal plants	**Moscow Region**	**Thermal**	**225**		**gas**	**2007**
Zaramagskiye HPP	**North Ossetia**	**Hydro**	**352**			**2007**

Imports and exports of electricity in 2006, GWh

	Imports GWh	Exports GWh
Kazakhstan	3676.861	1868.810
Latvia	45.021	1086.339
Lithuania	507.408	1413.611
Ukraine	498.108	
Azerbaijan	317.109	755.308
Belarus	54.698	2345.160
Georgia		570.026
Moldova		402.818
Mongolia	15.957	174.219
China		522.913
Norway		215.918
Finland		11571.390
Total	**5115.162**	**20926.512**

Electricity generation in 2006, GWh (preliminary data)

Total	**995.6**
Hydropower	**173.1**
Nuclear power	**156.5**
Other thermal power	**663.7**
• condensing power – Coal	219.6
• condensing power – Natural Gas ТЭС	383.1
• CHP	
Wind power	0.007
Other renewables	2.3

Electricity consumption in 2006, GWh (preliminary data)

Gross consumption	**979.8**
Total losses (in grid, transformers, etc)	107.4
Net consumption	
- Households	34.4
- Industry (including energy sector)	621.7
- Transport	85.9
- Services	87.4
- Agriculture	43.0

Population (million)	**142.8**

4.8. Sweden

Installed Capacity	33819 MW
New Capacity	607 MW (net value)
Interconnections	approx 9000 MW (> 30 % of peak demand)
Imports/exports	20.5/-14.4 TWh (net value = 6.1 TWh import)
Generation	140.3 TWh
Consumption	146.4 TWh
Population	9.1 million (2006-12-31)