An Overview of System Adequacy:

Winter Outlook Report 2011 and Summer Review 2010

ENTSO-E AISBL • Avenue Cortenbergh 100 • 1000 Brussels • Belgium • Tel +32 2 741 09 50 • Fax +32 2 741 09 51 • info@entsoe.eu • www.entsoe.eu

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1. EXECUTIVE SUMMARY

The ENTSO-E winter outlook report 2011 assesses the national and regional power balances between electricity forecasts and peak demand on a weekly basis for the winter period from 6 December 2010 (week 49) to 10 April 2011 (week 14).

The winter outlook shows that on the whole, no significant risks are expected during the winter 2011 and that under normal conditions the margin between electricity generation and demand are expected to be met.

The forecasts on generation and load balance appear suitable in all the regions. Under normal conditions some countries will rely on imports from neighbouring countries (i.e Finland and Latvia in the Baltic region and most of the countries in the South East region).

In December and January, imports may be needed in over 1% of the cases in order to cover electricity demand in France under normal conditions.

Under severe conditions, due to low temperatures, margins are expected to be tighter with possible stress conditions. For instance, under severe conditions imports may be needed without exceeding the acceptable French network limits.

The summer review confirms that no significant events took place that risked security of supply. It also provides an overview of the main events that occurred during the summer period with reference to weather conditions and unforeseen events on the power system in comparison to the forecasts reported in the summer outlook 2010.

2. INTRODUCTION AND METHODOLOGY

2.1 Scope & Objectives of the Report

Summer Review Report

The summer review report shows the main events occurred during the summer time, according to the TSOs, with reference to security of electricity supply (i.e. weather conditions, power system conditions, as well as availability of interconnections). The Summer Review covers the period 1st June – 30th September 2010. The objective is to present the main happenings during the summer 2010 in comparison to the forecasts reported into the ENTSO-E Summer Outlook report 2010, published on June 2010.

Winter Outlook Report

The winter outlook reports the outlook of the national and regional power balances between forecasted generation and peak demand on a weekly basis for the winter period from the beginning from 6 December 2010 until the 10 April 2011.

The objective is to present TSOs views on any matters concerning security of supply for the coming winter period and the possibility for neighbouring countries to contribute to the generation/demand balance in critical situations.

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2.2 Sources of Information and Methodology

Summer Review Report

The summer review report is compiled on the basis of the information given by ENTSO-E members through a questionnaire in order to present the most important events occurred during the summer period in comparison to the forecasts and risks reported in the Summer Outlook. The TSOs mainly answer if their respective power system experienced any important or unusual events or conditions during the summer time as well as the causes and the remedial actions taken.

Winter Outlook Report

The winter outlook report is based on the information provided by ENTSO-E members on a qualitative and quantitative basis. The information provided in the winter outlook referred to answers sent by every TSOs till beginning of October. The questions mainly refer to practices as well as qualitative data sent by TSOs in order to present country forecasts on a common basis. The winter outlook report present TSOs' views as regards any national or regional matters of concern regarding security of supply for the coming winter and the possibility of neighbouring countries contributing to the generation/demand balance in critical situations.

2.3 Aims and Methodology

General Considerations

TSOs have presented their views as regards national and regional system adequacy forecasts for the coming winter period having regard to the balance between demand and supply and the possibility for neighbouring countries to contribute in case of critical situations. The work undertaken by ENTSO-E in preparing the Outlook report is expected to be a tool of compliance in terms of adequacy outlooks to be provided in accordance to art. 8,par.3 lett. f) of the EC Regulation n. 714/2009. It is also a tool to show studies made by TSOs to report and forecast on system adequacy and it also stimulates further studies.

The report is also expected to facilitate the monitoring of security of electricity supply in Europe on a short term basis.

Methodology and future implementation

The methodology consists in identifying the ability of generation to meet the demand by calculating the so-called "remaining capacity".

The basis of the analysis is the so called "normal conditions". A severe scenario was also built showing the sensitivity of the generation-load balance to low temperature and extreme weather conditions.

The figures of the country individual responses in the Appendix 1 show the National Generating Capacity, the Reliably Available Capacity and the peak load under normal and severe conditions. The remaining capacity is calculated for normal conditions. The remaining capacity is also evaluated with firm import/export contracts and for severe conditions.

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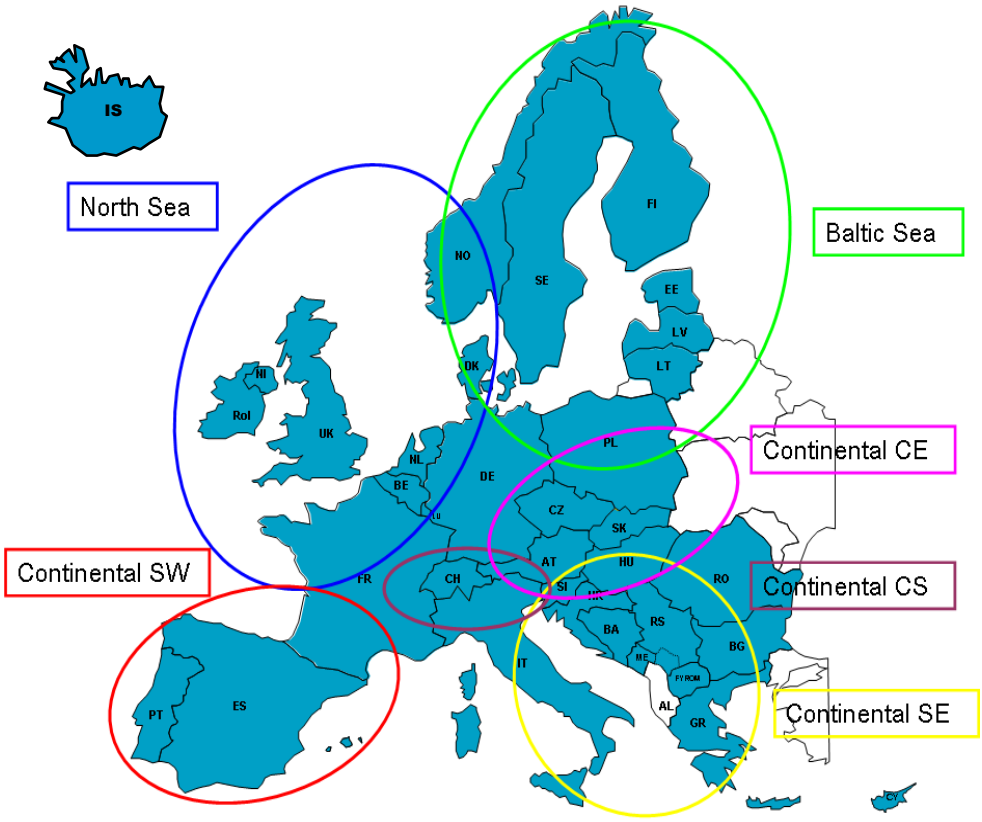
2.4 List of Contributing Countries

This report has been drawn up by ENTSO-E "WG System Adequacy and Market Modelling" under the System Development Committee with the contributions of all TSOs belonging to the regions listed below.

The identification of blocks relates to the regions under the ENTSO-E System Development Committee, as it is shown below and specified on the following page:



NORTH SEA REGION

Belgium, Denmark France, Germany, Great Britain, Ireland, Luxembourg, Netherlands, Northern Ireland, Norway

BALTIC SEA REGION

Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Norway, Poland, Sweden

CONTINENTAL SOUTH WEST REGION

France, Portugal, Spain

CONTINENTAL SOUTH EAST REGION

Bosnia-Herzegovina, Bulgaria, Croatia, Former Yugoslav Republic of Macedonia (FYROM), Greece, Hungary, Italy, Montenegro, Republic of Serbia, Romania, Slovenia

CONTINENTAL CENTRAL SOUTH REGION

Austria, France, Germany, Italy, Slovenia, Switzerland

CONTINENTAL CENTRAL EAST REGION

Austria, Croatia, Czech Republic, Germany, Hungary, Poland, Romania, Slovak Republic, Slovenia

ISOLATED SYSTEMS

Cyprus, Iceland

ADDITIONAL CONTRIBUTING COUNTRIES

Albania, Ukraine West

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3. SUMMER REVIEW 2010

3.1 Summary of responses by regions in the ENTSO-E Summer Outlook Report 2010

Below are the summer outlook reports by region published on June 2010 in ENTSO-E's Summer outlook report 2010:

NORTH SEA REGION

Belgium, Denmark, France, Germany, Great Britain, Ireland, Luxembourg, Netherlands, Northern Ireland, Norway

The North Sea region analysis for the coming summer 2010 is positive assuming standard conditions. In general, daily peak load values in this region are expected to be at the same level or slightly higher than those in 2009. Under normal conditions, all countries feel comfortable regarding the generation-load balances they are facing. Due to its grid structure, CREOS will anyhow have to rely on imports to cover demand. In addition, SONI might have to rely on imports from Great Britain and/or Ireland to cover its peak demand.

In Germany problems on the transmission network might temporarily appear due to weather conditions and increased load flows due to wind power.

Under severe or extreme conditions, some additional risks occur:

- High wind situations might put several parts of Germany under stress. The continuously rising number of wind power plants intensifies the risk of n-1 violations and overloads within the German grids.
- Long periods of dry and hot weather threaten to cause cooling problems for thermal plants in the Netherlands, Belgium, France, and Germany. These might limit thermal units' capacities, thereby limiting the generation-load balances from countries. As a result, in June, July, and September France might have to rely on imports of close to 4000 MW to cover the minimum required margin under these circumstances. This could concern all neighbouring countries in the region. In the case of extreme heat wave and thermal constraints on the power plants in northern France, the availability of imports from Belgium to Germany could be slightly reduced.
- In August 2010, the nuclear power plant of Unterweser will be temporarily out of service for maintenance (expected time frame: August 7–23, 2010). During this period, low wind generation and high energy demand in the Scandinavian countries (e.g. resulting from a dry spell) could together lead to high loads especially on the Wolmirstedt–Helmstedt tie-line between Transpower and 50Hertz Transmission. Special topological measures are already prepared to reduce the load.

BALTIC SEA REGION

Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Norway, Poland, Sweden

Under normal conditions no critical events are expected. Several countries have assessed the risk of critical events under conditions such as maintenance of central power plants or planned outages of interconnectors. All countries except Poland expect a surplus of energy all summer.

There could be increased load flows in the north of Germany during periods with high wind generation.

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CONTINENTAL SOUTH WEST REGION

France, Portugal, Spain

Under normal conditions no particular problem in the balance between demand and supply is expected in the Iberian System. In Portugal the generating capacity increased with respect to the previous summer and the system is considered adequate even under severe conditions. In Spain generation adequacy is good even considering very low wind generation, high drought conditions and a very high thermal forced outage rate.

In France under normal conditions no problem is expected. Under severe conditions in the case of high temperatures or heat waves margins would be reduced, stressing the situation for whole summer time except August. The availability of imports should not be at risk for France in the case of potential need for imports (close to 4000 MW in June, July, and September) under severe conditions.

CONTINENTAL CENTRAL SOUTH REGION

Austria, France, Germany, Italy, Slovenia, Switzerland

Under normal conditions no supply/demand balance problems are expected in the region.

This is also due to moderated peak load forecasts due to the economic crisis.

In the case of severe weather conditions Slovenia expects problems at peak load if extreme low hydrology and reduction of interconnection capacity by neighbouring TSOs occur.

In Italy, the situation in Sicily (one of the main islands) still requires some consideration because of the forecasted tight margins.

In France, in the case of high temperatures or heat wave, margins would be reduced and the situation could be stressed during the whole period, except in August. In June, July, and September a potential request for imports close to 4000 MW necessary to cover minimum required margins could concern all neighbouring countries, including Italy and Switzerland.

Under severe conditions, the most stressed periods are forecasted for week 35 in Italy and during the whole summer period except August in France. In Germany, July and August are forecasted to be the most critical, when special attention is expected because the nuclear power plant of “Unterweser” will be temporarily out of service for maintenance. Problems on the German transmission network might temporarily appear due to weather conditions and increased load flows in the north of Germany during periods of high wind generation. Problems may also arise from large transports due to wind power feed in from the North and high load flows towards France/Switzerland.

Due to unbalanced flow patterns on the Italian northern interconnection, high transit-flows over Slovenian EPS are frequent. In case of internal congestions on Podlog-Beričevo corridor, NTC reduction and disconnection of interconnectors on SI-IT border may occur in accordance with pent lateral agreement.

CONTINENTAL SOUTH EAST REGION

Bosnia-Herzegovina, Bulgaria, Croatia, Former Yugoslav Republic of Macedonia (FYROM), Greece, Hungary, Italy, Montenegro, Republic of Serbia, Romania, Slovenia

The countries in the region did not experience any adequacy problems during the summer period. Weather and hydro conditions were near normal. There were no critical events in the transmission network and all maintenance schedules ere strictly fulfilled. Every country reports different rates of cange in the overall electricity demand during the summer period.

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The connection of the Turkish power system to the ENTSO-E on 18th September for test parallel operation can be considered as an important event.

CONTINENTAL CENTRAL EAST

Austria, Croatia, Czech Republic, Germany, Hungary, Poland, Romania, Slovak Republic, Slovenia

Under normal conditions no particular problem in the balance between demand and supply is expected in the Central East region. Hungary depends upon imports to reach adequate balance even under normal conditions, with negative remaining capacity expected in July.

In the case of extreme low hydrology and reduction of interconnection capacity by neighbouring TSOs, problems could be expected at peak load in Slovenia.

Under severe conditions generation capacity may be inadequate in some countries, such as Slovak Republic.

The most critical periods are weeks 36 to 39 in the Slovak Republic and whole summer period in Hungary, in particular in week 28 to 30.

During the summer period, the wind power generation in Hungary and Austria can change the level of imports from day to day.

In Poland in late August and September the intervention reserve in pumped storage can be used by the TSO to cover evening peak demand. Severe conditions are expected mainly in June and July with a possible increase of the load and a higher level of unavailability of generation plants.

ISOLATED SYSTEMS

Cyprus

Under normal conditions no supply/demand balance problems are foreseen. The installed capacity is 1455 MW and the maximum demand under normal weather conditions is expected to increase to 1105 MW and in the case of extended heat wave to 1145 MW. Therefore no major problems are foreseen for this summer.

In case of problems, a load reduction scheme will be put in operation. The most critical periods are regarded as weeks 30 and 31, when the operating margin is at its minimum values and depends on the weather forecasts.

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Iceland

The generation capacity is expected to be adequate to meet peak demand under both normal and severe conditions. Landsnet does not report any particular problems in the isolated Icelandic power system.

ADDITIONAL CONTRIBUTING COUNTRIES

Albania

During the summer period of the year 2010, the Albanian power system did not encounter any unexpected and unusual events or conditions.
Water levels in reservoirs of Drini Cascade (the main source generation of the country) were prety good above target levels due to abundant inflows and hydro plants operated normally. Power generation increased since the beginning of the year and till the first part of the summer.

Most of the planned repair works were completed in accordance to the plans. There were no unplanned outages of the interconnection lines.

Ukraine West

No problems are expected in the system this summer.

There are adequate generation and demand balances without dependency upon imports of electricity from neighbouring countries.

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3.2 Summary of responses by regions in the ENTSO-E Summer Review Report 2010

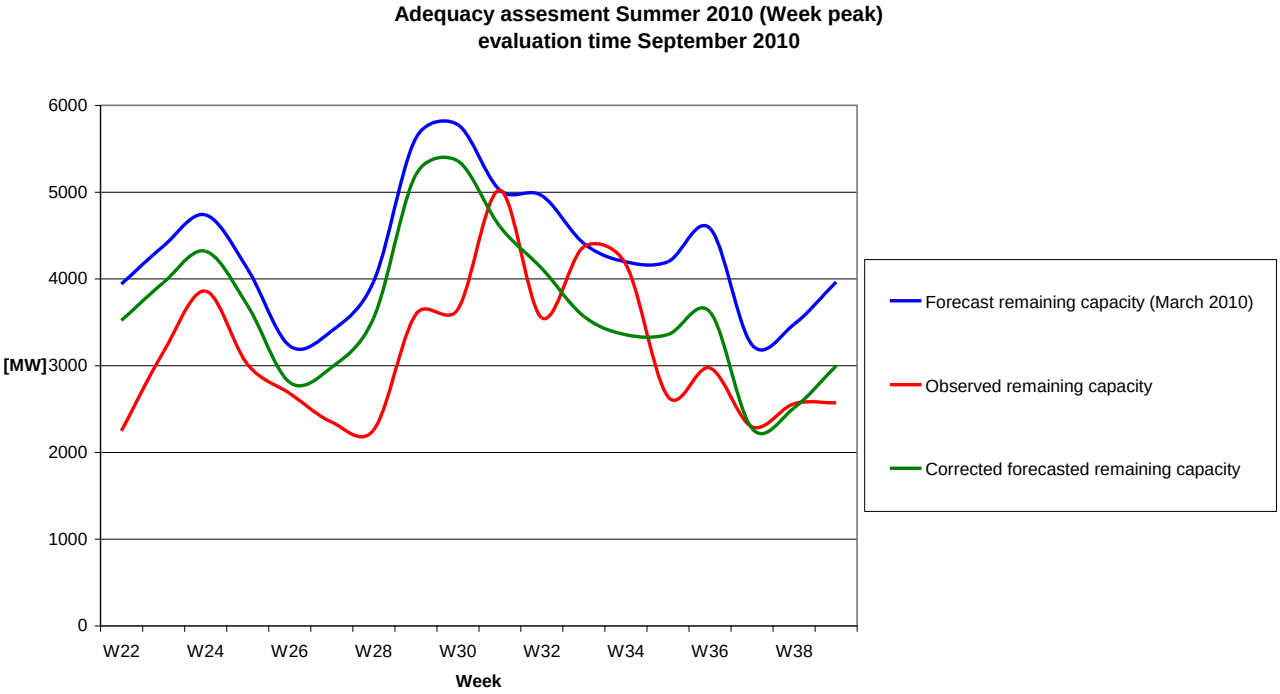
In comparison to the forecasts made by TSOs for the last summer as in chapter 3.1, the following occurred last summer 2010 and is reported here in after:

NORTH SEA REGION

Belgium, Denmark France, Germany, Great Britain, Ireland, Luxembourg, Netherlands, Northern Ireland, Norway

Belgium

The system adequacy of the summer 2010 remained positive (see figure below). The forecasted remaining capacity was corrected to take into account a delay in the commissioning of new power units for a maximum capacity of 966 MW in week 39.



The biggest deviation between the forecasted and the corrected observed remaining capacity occurred in week 30 due to the unforeseen unavailability of some fossil fuel units and a nuclear unit, resulted in a total unavailability capacity of 2.5 GW. The lowest remaining capacity of the summer 2010 occurred in week 22 with a remaining capacity of 2.2 GW. The figure below illustrates the deviation between the observed values and the forecasted values for load, unavailability and non-usable capacities.

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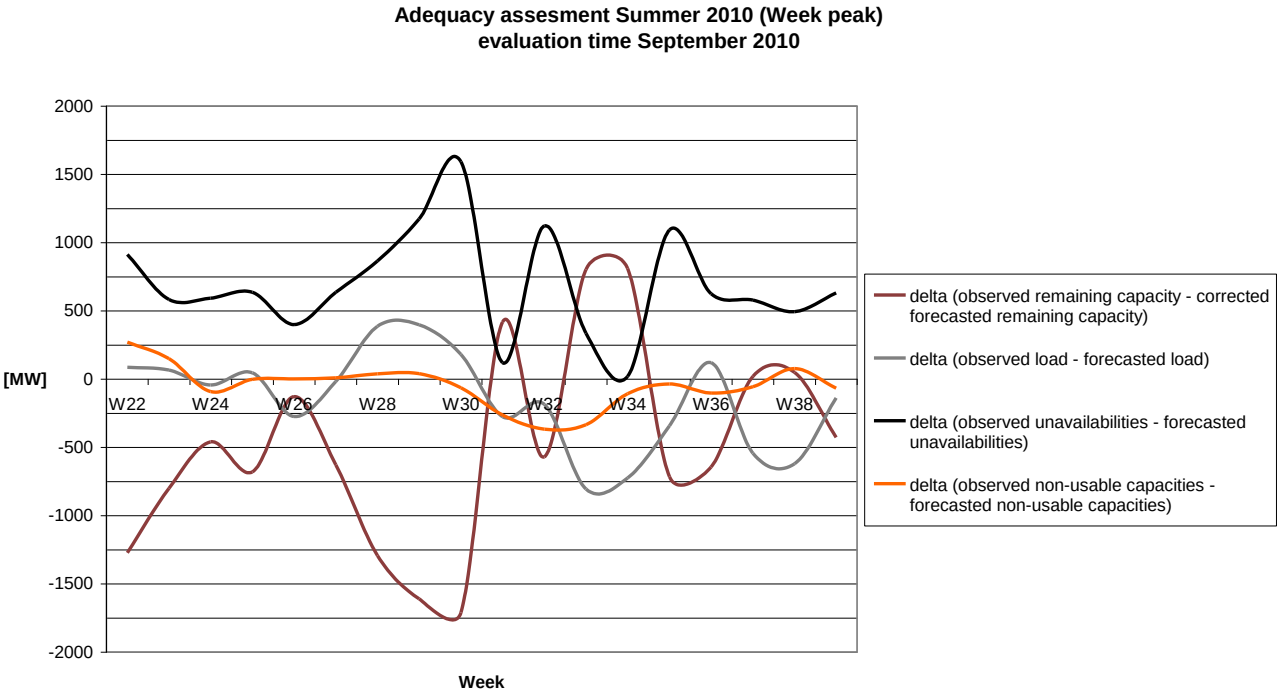

Denmark

See region Baltic Sea.

France

Within last summer, no heat wave happened except for a few days in beginning of June and July, consequently no significant losses of supply due to environmental constraints happened.

A lack of margin happened (two hours ahead margin < 2400 MW which is the minimum required), in beginning of July due to lack of generation.

The 7th of June, RTE did not have the minimal margin required in order to reduce generation when consumption was low. To face with theses problems of margin, RTE temporally block imports from border countries.

Comparing to summer 2009, no significant delay in the maintenance of power plants occurred in summer 2010.

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Germany

Transpower Control Area:

The German compensation rates for photovoltaic energy feed-in according to the Renewable Energies Sources Act (EEG) have been reduced since the 1st of july. This has led to an accelerated growth of the already rapidly increasing photovoltaic power capacity installed in the Transpower area.

As online information on the currently installed capacity is not available, it becomes more and more difficult to obtain reliable up-to-date figures of photovoltaic net generation capacity. This affects the corresponding forecasts of actual energy feed-in from renewables and has led to an increasing demand for balancing power.

For example, an extreme situation occurred on September 6th, a sunny day with a surplus coverage of the four German control areas of up to 7500 MW. Due to the German Grid Control Cooperative (since May including Amprion) it was possible to provide adequate balancing for this situation.

50 Hertz Control Area:

In the summer of 2010, there have not been emergency situations within the Control Area of 50Hertz Transmission (50HzT). There have not been events that would have required to warn neighbouring TSOs by a change of the status light of the Real-time Awareness and Alarm System (RAAS). Additionally, market-related measures according to Article 13(2) EnWG have not been necessary during the summer months, i.e. there were no direct instructions given to generation units. The network conditions forecast for the summer 2010 occurred to a large extent in reality (Summer Outlook Report 2010).

The summer 2010 was characterized by a very hot period in June and July and a quite wet period in August and September. Average wind power feed-in during the period from June to August 2010 was lower than in previous years and amounted to approximately 1150 MW (compared to around 1462 MW in 2009, 1376 MW in 2008 and around 1277 MW in 2007).

Due to the integration of wind energy, network and market-related measures pursuant to Article 13(1) EnWG (German Energy Industry Act) had to be carried out several times. Apart from network-related measures, day-ahead security interference and counter-trading measures were carried out in particular.

As expected, there have temporarily been high loads at the tie-lines 507 and 508 between Vierraden and Krajnik (PSE-O) as well as at directly connected lines. In order to ensure the (n-1)-security cross-border redispatch measures had to be applied on July, 22nd and 24th on request of PSE-O.

Additionally, there have been many problems regarding voltage control and reactive power management within the transmission grid of Hamburg. The nuclear power plants Krümmel and Brunsbüttel are still switched off and can not support the voltage control. These problems primarily results from a disturbance of a power circuit breaker of a shunt reactor at the substation Hamburg Ost. Consequently all similar circuit breaker had to be replaced as soon as possible and could not be used regularly. Additionally the nuclear power plants Krümmel and Brunsbüttel are still switched off and can not support the voltage control. As expected, the maintenance of the nuclear power plant Unterweser has temporarily increased the voltage problems nearby Hamburg. An exceeding of voltage limits has been avoided by

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special topological measures, by the disconnection of less used lines and by the support of neighbouring grids and subordinated DSOs.

Unexpected deviations in the system balance 50HzT as well as within the other German Control Areas appeared permanently during the summer of 2010. These problems results from the feed in of solar power plants and has been reinforced by a very high but not exactly known increase of the installed capacity. Since May 2010 all German TSOs participate at the Grid Control Cooperation (GCC and support each other in the balancing of the individual Control Area deviations which enabled to deal together with the unexpected deviation properly.

Resulting from congestions in the Swedish grids of Svenska Kraftnät (SvK) and the Polish grid of PSE Operator S.A. (PSE-O) the DC Loopflow was applied several times especially in July and August. This loop flow between the transmission systems of Energinet.dk, SvK, PSE-O and 50HzT, contributes to a reduction of the load on network elements and consequently reduces the risk of congestion. Actually it is realized by the Kontek and SwePol HVDC lines.

In order to reduce possible effects of the feed-in of renewable energies forecast analyses and online projections are permanently improved. Additionally there are discussions with the German regulator, with traders as well as with producers to improve the applied processes for the integration of especially wind and solar production.

EnBW Control Area:

Congestion management including the „C function“ on the borders between D-CH and D-F has proven to be effective.

Amprion Control Area:

Reduction of NTC between Germany and France due to construction work while commissioning the new 380 kV Ensdorf substation with new connection Vigy - Ensdorf (instead of Vigy – Uchtelfangen).

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Great Britain

National Grid encountered no significant or unusual events.

Ireland

No event was reported.

Luxembourg

Creos didn't notice any significant or unusual event during summer period 2010.

The Netherlands

For the Netherlands no unusable events occurred during the Summer period.

Though the temperature of cooling water from rivers used by power plants is too high during a period of warm weather and/or if the supply of cooling water is insufficient, particular power plants may have to limit their production of electricity. This will be the case when power plants no longer meet the relevant standards and regulations for using by warming floating water, laid down by the Department of Public Works and Water Management. In such situations, TenneT monitors the situation and issues signals to the various parties involved (electricity producers, regional grid administrators, Department of Public Works and Water Management, Ministry of Economic Affairs) concerning the reserve capacity on the electricity market. For this purpose TenneT uses three phases to represent the current state of affairs. Past experience has shown that this 'signalling system' can result in new sources becoming available, allowing the reserve capacity to be restored.

This summer period this phasing system was called in again, but no serious shortages occurred.

Northern Ireland

During the summer period for 2010 SONI did not experience any significant problems with the Transmission Network in Northern Ireland. There were no periods of concern as supply was maintained and all interconnection was available as and when required. The weather during the summer gave no cause for concern as there were few thunder and lightning events. There were no major supply interruptions experienced.

Norway

The system operation and system adequacy have functioned without any large problems in the summer of 2010.

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Baltic Sea Region

Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Norway, Poland, Sweden

For both the Nordic and the Baltic countries system operation and system adequacy have functioned without any large problems in the summer of 2010.

Denmark

The Power balance was good during the summer period except 2 weeks in August. Due to a major work in a 400 kV station in the southern part of Sweden, the trading capacity to Denmark East was reduced to nearly 0 MW in both directions. That, combined with a delayed maintenance work on a power plant in Denmark East, caused a very bad power balance. So bad that it was necessary to start up several power plants. A Power plant that was mothballed was also ordered started up. The weather was friendly and no abnormal load occurred.

The new interconnection line between Denmark east and Denmark west was official opened by the Danish Queen the 7.9.2010. The interconnection where planned in commercial operation August 20th, but a fire in a smoothreactor in converter station Fraugde delayed the commercial operation to August 25th. The Interconnection has been in operation since then.

Estonia

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Finland

July was remarkably warmer than long term average. In many places the average temperature was among the highest ever recorded and also new all time high temperature for Finland was recorded. Also in August and September the average temperature was above long term average while in June the average temperature remained a little below long term average.

No significant events in generation, demand or transmission. Storms caused local damages in distribution systems.

Germany

See region North Sea.

Latvia

Risks of import and export availabilities were in place, during this summer period, due to restrictions in Estonia-Latvian cross-border. There were no significant outages in power transmission lines and generation or unexpected situations during the 2010 summer period.

Very high air temperature in this summer was the main factor why total electricity consumption during summer period increased by 5-7%, compared to previous year.

Lithuania

During summer 2010 the weather conditions in Lithuania were not typical. Average temperature during summer months was 27,7 °C (normal temperature is 16,1 °C). Maximum peak load that was observed during this summer - 1379 MW (previous summer 1277MW). Total consumption was 2,51% higher than previous summer, because of intense use of air-conditioning equipment.
During the whole period of summer 2010, there were no critical situations in transmission network.

Norway

The system operation and system adequacy have functioned without any large problems in the summer of 2010.

Poland

See region Continental Central East.

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Sweden

The system operation and system adequacy have functioned without any large problems in the summer of 2010.

CONTINENTAL SOUTH WEST REGION

France, Portugal, Spain

France

See Region North Sea

Portugal

No significant events in generation/transmission have occurred during the summer period of 2010, despite the increase in the electricity demand (6.4% in July) .
As result of above the average temperature values, new summer records for demand peak (7900MW) and daily energy (160GWh) were achieved.

Spain

System operation and system adequacy have functioned without any larger problems in the summer of 2010. New summer peak demand records were achieved – however not reaching the expected peak load for severe conditions. Consumption was slightly recovered after the drop of last summer due to the economic and financial crisis.

CONTINENTAL SOUTH EAST REGION

Bosnia-Herzegovina, Bulgaria, Croatia, Former Yugoslav Republic of Macedonia (FYROM), Greece, Hungary, Italy, Montenegro, Republic of Serbia, Romania, Slovenia

Bosnia-Herzegovina

During the summer period of 2010 there were not significant unusual events in the power system of Bosnia and Herzegovina. Good hydrological conditions were occurred in the first half of the year, whereas in August and September it was a bit worse situation.
Also, maintenance of thermal power plant Ugljevik (installed power 300 MW) in July, August and September caused negative power balance in these three months, and lack of electric energy (less than 100 GWh) was covered by imports.
Electricity consumption in the period 1st June – 30th September 2010 was few percent higher than in the same period of 2009, but still lower than in the summer of 2008.
Maximum peak demand in the period 1st June- 30th September 2010 was 1711 MW, which is recorded on September 8.

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Bulgaria

Due to the global financial and economic situation and the resulting impact to Bulgaria the electricity demand in the country continued to decrease but with a slower rate compared to the decrease between 2009 and 2008. Signs of recovery are the facts that the consumptions for June and August are higher compared to 2009 – 2,8 % for June and 4.8 % for August (comparison based on normal temperature-adjusted monthly consumptions). Temperature conditions were near normal and only one heat wave was obsereved during August. The hottest working day was 13 August (Friday) with temperatures: Tmin = 20.8 C', Tave=27.4 C', Tmax=34.8 C'. This was the day with the highest peak load in the season: 4744 MW and the highest daily consumption: 97754 MWh.

There were no adequacy problems in the period. Failure rates of units were as expected and maintenance schedules were strictly fulfilled. Water levels in the big reservoirs were slightly above target levels and hydro plants operated normally in peak zone of the daily load curve.

There were no critical outages in the transmission network. During the whole period Bulgaria exported electricity to neighbouring countries. There were no unplanned outages of all interconnection lines.

Croatia

Croatian power system did not experience any significant disturbance during the Summer period. Therefore was no need for remedial actions.

Because of generally stable situation in Croatian power system there is not any lesson learned which should be mentioned.

Former Yugoslav Republic of Macedonia (FYROM)

Generally, the 2010 summer conditions were very close to the forecasted ones from the point of view of temperatures, and the levels of our reservoirs are very high. This is the advantage for the high load winter period .Planned maintenances of Termal and Hydro Power Plants were finished. The overhauls of the interconnections and power plants were according to the plans which were coordinated with the other countries in the SEE region.
There wasn't any unexpected situation during the Summer period.

Greece

During the summer of 2010 the peak temperature was higher than the summer of 2009, with a temperature of 42oC, but the peak demand was lower than the previous years. There were no major forest fires threatening critical transmission circuits. The Greek system did not experience any significant issues in balancing generation and demand during summer 2010. On the 18th of September the Turkish power system was connected to the ENTSO-E/RGCE system with one line from Greece and two lines from Bulgaria.

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Hungary

Summer of 2010 was pretty calm for the Hungarian power system. There was no extremely high demand; the total demand was actually much lower than e.g. two years ago, mainly due to the economic crisis. Outages of generators remained rather low. The grid was reliable and controllable.
MAVIR, the Hungarian TSO procured the necessary amount of reserve power by concluding market maker contracts, which put an obligation on the market players to offer their capacities on the daily market of ancillary services. This solution proved to be effective – but costly.

Montenegro

There were no critical outages/events in the Montenegrin transmisson network during summer period. Most of the planned works were completed in accordance to the plan.
Peak loads and monthly consumption were into the forecasted range, temperatures had average values.

Republic of Serbia

Summer period passed without unusually events or conditions. Most of the planned repairs were done.

Romania

The Romanian system did not experience unusual events or conditions during the 2010 summer period.

Slovenia

See Region Continental Central South

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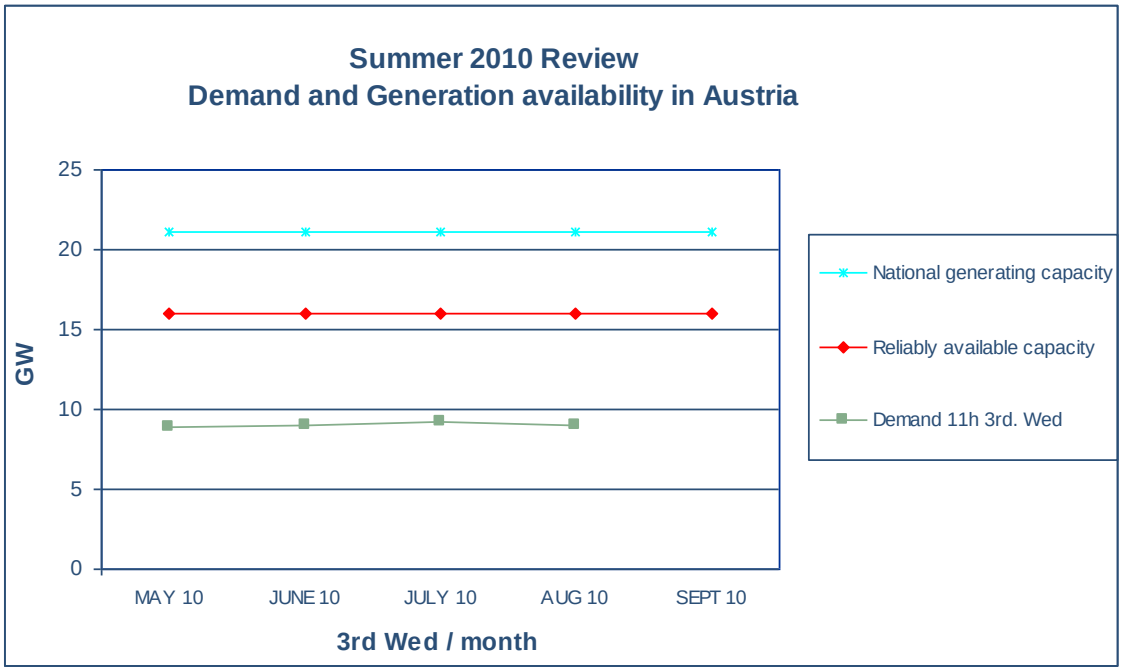
CONTINENTAL CENTRAL SOUTH REGION

Austria, France, Germany, Italy, Slovenia, Switzerland

Austria



No critical events concerning the Austrian power grid occurred in Summer 2010.

Due to the high share of storage power plants the reliably available capacity is far above demand.

Temperature conditions corresponded with the average long term climate conditions in summer 2010. On the contrary rainfall in summer 2010 was above the long term average level. No extreme weather conditions occurred.

Power demand rose sharply by 5,65% (April – July) compared to the same period in 2009. The reason for this is the recovery of the Austrian economy after the consequences of the financial crisis in 2009. Due to this high demand, export of energy dropped compared to the previous summer as the generation of electric energy remained stable.

During the summer the following main events occurred on the transmission network:

- Commissioning of second circuit:

The additional circuit Wien Süd Ost (AT) – Szombathely (HU) has been commissioned by 4th May 2010. This additional line will establish a stronger connection to Hungary and will also help to cope with the future wind power projects in this area.

- Outage of a 380/220 kV Transformer in the Substation of Tauern:

On the 10th of June an outage of a 380/220 kV transformer in Tauern (AT) occurred. To increase the security of supply for Salzburg during the construction phase of the new 380 kV

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Salzburgline (see also Winter Outlook 2010/2011) one of the 380kV lines Tauern-Lienz are operated with 220 kV until January 2011.

France

See Region North Sea.

Germany

See region North Sea.

Italy

The summer season, except July, recorded a sensible decrease of the average temperatures with consequent reduction of expected demand especially in the last part of the period. The hydro monthly energy capability factors, due to an unexpected level of seasonal rainfall, were higher than the corresponding values recorded throughout the previous year.

On the generation side, favourable wind conditions increased sensibly the production of renewable source (+31,3%). Generation availability in respect to the generation overhauls (both planned/unplanned) were consistent with forecast figures.
On the demand side, on July, owing to the torrid heat, especially in the second part of the month, electricity demand on the national power grid increased by 5,8% compared to the previous year. In spite of this, the monthly volume of demand did not exceed the amount of 2008, which is before the beginning of the economic crisis. Particularly, over this period, the peak of consumption reached on July 16th was 56.425 MW, a value near to the maximum historical seasonal peak (56.589 MW July 2007).

During the summer other new transmission lines, substation and electrical devices were put in service with reinforcement of the transmission network with benefits for the reduction of local congestions.

Italian northern interconnection has been characterized, for most of the time, by import conditions from the four neighbouring systems on the northern border.
In terms of physical flows, the interconnections recorded a variable performance of import/export balance of energy but with the cross-border schedules almost always at the limit value of the transmission transfer capacities over the northern border.
In the second half of July the Italian-Slovenian border experienced a physical flow inversion with respect to the bilateral exchange schedule. This reversed physical flow from the Italian system to the Slovenian one resulted in loop flows on the other borders, especially on the one with Switzerland. This situation, when inducing security violations on the interconnected grid, was handled in real time by applying the common coordinated procedures for import curtailment.
The HVDC cable interconnecting Italy with Greece has been basically characterized by prevalent import conditions towards the Italian system.

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Slovenia

There were no major losses of supply, no loss of interconnection availability/capacity and no emergency situations.

Switzerland

The Swiss system didn't experience any significant event, unusual condition or emergency situation during the summer period 2010.

CONTINENTAL CENTRAL EAST REGION

Austria, Croatia, Czech Republic, Germany, Hungary, Poland, Romania, Slovak Republic, Slovenia

Austria

See Region Continental Central South.

Croatia

See Region Continental South East.

Czech Republic

No significant or unusual events have occurred during summer 2010.

Germany

See Region North Sea.

Hungary

Summer of 2010 was pretty calm for the Hungarian power system. There was no extremely high demand, the total demand was actually much lower than e.g. two years ago, mainly due to the economic crisis. Outages of generators remained rather low. The grid was reliable and controllable.
MAVIR, the Hungarian TSO procured the necessary amount of reserve power by concluding market maker contracts, which put an obligation on the market players to offer their capacities on the daily market of ancillary services. This solution proved to be effective – but costly.

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Poland

Polish TSO confirms the following months for summer as the important period from the point of view of operation and keeping the balance of the system: second half of June, July and first half of August. The mentioned time intervals became characterized by midday high demand lasting usually from 10:30 to 14:00, with the peak at 13:15. This summer maximum peak load took place on Thursday, 22nd July at 13:15 and amounted for 19090 MW. It was the historical peak load for summer period, mainly as the result of extremely high temperature. The average temperature in July 2010 was 2°C higher than in 2009 (2.5 °C higher than in 2008).

Weather conditions in July accompanied by high unplanned load flows from 50HzT caused the overload in some elements of Polish power system in the area of PL-DE border for many days. The following remedial actions were taken:

- Changes in internal grid configuration,
- Internal redispatching.

As the last resort in coordination with neighboring TSOs applied too:

- DC loop flow between PSE Operator->50HzT->EnDk->SvK->PSE Operator,
- PL->DE redispatching,
- Supportive power delivery from Sweden.

Romania

See Region Continental South East.

Slovak Republic

Summer 2010 from the point of view of average temperature (19.5°C) was a bit colder than summer 2009 (19.8°C). Unusual climatic conditions of this summer were observed in precipitations. June and August were very rainy months with impact on occurrence of floods in some parts of the country.

Due to revitalization of economy the consumption increased (about +5.2%) and also the production raised (about +8.6%), compared to summer 2009. Hydro conditions as mentioned above caused unusual increase of hydro power plants production (about +48%).

In summer 2010, there was the peak-load 3673 MW in the 39th week (predicted monthly peak was 3520 MW) and it was 3.9% higher than in September 2009.

No critical or unusual event in the power system occurred during the whole period of this summer. The largest outage of production was in the nuclear power station Jaslovské Bohunice (22 July, 470 MW, one nuclear unit). The outage of production was covered by ancillary services and there was no impact on the consumers.

CCGT power plant Malženice (430 MW) was connected to the power system on the 1st June 2010 via the new 400kV line Malženice – Križovany. Test period is planned till the end of the year.

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Slovenia

See Region Continental South East

ISOLATED SYSTEMS

Cyprus

No significant or unusual events have occurred during summer 2010.

Iceland

The installed generation capacity provided acceptable system adequacy during the summer period.

The summer period is used for scheduled maintenance on the generating units. The maintenance is in general scheduled such that it does not jeopardize the power and energy balances.

ADDITIONAL CONTRIBUTING COUNTRIES

Albania

During the summer period of the year 2010, the Albanian power system did not encounter any unexpected and unusual events or conditions.Water levels in reservoirs of Drini Cascade (the main source generation of the country) were prety good above target levels due to abundant inflows and hydro plants operated normally. Power generation increased since the beginning of the year and till the first part of the summer.

Most of the planned repair works were completed in accordance to the plans. There were no unplanned outages of the interconnection lines. Peak loads and monthly consumption were slightly above the forecasted ones, due to monthly temperatures above the average values, as shown below.

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4. WINTER OUTLOOK 2011

4.1 Main Results – Risk Factors

The key factors which are likely to affect the balance between demand and supply when preparing the short term outlook reports on system adequacy rest on the information made available by TSOs and include in particular the **temperatures,** which influence the level of the load directly.

The attention given since the year 2008 to **the economic and financial crisis** for its effects on the drop in electricity demand **still continues for the year 2011.**

Other factors having effects on the generation side are in particular:

- **Outages of large units** (in particular thermal and nuclear plants), including of course overhauls and unplanned unavailability, but also extension of the duration of planned outages;
- **Hydrologic conditions**, with low inflows leading to reduced generation by hydro units;
- Market conditions of fuels, especially **gas**, with possible effects on the energy that could be generated by combined cycle gas turbines.

The last set of important factors is linked to the network conditions, such as:

- **Extreme climatic conditions**, which could affect the availability of the network and generation capacity.
- **Congestions** that limit the possible use of generation or in extreme cases the supply of local loads.
- **Loop-flows**, due to the physical laws of electricity transmission, which may stress the network and/or limit transfer capacities.
- **Wind feed in** due to an increase in wind generation and wind capacity**.**
- **Generation-load imbalances in other countries** of the same interconnected block, which can lead to unforeseen flows through the country.

4.2 Main Features

The most stressed periods occur generally the peak period (December- January).

More detailed information is reported on a country basis in Appendix 1.

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4.3 Comments by Regions

NORTH SEA REGION

Belgium, Denmark, France, Germany, Great Britain, Ireland, Luxembourg, Netherlands, Northern Ireland, Norway

Belgium

The desired safety level of 1050 MW for the generation-load balance is reached during the entire winter period 2010 – 2011. This analysis remains valid when the impact of severe temperature conditions on the load values are taken into account. In addition, the available simultaneous import capacity can contribute to compliance with the system adequacy. In order to assure a maximum level of available simultaneous import capacity, the planned outages of 380kV international lines are minimized during the critical winter periods. On the whole, the first analysis of system adequacy for the coming winter is positive.

The main risk factors for the Elia grid that might jeopardize the current positive winter adequacy assessment are a generation-demand imbalance for the whole of the ENTSO-E North Sea region or unplanned outages at the main generation plants in Belgium.

Denmark

The winter 2010/2011 is expected to be normal without any particular problems. The average remaining capacity for normal conditions until April is 1GW. The critical point in the Danish system has been the power balance in Denmark East which is low relative to Denmark West. However, the new 600 MW-connection between Denmark east and Denmark west "Storebæltforbindelsen" will improve the situation.

France

Under normal conditions, the generation – load balance on the French system is not considered at risk for the coming winter. In December and January, imports should be needed in over 1% of the cases in order to cover electricity demand in France.

Under severe conditions, margins should be tighter, during all winter period. Therefore for this period, imports would be needed to a value lower than the acceptable French network limits.

Germany

The result for the representative 3 rd Wednesday January 2011 figures (estimated values) is, that the peak load is expected to be approximately 78 GW. This will result in a so called “Remaining Capacity” of around 13 GW which means that the “Adequacy Reference Margin” will be met.

Great Britain

Underlying demands have been forecast to remain unchanged from last year’s levels on the basis of the continuing effects of the economic recession.

A conservative view of available generation has been adopted by excluding three new gas fired power stations that are currently being commissioned. This means plant availability

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could be up to 4 GW higher than assumed. A total output of 10% has been assumed from the wind farms in meeting the winter peak, which is only 0.3 GW and is therefore not significant.

The margin between electricity generation and demand is expected to be comfortable based on normal temperatures and expected levels of generation availability. Under severe weather conditions (1 in 20 cold temperatures), forecast demand including reserve would still be met as long as there were no interconnector exports to France. However, a change to the interconnector charging arrangements this winter means there is no longer any financial incentive to avoid exporting to France at the time of the daily peak.

A low case scenario has not been evaluated as no credible risks were identified.

Ireland

EirGrid expects that the generation capacity will be sufficient to meet the expected peak demands this winter and to ensure that the appropriate level of security of supply is maintained. Both deterministic and probabilistic analyses were carried out in examining the capability of the generation portfolio available to EirGrid to meet peak demands during the coming winter period. The adequacy margin used to determine secure operation is 8 hours LOLE per annum. Based on historical data, the peak demand is expected to occur in the week before Christmas. Areas of growth in demand, the capacity and performance of generation (both conventional and wind) and available import capacity were all considered.

Luxembourg

Luxembourg has two high voltage grids, the public grid of Creos connected to Germany and the industrial grid, connected to Belgium. For both grids the interconnection capacity will be sufficient to cover n-1 security. In normal operation the grids are not interconnected so that there is no possibility for transit flows. In emergency cases mutual reserves can be made available to the other grid. In temperature stressed situations, the load increase can be supported by the lines. No generation depending on very low temperatures exist in the country.

The Netherlands

TenneT TSO Netherlands provides on behalf the Ministry of Economic Affairs the report on Monitoring of Security of Supply 15 years ahead (Monitoring Leveringszekerheid). On TenneT-website latest report on Monitoring 2009-2025: www.tennet.eu is available. In the report on Monitoring the balance is not considered at risk for the coming years including the winter period 2010-2011

Northern Ireland

Assuming normal winter temperatures, SONI would expect the peak demand for the coming winter to be lower. It should also be noted that the winter demand may also be affected by the ongoing economic downturn and the proposed government austerity measures.

Norway

The Norwegian power system is sufficient to handle the peak demand situation, even on a cold winter day. The main result of the assessment is that Norway is self-supporting with

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energy and power during the coming winter. Even in cold days Norway is capable of using interconnectors to support neighbouring countries with power.

BALTIC SEA REGION

Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Norway, Poland, Sweden

Denmark

See region North Sea

Estonia

The coming winter 2010/2011 is expected to be normal with no extraordinary circumstances. Generation capacity in Estonia is considered sufficient to cover peak loads during the winter season and the power balance is expected to be positive even during severe winter conditions. The highest peak load is commonly expected in the second half of January or in the first half of February.

Finland

Finland is a deficit area in the power balance during peak hours. The balance is expected to be met with import from neighbouring systems with no major difficulty.

The recovery after the economical recession has been fast in 2010. The peak load estimate for the coming winter is 400 MW higher than the recorded peak load last winter. The generation capacity has increased a little.The estimated deficit is estimated to increase to 1700 MW in severe conditions.

Latvia

In the winter 2010/11 the Latvian power system will depend on imports from its neighboring countries to meet the peak demand. The peak load is expected to be 10% lower than during the last year due to current economic downturn in Latvia.

Lithuania

The winter 2010/11 is expected to be normal with no particular problems. Total consumption during upcoming winter is forecasted to be 2-4% higher than previous winter. Local available generation capacity will be sufficient to cover expected peak demand this winter. Despite that Lithuania will depend on import from neighboring countries due to electricity price differences.

Norway

The Norwegian power system is sufficient to handle the peak demand situation, even on a cold winter day. The main result of the assessment is that Norway is self-supporting with energy and power during the coming winter. Even in cold days Norway is capable of using interconnectors to support neighbouring countries with power.

Poland

See region Continental Central East.

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Sweden

Svenska Kraftnät does not expect any critical situation during the winter 2010/11. The available generation capacity is higher than the expected peak load. If situations with revisions/overhauls/outages occur, Sweden has the opportunity to import from its neighbouring countries.

CONTINENTAL SOUTH WEST REGION

France, Portugal, Spain

France

Under normal conditions, the generation – load balance on the French system is not considered at risk for the coming winter. In December and January, imports should be needed in over 1% of the cases in order to cover electricity demand in France.

Under severe conditions, margins should be tighter, during all winter period. Therefore for this period, imports would be needed to a value lower than the acceptable French network limits.

Portugal

From REN-simulations appears that generation/demand balance is not at risk for the coming winter. Under normal conditions, remaining capacity margin is expected to stay comfortably above the 10% threshold, even in a severe demand scenario.
However, in combination with extreme conditions from the supply side, remaining capacity could be reduced below 1% in critical weeks 2 and 3.

Spain

From the point of view of generation adequacy, the situation in the Spanish peninsular system is not critical for the coming winter. Good generation/demand adequacy can be expected regardless imports from neighbouring countries. If average conditions are considered, remaining capacity will be around 12.970 MW. Minimum value will decrease to 10.140 MW.

CONTINENTAL CENTRAL SOUTH REGION

Austria, France, Germany, Italy, Slovenia, Switzerland

For all countries of the region no particular problem is expected for the coming winter under normal conditions.

Under normal conditions, in December and January, imports should be needed in over 1% of the cases in order to cover electricity demand in France. Under severe conditions, margins should be tighter, during all winter period and imports would be needed to a value lower than the acceptable French network limits. In Italy, some considerations are required for the

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situation in Sicily where the forecast margins are still tight, but the outlook is more optimistic than in the past due to new thermal capacity now into operation. Furthermore, with the second cable of the new undersea links with the Italian peninsula (SAPEI, planned for the end of 2010), a comfortable adequacy level will be reached.

CONTINENTAL SOUTH EAST REGION

Bosnia-Herzegovina, Bulgaria, Croatia, Former Yugoslav Republic of Macedonia (FYROM), Greece, Hungary, Italy, Montenegro, Republic of Serbia, Romania, Slovenia

For all the countries in the region the required adequacy margin is guaranteed for the upcoming winter period 2010/2011. This is valid both for normal and severe weather conditions. Greece, Serbia, FYROM, Montenegro, Croatia and Hungary will still depend on imported capacity with the need of increased imports in case of severe weather conditions. No problems in the transmission network are expected. 5 new thermal units will be commissioned in the region as follows: 2 coal units of 335 MW each in Bulgaria, 1 coal unit of 400 MW in Greece and 1 gas unit in FYROM (capacity not reported).

CONTINENTAL CENTRAL EAST

Austria, Croatia, Czech Republic, Germany, Hungary, Poland, Romania, Slovak Republic, Slovenia

Czech Republic

CEPS does not anticipate significant balance problems in the Czech power system during the upcoming winter period, even at potentially severe conditions. We expect moderate grow in consumption comparing to the previous year when we registered drop down due to economic crises. The balance analyses show remaining capacity in severe conditions 1.4 to 3.9 MW.

Hungary

The Hungarian power system is expected to be on the safe side during the next winter period.

However, there are few risks that must be carefully managed by the TSO. It is a historical feature of the Hungarian electric power system that most of the time the required adequacy margin can only be guaranteed with a considerable amount of import. After liberalization, import is mainly an issue of the traders, available interconnection capacity is satisfactory. Critical factors of the winter period are availability of fuel (natural gas in first place, but also oil and biomass), some risks of availability of generation capacities in a few large power plants, as well as uncertainties in operation strategy of intermittent generators (biomass, co-generation gas engines).

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The most consideration is required under severe conditions, in first half of December and January, and in March.

Poland

PSE Operator does not expect significant problems in operation and balance of the system this winter even though since the beginning of this year Polish TSO has been observing quite high increase of load as well as energy consumption after the decrease in 2009 resulted from economic crisis. Forecast plan was updated and takes into account the mentioned growth.

Romania

The national generating capacity in the Romanian Power System will be able to ensure the coverage of the consumption and the eventual export requirements. A consumption increase of about 1% is expected in 2010-2011 winter compared with the last winter. Also, in case of severe winter conditions with 10°C lower than each monthly average temperature, there is not any foreseeable risk.

Slovak Republic

No particular problems regarding the load/generation balance under normal conditions are expected in the power system of Slovakia in winter 2010/2011. The critical periods in the coming winter are not expected under normal weather conditions.

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ISOLATED SYSTEMS

Cyprus

For winter 2010/ 2011 the generation capacity in Cyprus is much higher than the consumption. Under normal or severe temperature conditions the generation – load balance of Cyprus System is not at risk even with loss of the largest power unit of 130MW. No effect on possible gas crisis for the time

Iceland

The generation capacity in Iceland is expected to be sufficient to meet peak demand this winter under normal as well as severe conditions. Landsnet does not anticipate any particular problems in the isolated Icelandic power system.

ADDITIONAL CONTRIBUTING COUNTRIES

Albania

For the upcoming winter period 2010 - 2011, it is considered that the adequacy and security of the Albanian power system is not threatened under normal weather conditions, taking into account the favourable state of hydro power plants reservoir basins levels of Drini Cascade, at the beginning of considered period, planned availability of production and transmission facilities, the available importable capacity of interconnections, and strengthening of northern interconnections with new 400 kV interconnection line with Montenegro that will be put into operation within this year. It is expected that the new tie-line will have a positive effect on the facilitation of energy exchanges in the region.

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5. LESSONS LEARNT

The main learning points experienced via ENTSO-E reporting and outlooks on short term adequacy is related to the fact that some TSOs carry out and reports in different timeframes (monthly, yearly, weekly basis). This implies that European cooperation of TSOs in the field of short term analysis is important to evaluate system adequacy and for operational planning. Availability of data provided by external parties is considered a great concern for some TSOs when performing short term adequacy analysis.

In general attention is given to economic conditions and global recession on the system adequacy forecast and the impact on peak loads after the significant drops of consumptions occurred in the last years. In that respect TSOs experience difficulty in making accurate forecasts on generation and demand due to uncertainty about the recovery of economy. The impact of economic recession still need the application of regulatory mitigation measures through which limit the impact on transmission business in order to not affect the planned investments in network development. Consideration is also given to the availability of generation in particular gas and nuclear during the winter period (TSOs didn't expect system adequacy to be influenced by gas supply shortage) and the sensitivity of load to high temperatures.

Coordination of TSOs is considered a key factor for system security as it is in cases when network and market related measures need to be applied due to weather conditions and increased load flows due to wind power.

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6. APPENDICES

6.1 Appendix 1: Individual Country/Regional contributions to Winter Outlook 2011

Albania
Austria
Belgium
Bosnia & Herzegovina
Bulgaria
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
Former Yugoslav Republic Of Macedonia (Fyrom)
France
Germany
Great Britain
Greece
Hungary
Iceland
Ireland
Italy
Latvia
Lithuania
Luxembourg
Montenegro
Netherlands
Northern Ireland
Norway
Poland
Portugal
Republic Of Serbia
Romania
Slovak Republic
Slovenia
Spain
Sweden
Switzerland
Nordic countries
Baltic See Region

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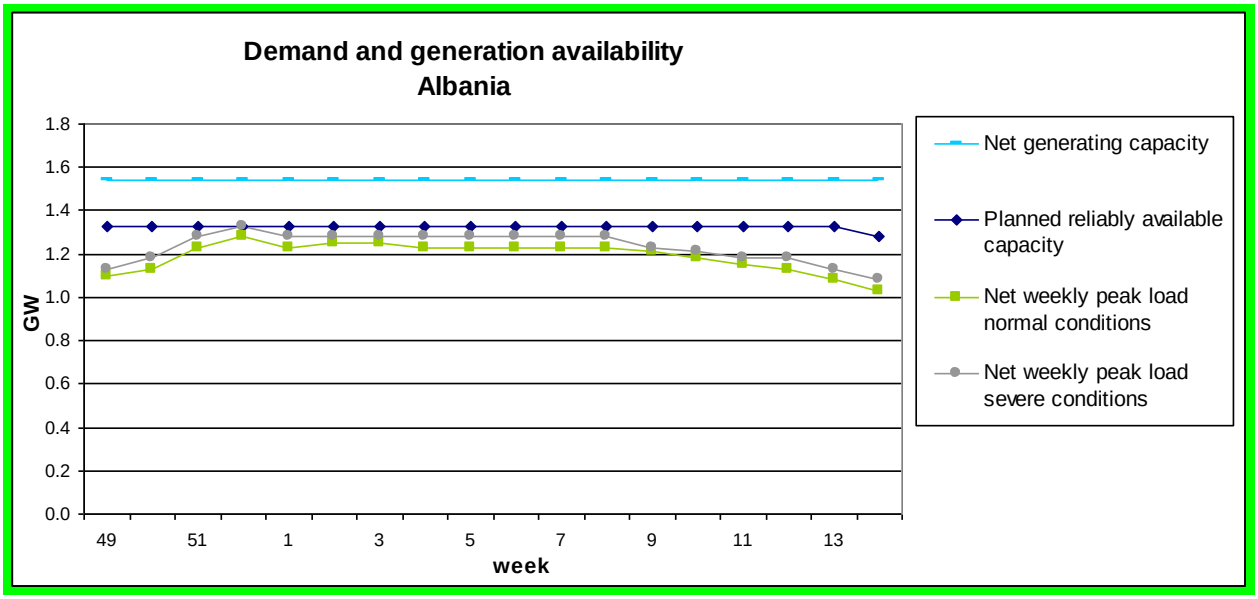
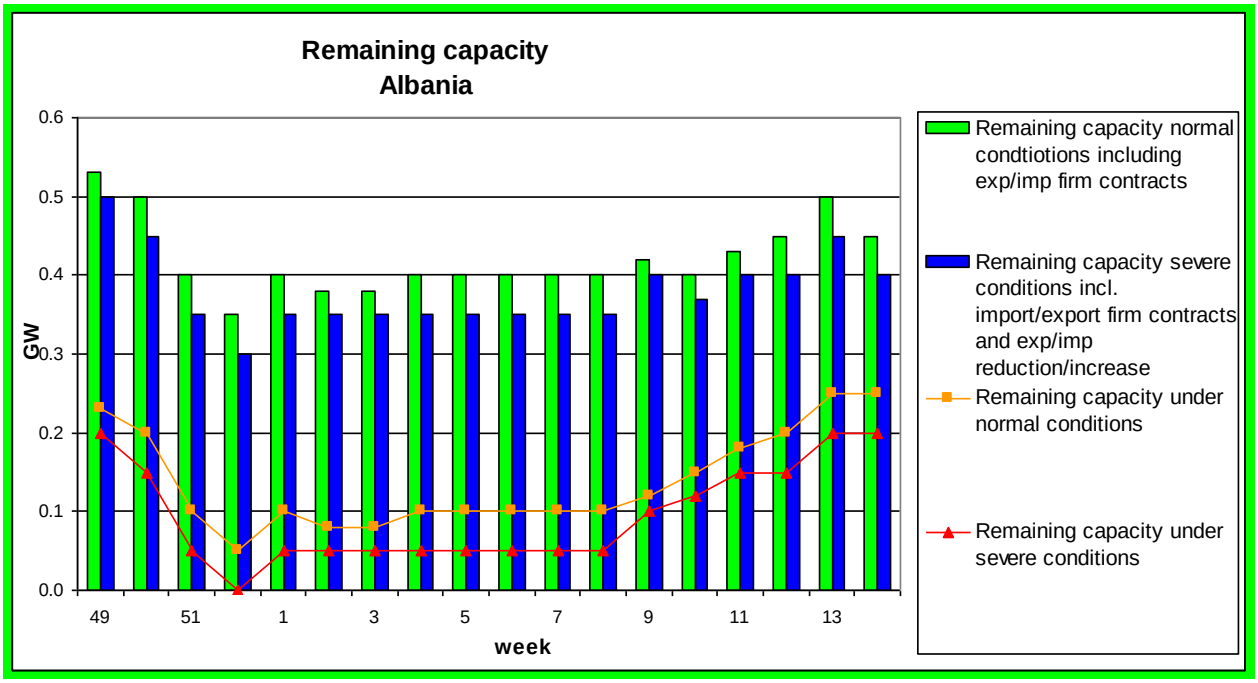
ALBANIA





General Comments

OST does not anticipate significant balance problems in the Albanian Power System during the upcoming winter period, even at potentially severe conditions. The most critical period remains during the second part of December and January. No addition of new generation capacity is expected for the coming winter.

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The level of remaining capacity considered as necessary in order to ensure a secure operation for the next winter is 120 MW (equal with the power of the biggest unit).
The maintenance schedule of the generating units is set to minimum. No problems in the transmission network are expected because the most maintenance works have been accomplished during the summer period of the year.

Import Contracts till the end of this year are concluded already by DSO, and the others, covering the first quarter of next year, are under the process.
In case of severe conditions, the additional import quantities shall be procured, using the available import capacity of the interconnections.

Under these conditions all criteria for the system adequacy will be met.

Short explanation of the framework and the method used for making the winter adequacy assessment

According to the Grid Code, OST's regular operation planning horizons are: year (Annual Operation Study, AOS), month, week and day. The AOS is based on a model combining stochastic and deterministic approach, and make use of information provided by grid users. The data presented in the table are from this study prepared for coming year.

In medium and short term, OST conducts studies concerning the Generation Adequacy Assessment. The studies include load forecasts and multiple scenarios on energy management using probabilistic and deterministic methods. The energy management studies aims at checking the actual energy situation and the level of hydro reserves. These studies are regularly revised to include mainly variations in the load and/or the availability of the power plants.

Generation-Demand Balance

The Albanian Power System, due to significant share of hydro power plants, mainly depends on hydrological circumstances of the region. The differences between the productions of hydro power plants in extremely dry or extremely wet period, fluctuate for approximately 30% of the average production with HPP.

In this assessment, the the thermal power of 90 MW, is put at non-usable capacity due to information from generation company KESH-Gen, that intend to use it only in case of a very dry period. No addition of new generation capacity is expected for the coming winter.

The hydro conditions were very well this year so the water reserves are in the sufficient level. Thus, the good hydraulic storage of hydropower stations and the strengthening of the northern interconnection lines, are expected to ensure the balance of our power system.
The monthly peak load is calculated both for normal and severe conditions. The severe load scenario is built considering a temperature lower by 5°C than the season normal temperature.
A statistical approach is followed based on recorded hourly load and temperature data covering the period of last 10 years. The dependency of the load on the temperature, for the winter period, averages to 10 MW/°C.
Load reduction is available upon decision of the Ministry of Energy and the Regulatory Authority for Energy. System services include primary, secondary and tertiary reserve according to the ENTSO-E OH Policy 1.

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Role of Interconnection

In general the interconnections are sufficient for import/export of electricity.
The average simultaneous import capacity for the coming winter is approximately 400 MW for this year, and 500 MW for next year, whereas the average simultaneous export capacity is approximately 350 MW for this year, and 400 MW for next year.The simultaneous import and export capacity was obtained by adding the average NTC-values of all borders and multiplying this sum with a simultaneous coefficient of 0.7.
Available cross border capacity allows compensation of eventual energy deficit and transit of energy for successfully functioning of electrical market.

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AUSTRIA

Load – Generation balance:

Due to the temperature forecast for October to December 2010 (ZAMG Data) cold month can be expected in Austria. This would lead to a higher demand compared to an average winter season. Verbund APG expects no critical events for the coming winter season.

Grid Situation:

Construction of 380 kV Salzburgline I - North South Disconnection (220 kV St.Peter – Salzach):

In order to build the first part of the 380 kV Salzburg line the existing 220kV line from St.Peter (AT) to Salzach (AT) was put out of operation at the 23.08.2010. To increase the security of supply in the region of Salzburg during the construction phase several congestion management measures are applied.

The new 380 kV Salzburgline is planned to be put into operation by the end of January 2011.

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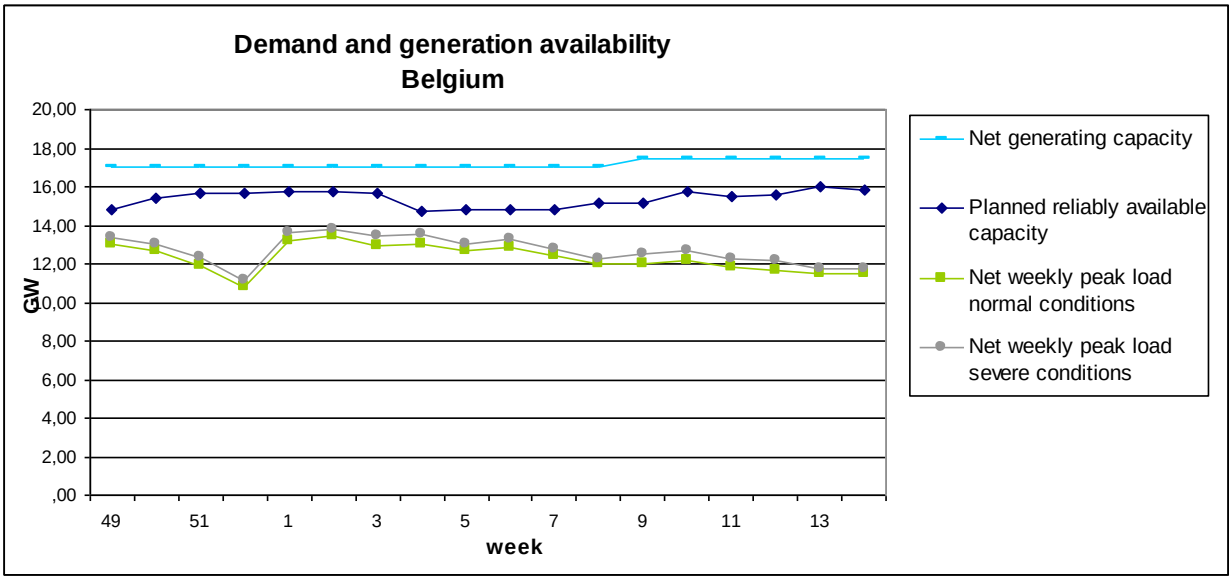
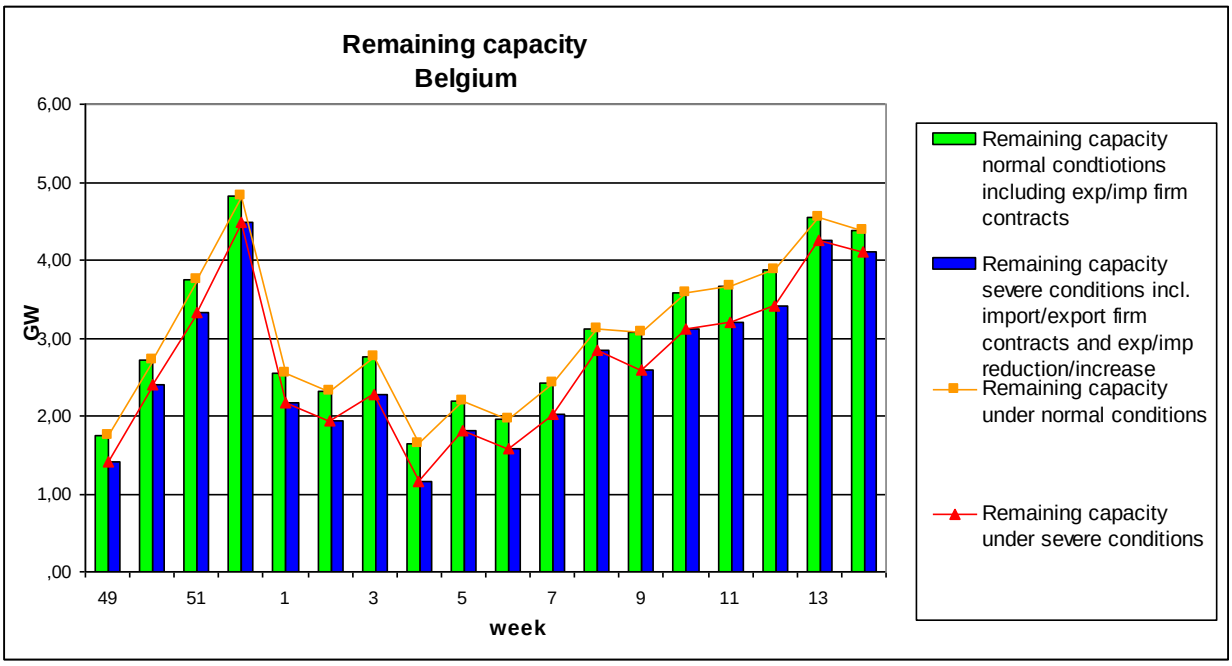
BELGIUM





General comments

The desired safety level of 1050 MW for the generation-load balance is reached during the entire winter period 2010 – 2011. This analysis remains valid when the impact of severe temperature conditions on the load values are taken into account. In addition, the available simultaneous import capacity can contribute to compliance with the system adequacy. In order to assure a maximum level of available simultaneous import capacity, the planned outages of 380kV international lines are minimized during the critical winter periods. On the whole, the first analysis of system adequacy for the coming winter is positive.

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The main risk factors for the Elia grid that might jeopardize the current positive winter adequacy assessment are a generation-demand imbalance for the whole of the ENTSO-E North Sea region or unplanned outages at the main generation plants in Belgium.

The framework and the method used for adequacy assessment

An adequacy forecast study is carried out each year for the Elia control area, which includes Belgium and the SOTEL area (a part of the G-D Luxembourg).
Deterministic methods are used to fulfil this analysis. Although the assessment is based on only one scenario, it is modified and reassessed several times. The assessment takes into consideration the following items:

1. Total installed capacity of the generators that are connected to the Elia grid. Mothballed plants are not taken into account when assessing the total installed generating capacity.
2. The actual, announced overhaul and outage schedules of the generator units connected to the Elia grid. These programs are communicated to Elia in week 32 of the year preceding the considered year. The non-usable capacity of the generators connected to the Elia grid. This non-usable capacity results from either a reduction in electrical capacity in favour of heat extraction (CHPs) or a temporary lack of primary energy (run-of-river units, windmills and biomass/waste fired units).
3. The daily peak load values of the Elia control area are foreseen under normal conditions (assuming average conditions for the coming winter) to decrease with 0.7% percent for winter 2010-2011 compared to the peak load values measured during the winter 2009-2010 adjusted to reflect normal temperature conditions.
4. The planned outages of lines.

The final result of this assessment is available in week 45 of the year preceding the considered year. The complete following year is examined on a weekly basis. For each week, all week peaks are assessed. A first revision of the assessment takes place 6 weeks before the beginning of a quarter. At this time the assessment is carried out for the peak of each day of the considered trimester. The same analysis, but using each time an adapted generation-demand balance, is also made for the peak of every day of the considered week, from 5 weeks until 1 week before the considered week. Finally, for every day of that week, the situation is reassessed two days and one day before the actual day.

A remaining capacity margin of 1050 MW (equivalent to the biggest unit in the grid) for the generation-load balance is judged as the desired safety level for the short-term adequacy analysis. This deterministic criterion reflects the highest risk due to a single incident for the Elia grid taking into account the total generating capacity minus a reduction for non-usable capacity as well as the actual, announced overhaul and outage schedules. The main objective of this short-term analysis is to assess whether the Elia grid can remain autonomously when this incident occurs. During periods of non-respect the system will rely on net imports.

The ENTSO-E approach for medium and long-term system adequacy applies a stricter probabilistic criterion. This approach indicates the dependency on possible net imports to face contingencies and to allow some freedom in maintenance planning during non-respect.

Below a complete overview of the differences between both methodologies is presented.

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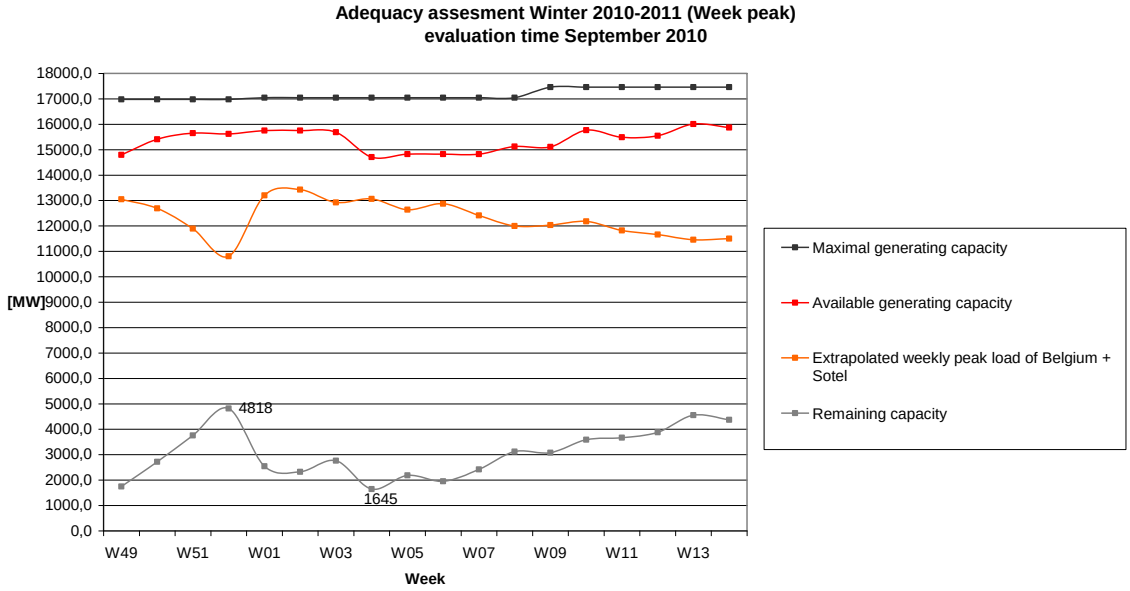
Generation – Demand Balance

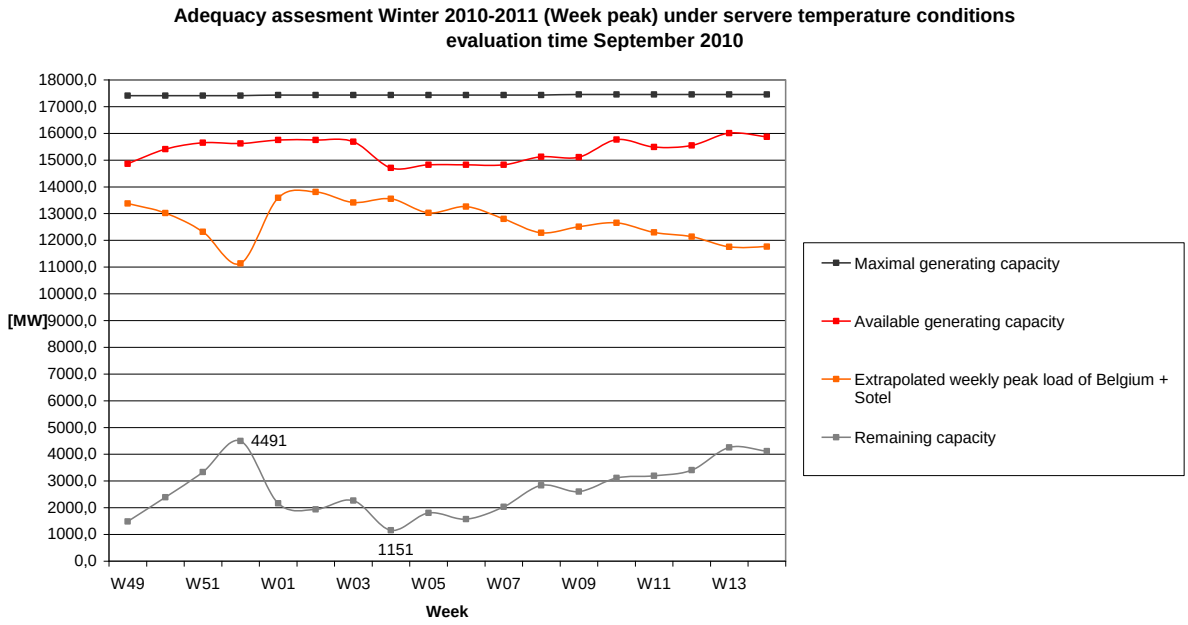
In the figure below an overview is given of the result of the assessment of winter 2010-2011 for the week peak under normal temperature conditions. A low level of overhauls combined with the lowest level of forecasted demand for the week peak of week 52 of 2010, result for that week in the highest remaining capacity level for the coming winter for the week peak. On the contrary, the highest level of overhauls (mainly the planned overhaul of a nuclear power unit) combined with a high level of forecasted demand for the week peak of weeks 4, 5, 6 and 7 2011, results for these weeks in low remaining capacity level for the coming winter. The lowest remaining capacity level for the coming winter is obtained for the peak of week 4 of 2011 that combines the lowest level of remaining capacity with a high load level.

The desired safety level of 1050 MW for the generation-load balance is reached for all the week peaks of the coming winter 2010-2011 under normal temperature conditions.



The analysis as mentioned above does not take into consideration severe temperature conditions. Load and generation modification based on meteorological forecasts are only considered for the assessments made as from one week before the considered week. The load is reversely correlated with the temperature. This is why a negative deviation of the meteorological prevision of 1 degree Celsius from the temperature measured the year before for this specific time results in a positive correction of the load by +/- 35 MW. For the load forecast under severe conditions, load values were estimated that corresponds with extreme low temperatures (only one percent probability that the temperature will be lower). The winter 2008-2009 revealed that a cold spell can cause the unexpected absence of several fossil fuel units. For instance the cold spell in week 2 of 2009 resulted in an unforeseen unavailability generation capacity of 2.7 GW in week 2.

In the figure below an overview is given of the result of the assessment of winter 2010-2011 for the week peak under severe temperature conditions. The desired safety level of 1050 MW for the generation-load balance is reached for all the week peaks of the coming winter 2010-2011 under severe temperature conditions.



Role of Interconnection

Last winter period (from week 49 of 2009 until week 14 of 2010), on average, a net export of 624 MW was measured during week peak times (from 5:15 pm until 8 pm) on the Belgian South border (F-B border) and a net import of 589 MW was measured during week peak times (from 5:15 pm until 8 pm) on the Belgian North border (NL-B border). Taking into account the electricity flows on both Belgian borders (B-NL and F-B borders), the average net export during peak times last winter period totalled 45 MW.

The average simultaneous import capacity for the coming winter is approximately 3221 MW, except for week 13 & 14 were it is estimated at 2836 MW whereas the average simultaneous export capacity is approximately 1926 MW, except for week 13 & 14 were it is estimated at 1681 MW. The simultaneous import and export capacity was obtained by adding the average NTC-values (according to the ENTSO-E definition) of both borders and multiplying this sum with a simultaneous coefficient of 70 percent (based on PTDF). An increase of the simultaneous import and export capacity is likely due to the commissioning of the second circuit of the 220 kV AC Aubange-Moulaine line (commissioning in 2010).

Elia does not expect any congestion problems on its grid for the coming winter due to the minimization of planned outages of international lines during critical winter periods. Atypical winter loop flows from the South to the North causing congestion problems in the Elia grid are less problematic due to the operation of a phase shifter in Zandvliet and two phase shifters in Van Eyck that allow a better control of this type of loop flows.

Additional comment

Although Belgium has no own gas supplies, the main gas infrastructure in Belgium is bidirectional. Hence if one gas source is not available it is easy to switch to another gas source even if it is located somewhere else. Taking this into account the gas supply needed to balance the gas demand the coming winter 2010-2011 should be available.

Comparison between Elia's short-term winter outlook and the medium & long-term system adequacy - ENTSO-E approach

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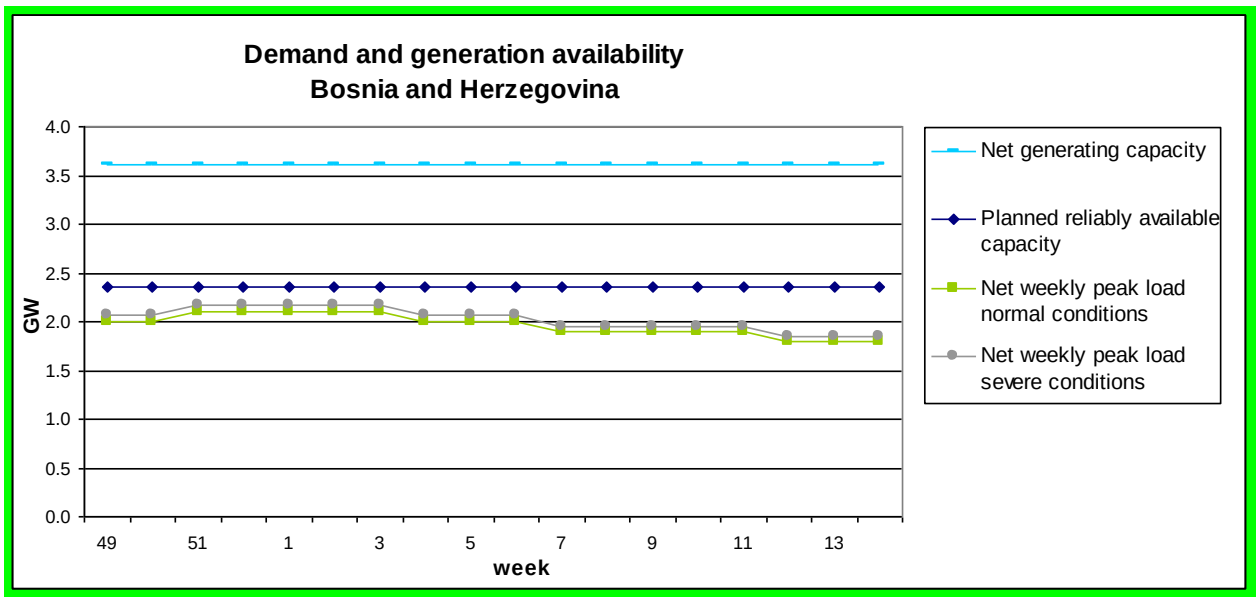
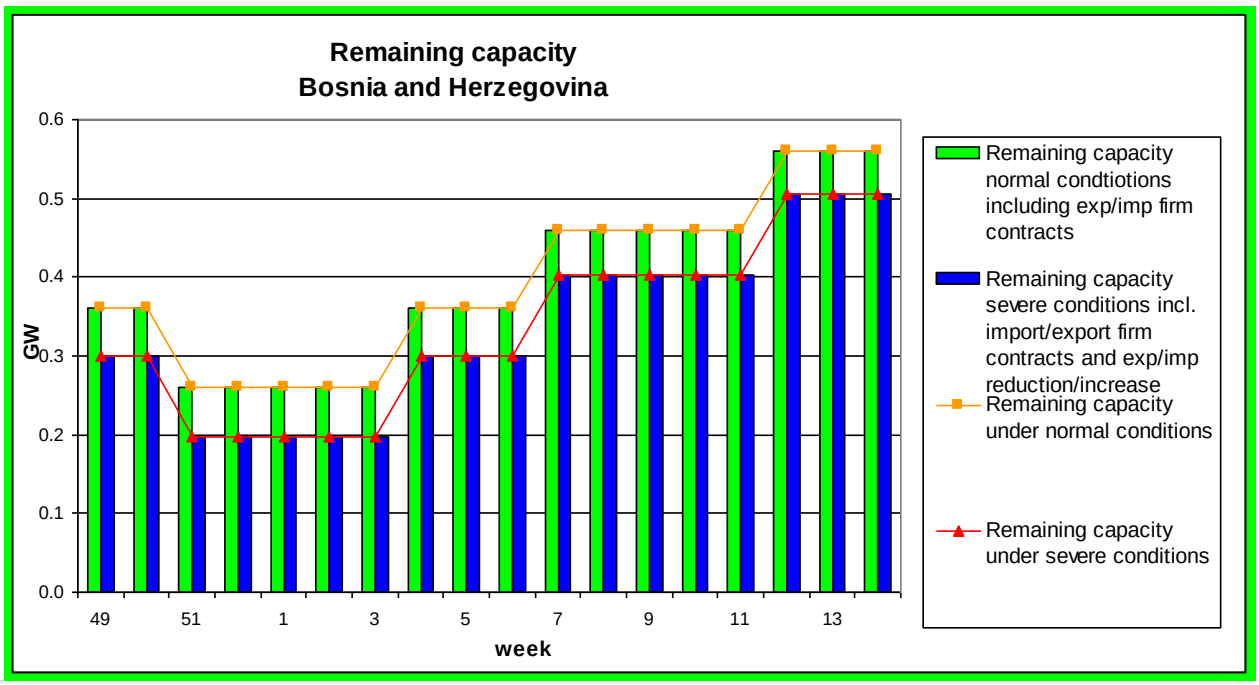
ELIA's short term winter outlook				Medium and long term system adequacy – ENTSO-E approach			
			MW				MW
1.	Load of the system	Load observed by the TSO (after netting of generation embedded in distribution) including the SOTEL area (a part of the G-D Lux.).	Le	1.	Load of the system	Load observed by the TSO (after netting of generation embedded in distribution) including the SOTEL area (a part of the G-D Lux.).	Le
2.	Generation capacity	Total generation capacity expected to be available, based on actual, announced overhaul and outage schedules, taking account of winter conditions (minimum maintenance in peak winter conditions) and a reduction for non-usable capacity.	Ge	2.	Generation capacity	Total generation capacity expected to be available, based on actual, predetermined overhaul schedules, taking account of winter conditions (minimum maintenance in peak winter conditions) and a reduction for non-usable capacity.	Ge
3.	margin	To account for unexpected outage of largest unit. Margin includes system service reserves.	1050	3.	Margins	System service reserves	901
						Probabilistic part of Ge, expected to be unavailable for outages	546
						Additional margin of 5 % of Ge	867
					Total margin		2314
4.	**Criterion**	Short term autonomy	Ge-1050-Le >0	4.	**Criterion**	Medium and long term System Adequacy	Ge – 2314 – Le > 0
5.	Non-respect of the above criterion means :	***The system will definitely rely on net imports during periods of non-respect.***		5.	Non-respect of the above criterion means:	***The system is not able to comply with security criteria during non-respect: it has to rely on net imports to face contingencies and to allow some freedom in maintenance planning.***	
6.	Duration that the criterion is not respected in winter 09-10 in Belgium:	***no weeks.***		6.	Duration that the criterion is not respected in winter 09-10 in Belgium:	***Approximately 8 weeks during severe temperature conditions and 4 weeks under normal temperature conditions***	

BOSNIA-HERZEGOVINA





General Comments

Under normal conditions no supply/demand balance problems are expected in Bosnia and Herzegovina for the Winter 2010/2011. As we not dependent on imports from other countries, it is expected the positive balance for this period.

We expected the maximum peak load of 2130 MW for the period from December 4, 2010, to April 10, 2011. The maximum peak load in 2009 was 2033 MW, registered on January 05; while in January 2010 maximum peak load was 1954 MW, registered on January 28. Maximum load in 2008 was 2117 MW, and in 2007, it was 2078 MW.

According to realization of power balance for the last few years it could be generally observed a constant increase of the electricity generation, as a result of good hydrological conditions, and stagnation of electricity consumption, what could be a result of economic recession.

In the case of eventual gas crisis it is not expected remarkable increase in maximum daily load, because there are only few regions supplied by gas in Bosnia and Herzegovina (Sarajevo, Zvornik).

According to Grid Code, Independent System Operator of B&H (ISO B&H) makes annual electricity balance on the transmission network by the end of October for the next year, and this document contents detailed data about of amounts.

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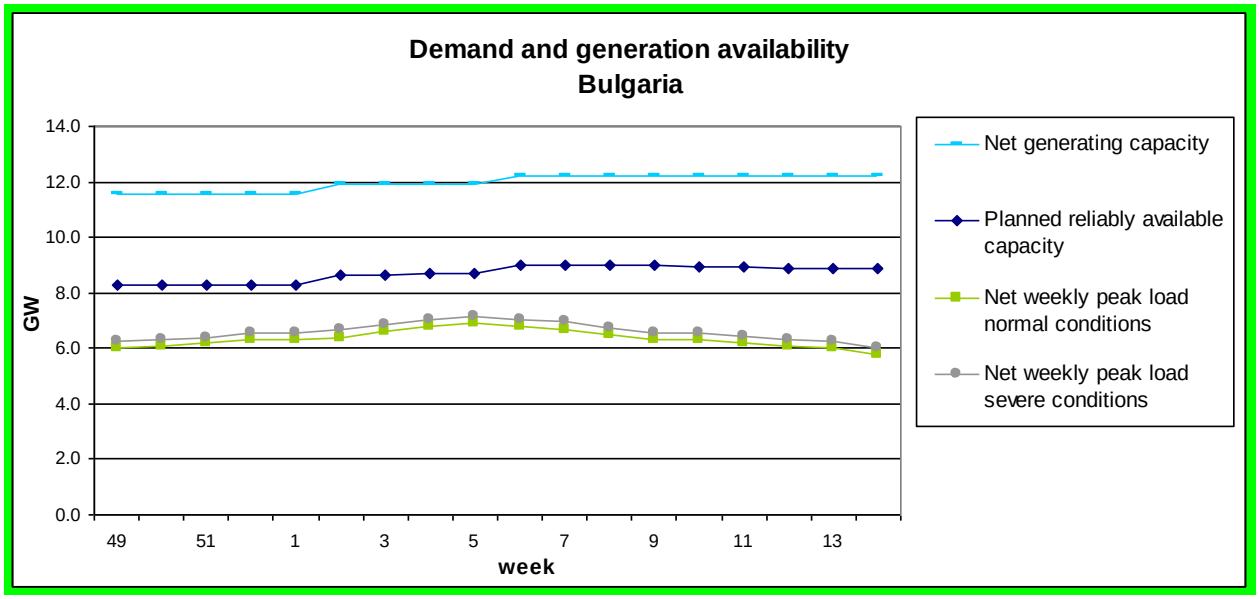
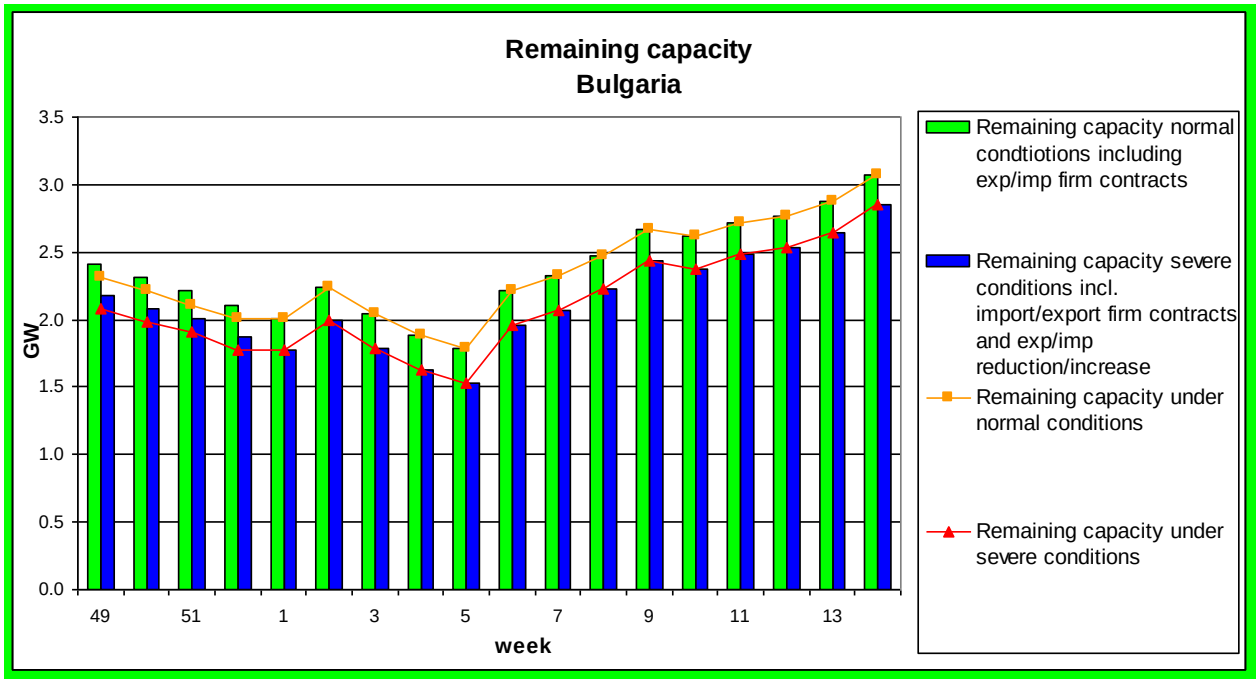
BULGARIA





General Comments

Two new thermal units on lignite coal, 335 MW each, will be commissioned in the period January-February 2011.

The maintenance schedule of the generating units is set to minimum.

No problems in the transmission network are expected because of major maintenance works over the summer period.

All possible activities will be done in order to keep the forced outage rate of the generating units to the lowest possible level.

The hydro conditions can be defined as normal and the target level of all reservoirs will be met which guarantees reliable operation and predictable contribution of all hydro plants.

Under these conditions all criteria for the system adequacy will be met.

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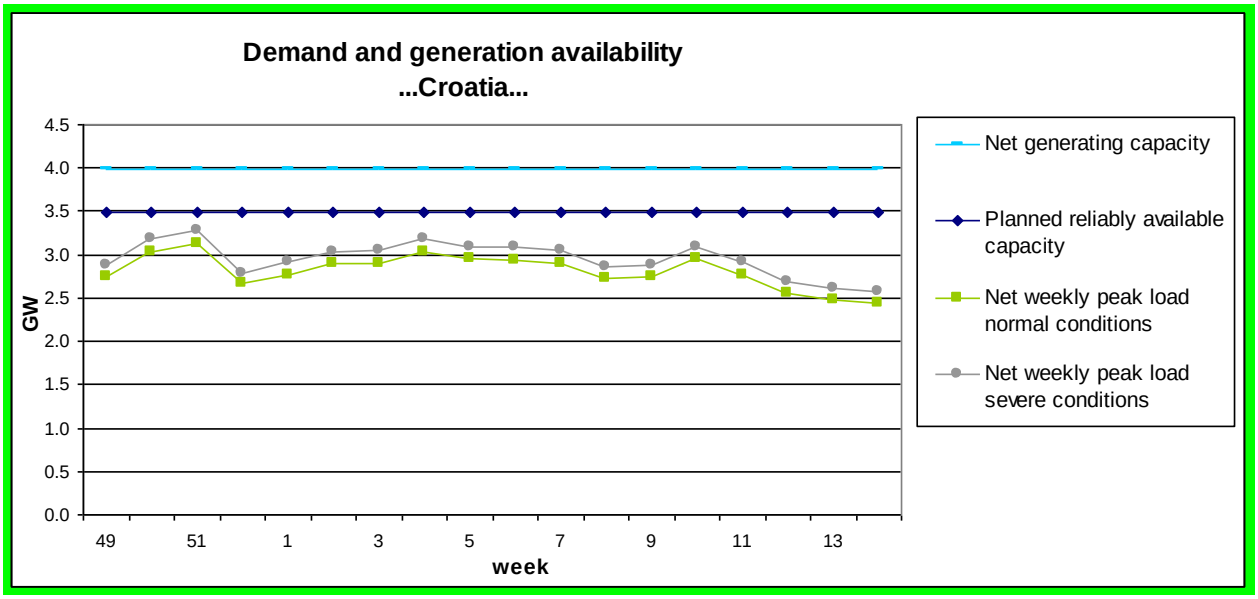
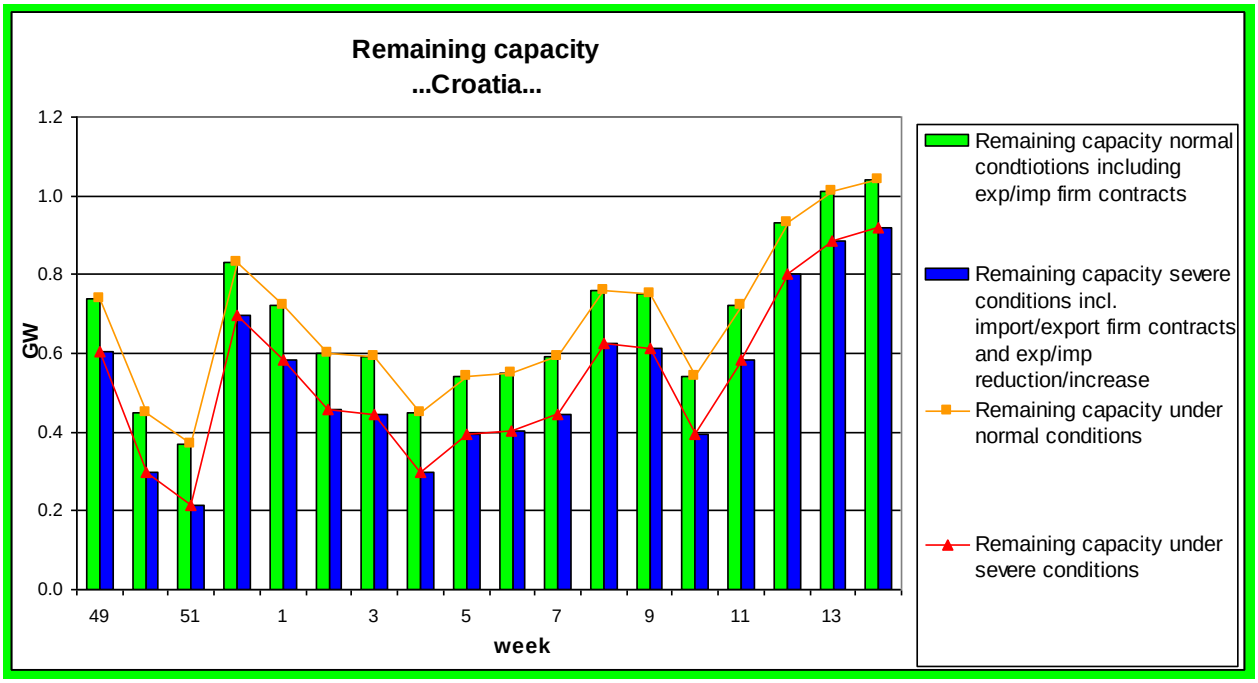
CROATIA





General Comments

On winter in Croatian power system there is not any problem expected regarding system adequacy. Although the Croatian power system is dependent on imports of electricity, transmission and generation capacities can cover the demand.

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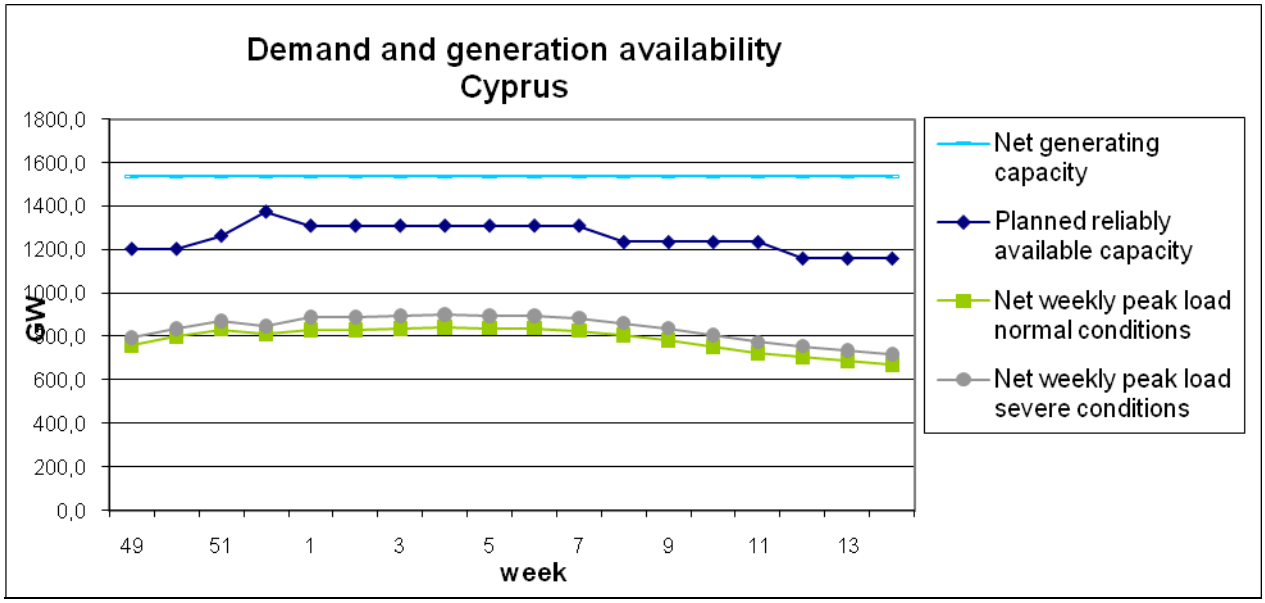
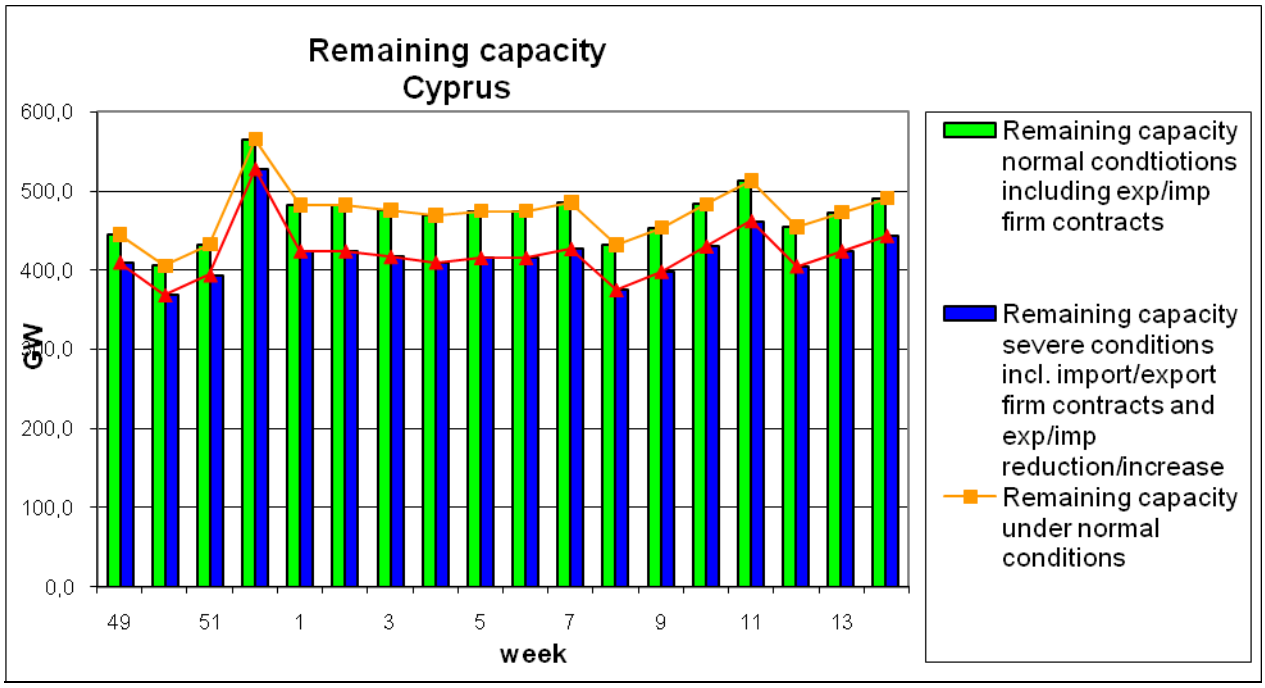
CYPRUS





General Comments

For winter 2010/ 2011 the generation capacity in Cyprus is much higher than the consumption. Under normal or severe temperature conditions the generation – load balance of Cyprus System is not at risk even with loss of the largest power unit of 130MW.

The framework and the method used for making the winter adequacy assessment is based on weekly predictions and maintenance programs set.

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Generation-Demand Balance

Climatic conditions of Cyprus winter are considered mild. Cyprus stressed periods for system adequacy occur during summer period. Therefore, no risks are expected. The Cyprus System is an isolated system. No interconnections exist with other countries.

A new Wind Generation Plant is connected to the system with capacity of 82MW. So TSO Cyprus is observing its operation especially during the night where increased generation of the Wind Park may result to the need of decommissioning thermal Generators.

A provisional overhaul schedule of the power units was communicated to TSO of Cyprus by the Electricity Authority of Cyprus and the final schedule was approved by the TSO, having taken into consideration the load forecast carried out by the TSO. Although the Market Rules in the Cyprus Electricity Market are applied, no competitors have entered the market yet.

Additional information

For the 82 MW wind Park that is already installed TSO Cyprus is gathering data and developing wind supply forecasts. Studies are at a beginning stage since sufficient data needs to be gathered from the metering systems already installed.

Natural gas will start its construction in during 2014. Under normal or severe temperature conditions the generation – load balance of Cyprus System is not at risk even with loss of the largest power unit of 130MW.

There are no effects of economic crisis as far as it concerns the generation and consumption of energy in the Republic of Cyprus.
Wind park generation is at the final stages of the commissioning stage. Data is being gathered and in the near future TSO Cyprus will be able to extract results on forecast issues.

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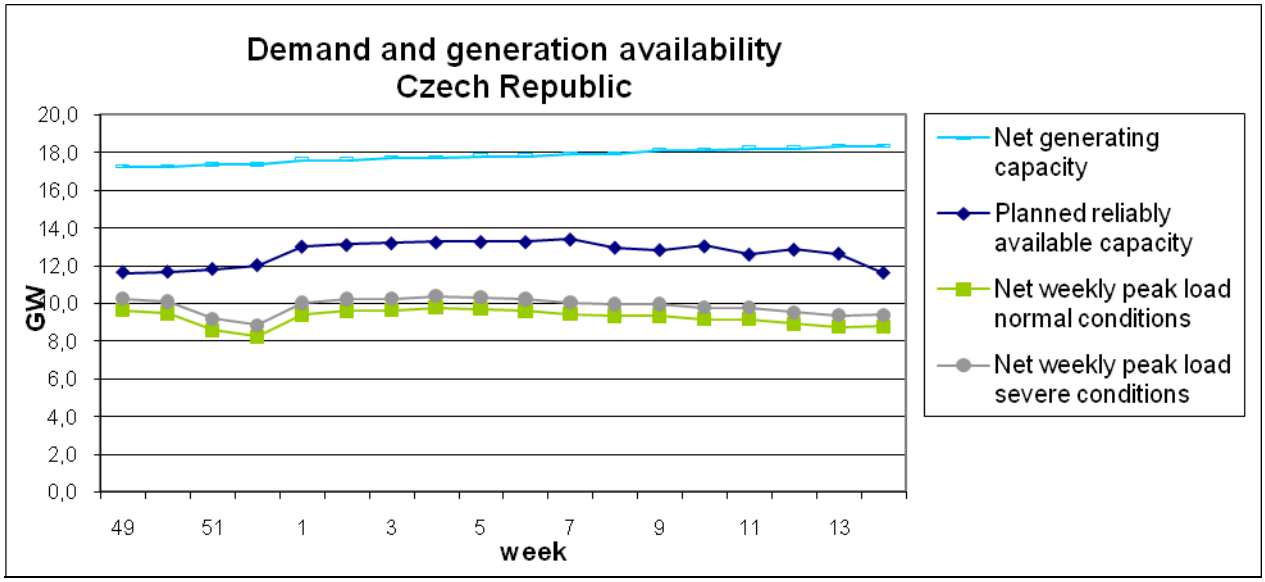
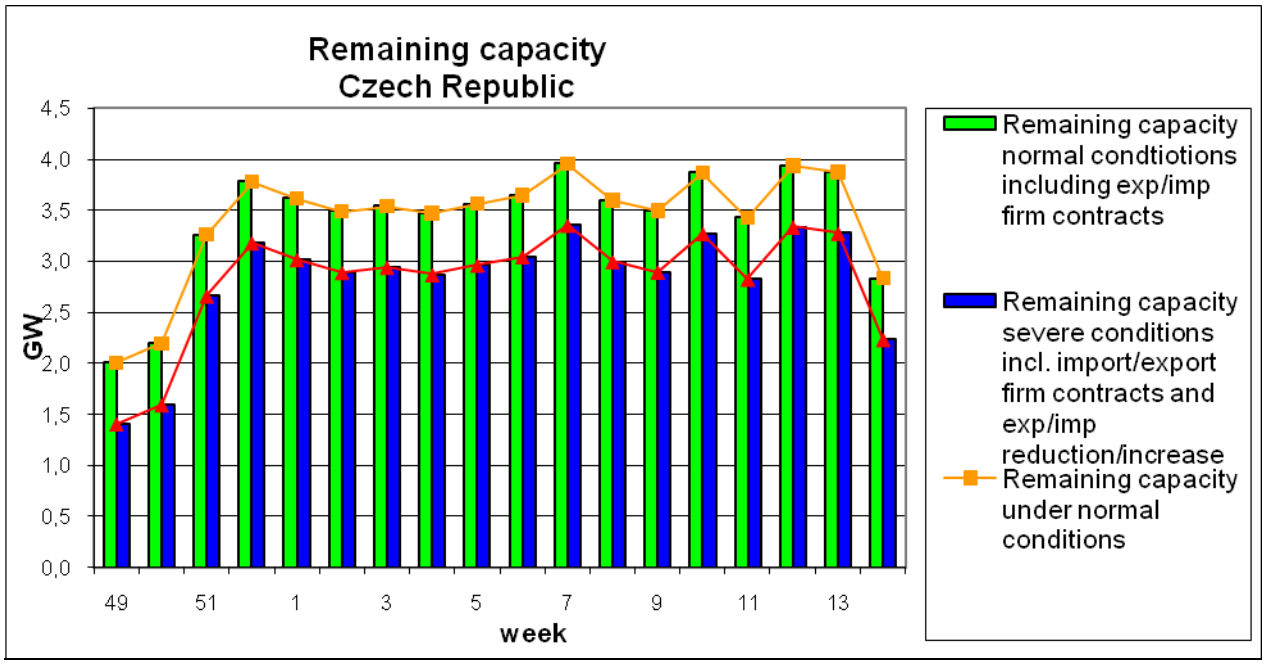
CZECH REPUBLIC





General Comments

CEPS does not anticipate significant balance problems in the Czech power system during the upcoming winter period.

Generation-demand balance

Planed outages are higher at the end of the year 2010 and from week 9 forward in 2011. However, it is expected, that even in the case of severe condition the generation capacity will allow exports.

Role of interconnection

Interconnection capacity is sufficient to export spare generation capacity. Values of firm export import contracts are not available to CEPS in advance. All export/import contracts are scheduled day ahead.

Additional comments

Predictability of load is lower than usually, due to uncertainty caused by economic crises, though some recovery of consumption can be observed. Some economy growth is also foreseen.

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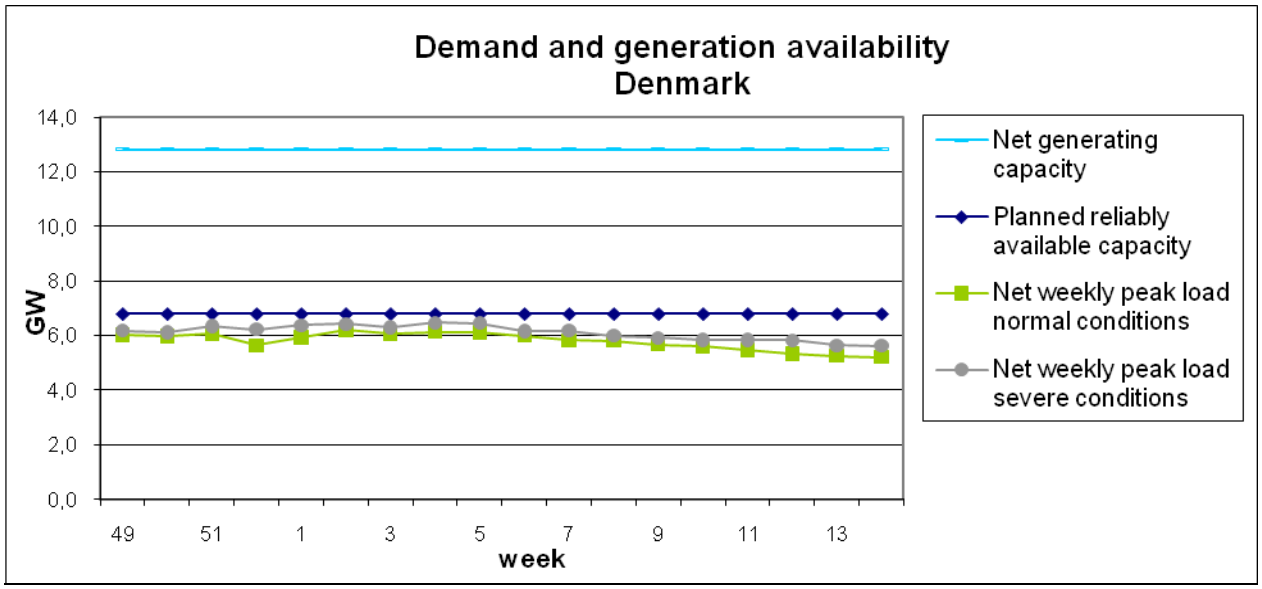
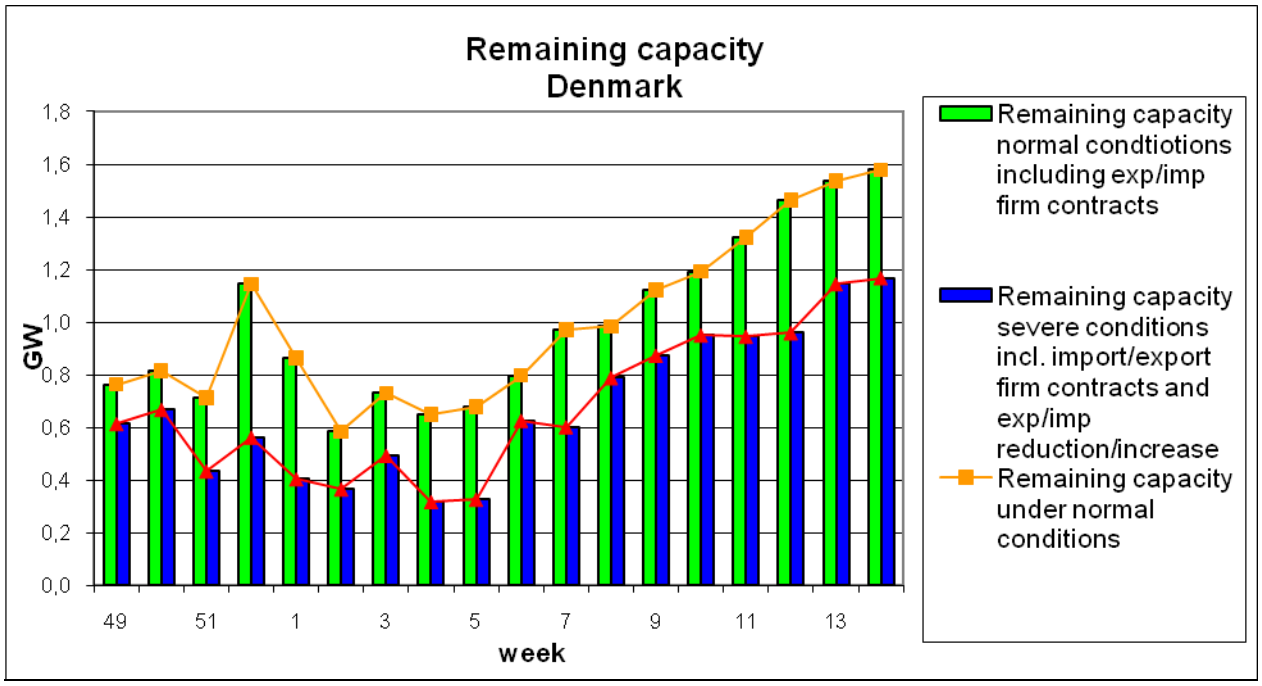
DENMARK





General Comments

The winter 2010/2011 is expected to be normal without any particular problems. The average remaining capacity for normal conditions until April is 1GW. The most critical week under normal conditions will be week 2 with a remaining capacity of 580MW. The least remaining capacity under severe conditions is 330MW in week 5. However, these numbers are calculated by ignoring all possible wind power and all import possibilities. Taking this into consideration, no special actions are planned or required for these weeks.

Generation – Demand balance

There will be some overhauls during spring 2011. However, overhaul plans are not adopted at the time of writing this report, so they are not included in this outlook.

There are several mothballed units with a total capacity of 1,16GW in Denmark. If it can be foreseen, that the balance should become critical, these units can be activated with a startup notice of some weeks.

Role of interconnection

Interconnection lines will be used as normal i.e. the flow will be based on differences in prices for the two Danish areas compared to Germany, Sweden and Norway.

The expected total import capacity of 4,53GW consists of:
- 1GW Skagerrak (NO - DK1)
- 0,68GW Konti-Skan (SE - DK1)
- 1,3GW Øresund, AC (SE - DK2)
- 0,6GW Kontek (DE- DK2)
- 0,95GW DE - DK1, AC

The expected total export capacity of 5,54GW consists of:
- 1GW Skagerrak (DK1, NO)
- 0,74GW Konti-Skan (DK1 - SE)
- 1,7GW Øresund, AC (DK2 - SE)
- 0,6GW Kontek (DK2 - DE)
- 1,5GW DK1 - DE, AC

In September, the new connection between Denmark east and Denmark west "Storebæltforbindelsen" was official opened. This connection helps both the market by aligning prices in the two areas and it increases also the security of supply by contributing to the Danish ancillary services.

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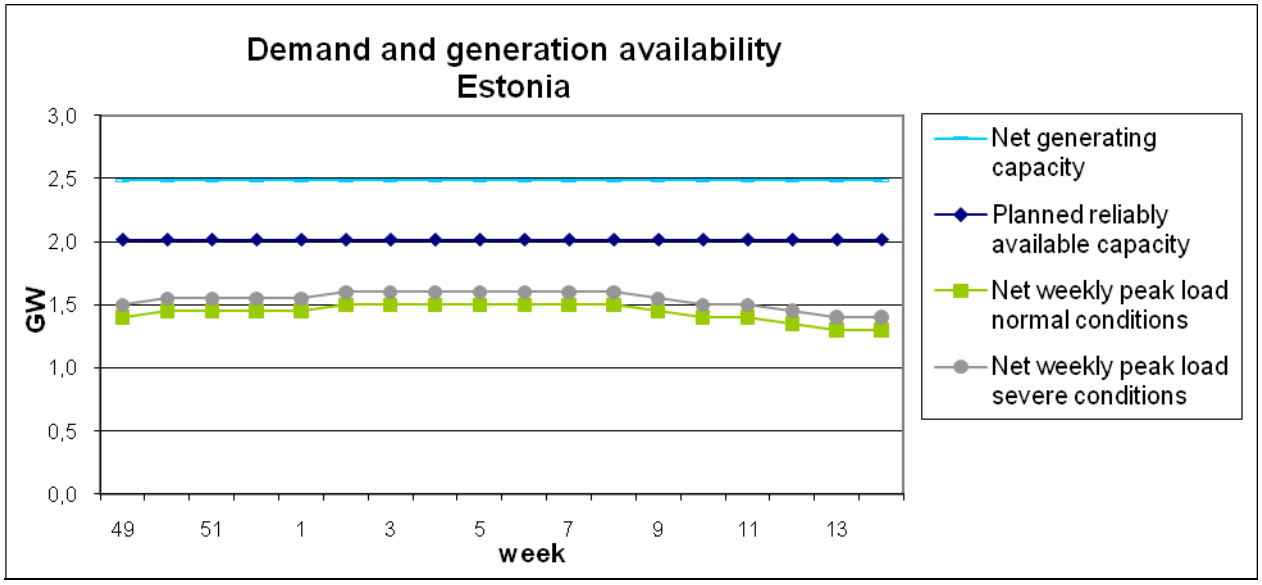
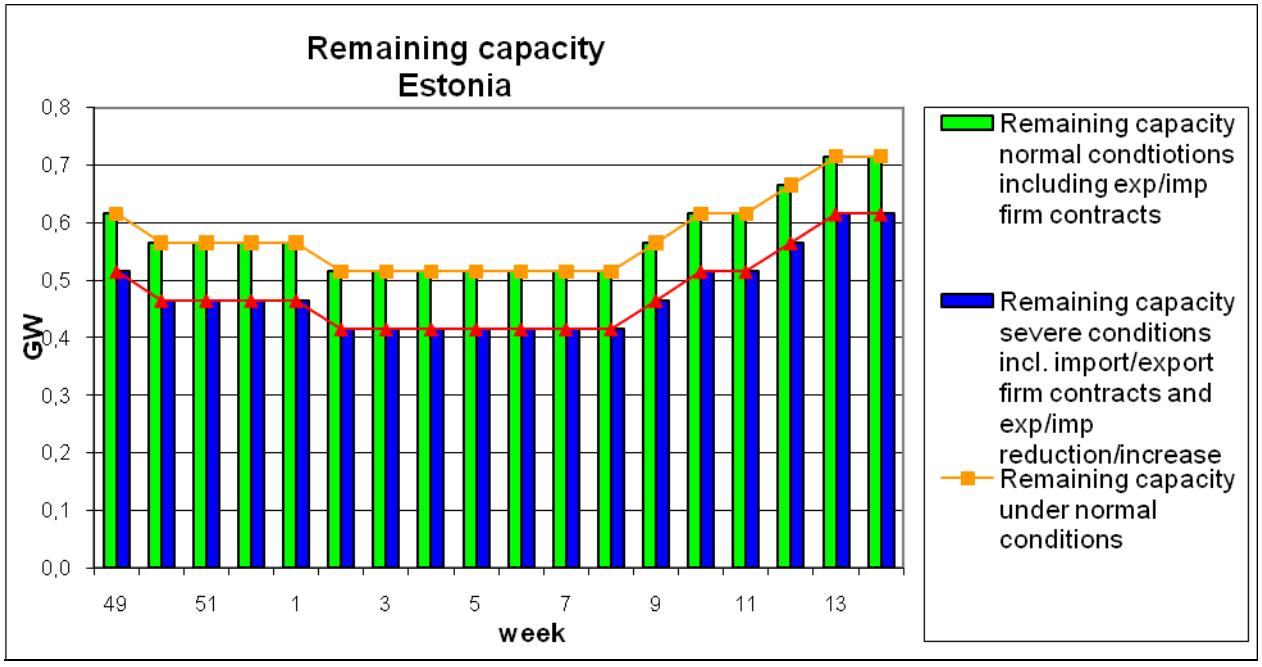
ESTONIA





General Comments

Elering OÜ expects that the generation capacity will be sufficient to meet the expected peak demand even in severe conditions.

Framework and the method

The availability of generation capacities is evaluated for the whole winter season, based on the data provided by producers. Wind parks are considered as non-usable generation capacity, therefore actual generation capacity availability can be up to 147 MW higher than considered in the assessment. Load forecast is based on statistical data.

Generation – Demand balance

National generating capacity during the coming winter season will remain the same as last winter.

Role of interconnection

All the existing transmission capacity between Estonia and neighbouring systems will be available during the coming winter season since no significant maintenance works in the network are planned for period from November until April.

Other infromations

In the current assessment wind parks are considered as non-usable generation capacity, therefore actual generation capacity availability can be up to 147 MW higher than considered in this assessment. Mothballed plants can be made available in 12 hours.

All the existing transmission capacity between Estonia and neighbouring systems will be available during the coming winter season since no significant maintenance works in the network are planned for period from November until April.

No significant events are expected during the winter, the remaining available capacity after covering the peak load in severe conditions is at least 25% of the peak load, which is considered sufficient to cover any unexpected occurrences.

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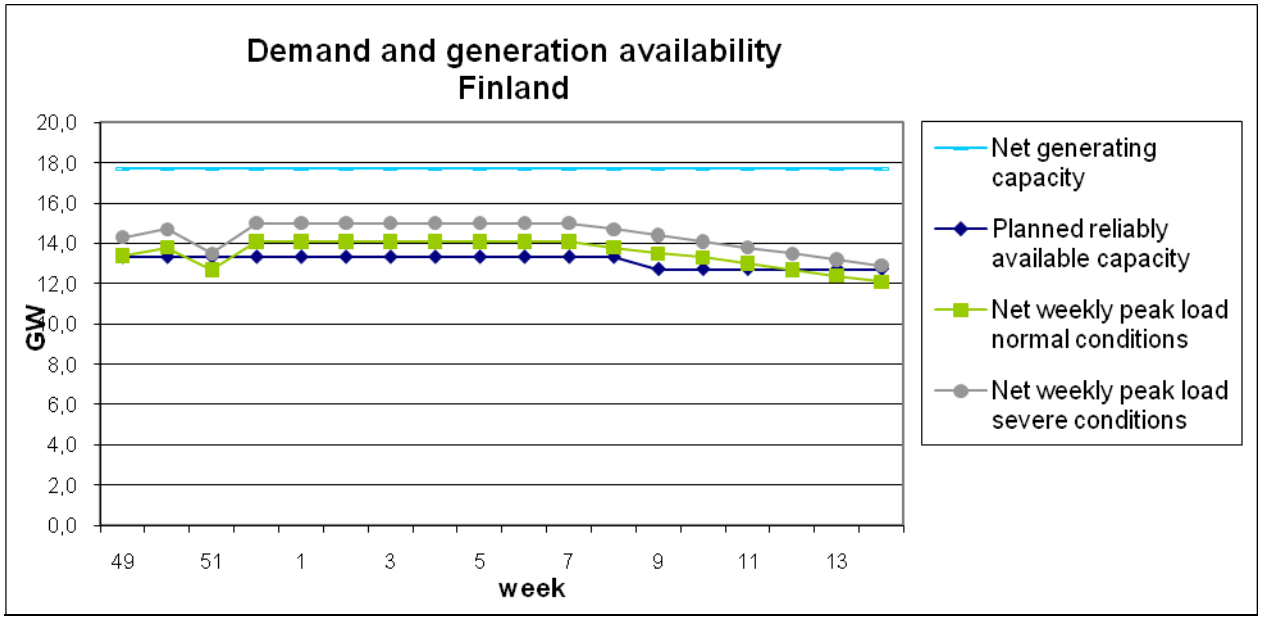
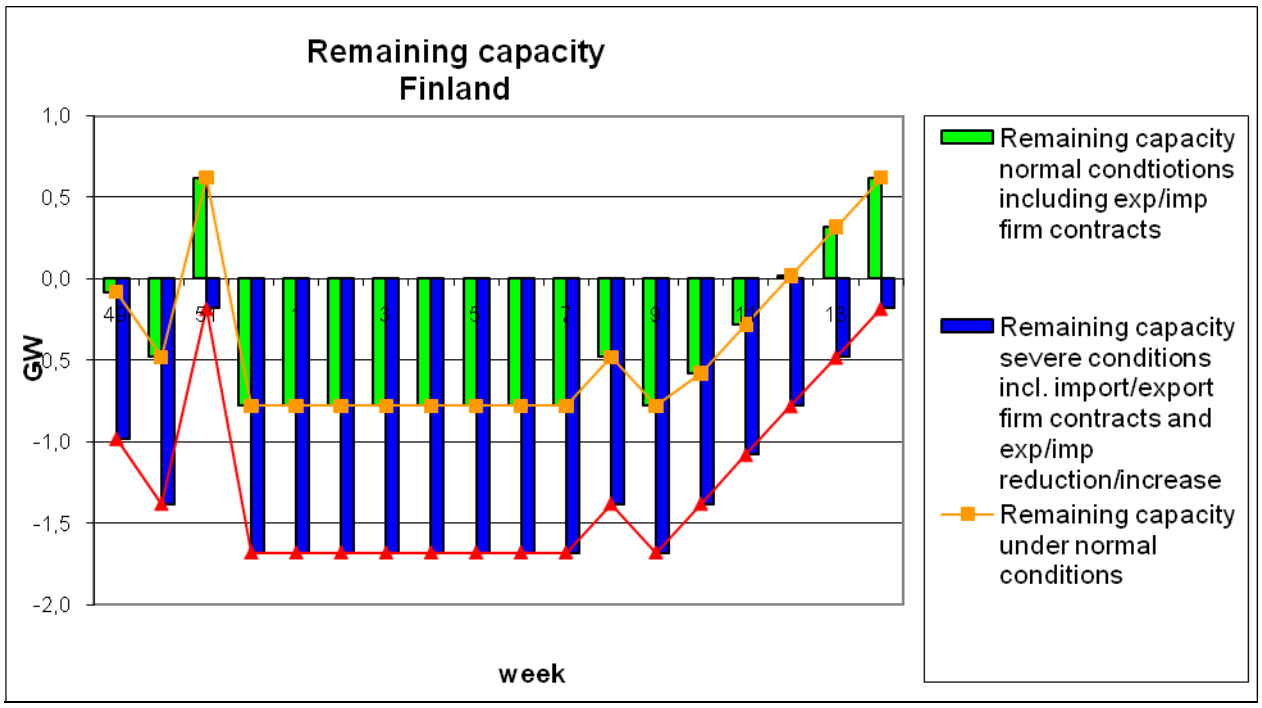
FINLAND





General Comments

Finland is a deficit area in the power balance and hence dependent on power import during peak hours even in normal temperature conditions. Cold weather increases the deficit. Finland is expected to manage the balance with the import possibilities from neighbouring systems.

Two new major CHP (Combined Heat and Power) plants have been put into operation during 2010. One of them replaced a smaller one resulting in only a small increase in capacity. In addition there were some new small CHP units, increases of output at one nuclear and several

hydro power plants and, new wind power. On the other hand according the the owner a few thermal power plants remain "mothballed".

During 2010 both energy and power demand has recovered fast after the economical recession in 2008-09. Assumed generation capacity increase is smaller than the estimated peak load increase resulting in increased deficit compared to the outlook made a year ago.

Framework and method used for making the winter adequacy assessment

The estimate is made on weekly basis. It is based on TSO's own experience.

Generation – Demand balance

Generation Available:

National generation capacity will remain unchanged during through the period under consideration.
Estimate on non-usable capacity is based on public information from producers and on TSO's own experience.
Except the wind power and mothballed units explained in 3.5 below, the non-usable capacity includes estimated reductions because of very different reasons; hydraulic and icing conditions in hydro power, the electrical output of CHP plants is reduced in cold conditions as more heat is needed, outages, etc.
Yearly overhauls are carried out outside the winter season.

In summary, available capacity is the TSO's estimate on the capacity which is available to the market during peak demand.
Outages are not estimated separately but included in the overall non-usable capacity.
System service reserves consists of frequency controlled reserves mainly kept in hydro power and, gas turbines for fast disturbance reserves.

Demand:

The peak load in the northern conditions may take place during any working day usually in January or February, sometimes even in December or the beginning of March. Hence the peak load estimate is kept the same for weeks 52 to 7. The estimation for the 18 weeks period is based on analysing corresponding weekly peak loads during the recent years.

Remaining capacity in normal conditions:

Remaining capacity is negative in normal conditions except the Christmas week and the last weeks at the end of the winter period. During the most probable period for winter peak load to occur the deficit is about 800 MW.

Severe load conditions:

The severe load conditions are assumed to correspond to cold conditions with a probability once in about ten years. Some 500 MW of demand response is assumed to exist in severe load conditions. It is clear that this is only applied in case the market price rises high enough. In severe peak load conditions the power deficit is some 900 MW bigger than in normal conditions, i.e. it is about 1700 MW at the most.

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Role of interconnection

During peak hours power balance in Finland is dependent on import. The interconnection capacity is sufficient to meet the power deficit.

All the existing transmission capacity between Finland and Sweden is foreseen to be available during the coming winter season. Export from Sweden to Finland could be reduced because of faults in the internal transmission connections, in the interconnections or in the major power plants in Southern Sweeden.

No reductions are expected in import from Russia, either. In addition to faults in the interconnection itself also severe faults in the generation or transmission connections in North-Western Russia might cause some restrictions in import.

The HVDC-link between Finland and Estonia, Estlink, is used for power exchange between the Baltic and the Nordic regions. No reductions are expected in the capacity. However, faults both in the link itself and in the transmission system could limit the transmission.

The market, i.e. the price, defines the import/export between the neighbouring systems.

Additional information

Cold conditions in winter result in peak demand. Cold weather also often means little or no wind. In this study six percent of the wind power capacity is assumed to be available during peak hours. In the whole Nordic area the records show that this six percent has probability of over 90%. For the time being, wind power capacity in Finland is small and hence the figure has no practical meaning, however.

The mothballed units include power plants their owners have informed to be placed into reduced start-up readiness (two months etc.) because of foreseen market conditions. With special contracts 600 MW of capacity in Finland is reserved as "Peak load power capacity". This capacity is available only from the beginning of December to the end of February. This capacity is included in the mothballed capacity from the beginning of March, i.e. weeks 9 to 14.

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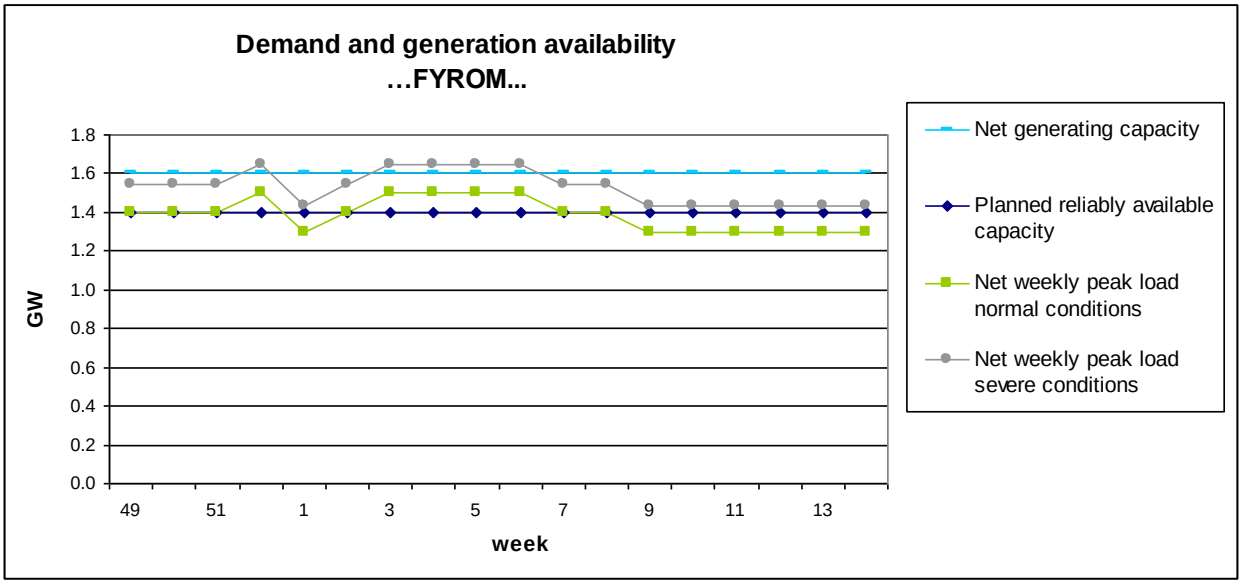
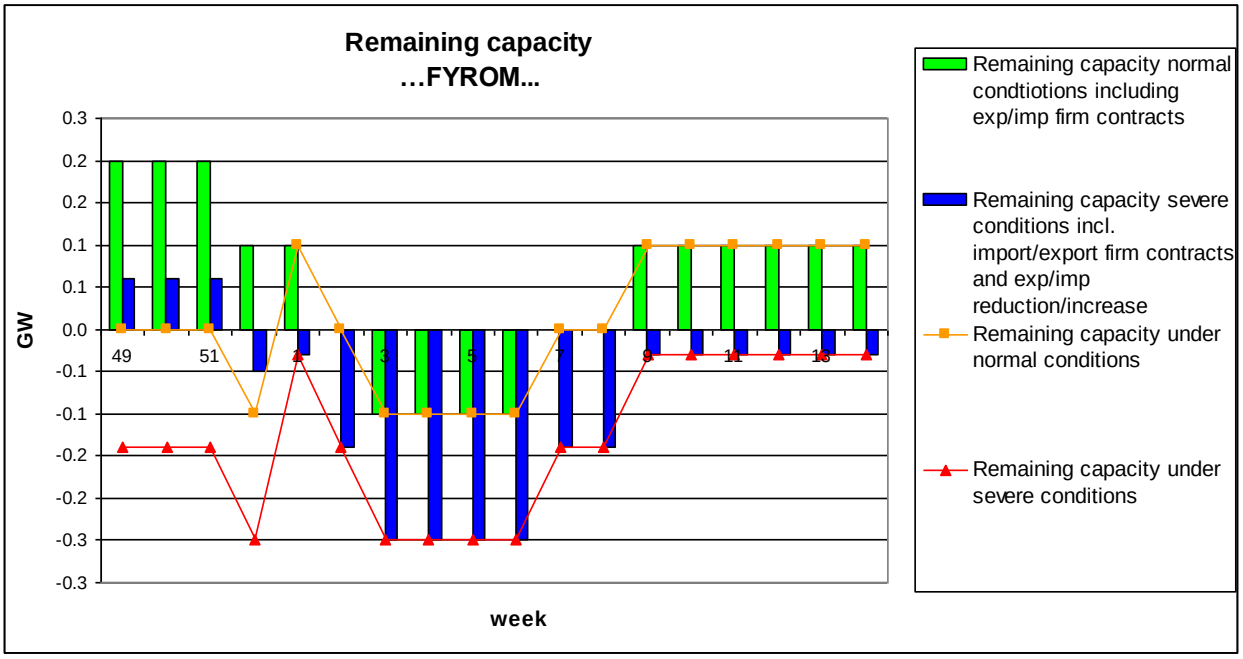
FORMER YUGOSLAV REPUBLIC OF MACEDONIA (FYROM)





General Comments

The operation of power system is expected to be secure and reliable over all winter period.

Till this winter, Macedonian electricity system mainly depends upon imports of energy to reach adequate balance between consumption and production/import. But this year a new Gas Power plant will be put in operation, so the import will decrease. We don't have data for import for 2011, so we couldn't put data for import for 2011in the tables.

From the point of view of system adequacy, load – generation balance will not be at risk during the next period of Winter 2010/2011 in the Macedonian System
Macedonian transmission network has well developed interconnections with neighbours: two 400 kV tie-lines with Greece and one 400 kV tie-line to Serbia. The new 400 kV interconnection to Bulgaria was commissioned at the end of 2008 . So, the operation of power system is now more secure than before and the transit through Macedonia increased. Also, increased the secure and reliable in the whole SEE region.

The overhauls of the interconnections and power plants were according to the plans which were coordinated with the other countries in the SEE region.

The water reservoirs are on very high level, because of the good hydrological conditions this year, so the HPP also contribute to the security of the system.

According to all these above, the generation-load balance on the Macedonian system will not be considered at risk, during the winter 2010-2011.

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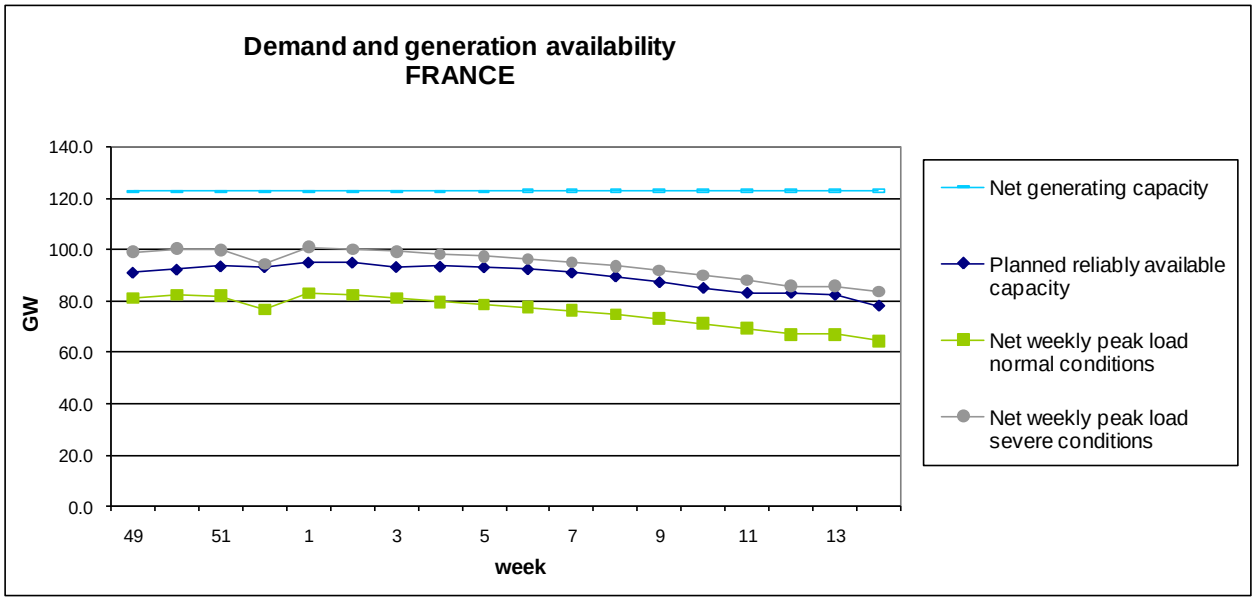
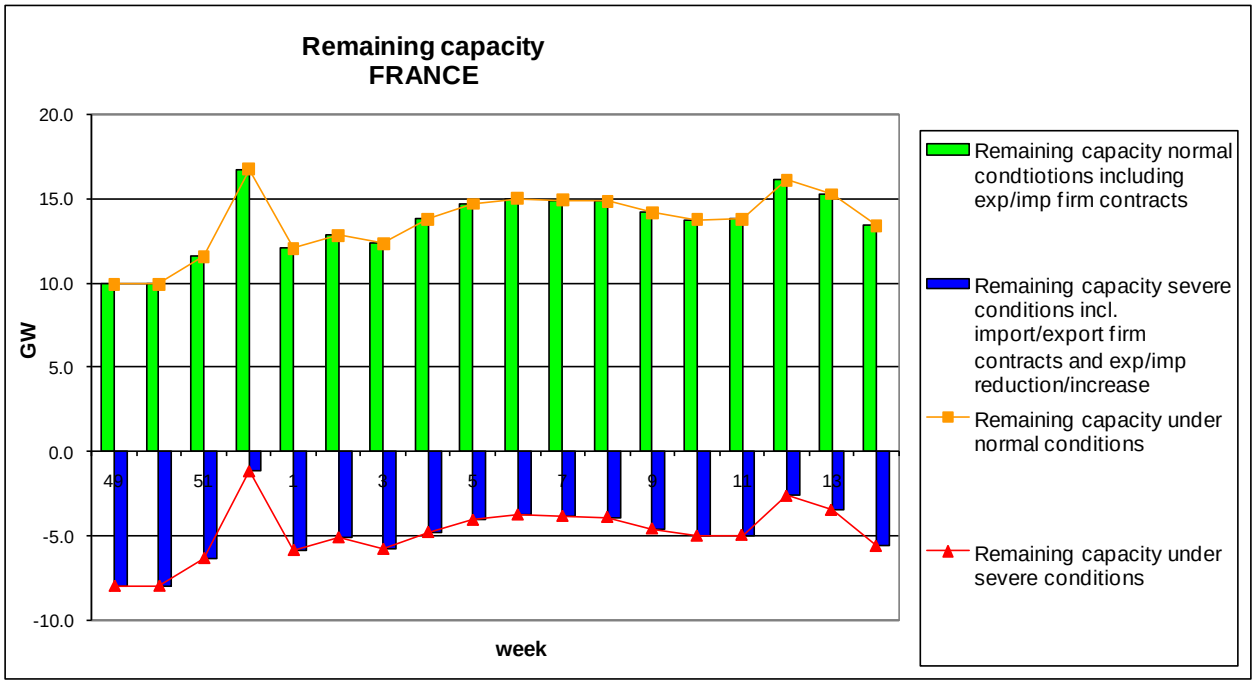
FRANCE





General Comments

An adequacy forecast study is carried out each year for the November-March period, using a probabilistic approach to simulate random situations of load and generation, covering the whole of mainland France. It is published on the RTE website.

This study is used to identify periods where the supply-demand balance comes under strain. It explores the measures that can be taken by electricity market players and RTE to avoid any interruption in the power supply during peak demand periods in France, due to a lack of market supply.

In concrete terms, the study considers the weekly peak loads and estimates the remaining generation margin. This margin is compared to a minimum level corresponding to a probability of 1% of not meeting the load. This level is calculated for each week.

The main risk factors are:

- The sensitivity of the load to low temperatures;
- Unplanned outages of generating units;
- Random levels of inflows to hydro generating units.

This study is reviewed at different time horizons.

Generation – Demand balance

The generating capacity should increase this winter thanks to more fossil fuel power stations and more wind power plants.

Non-usable capacity comprises, in addition to mothballed plants and wind power unavailability, reductions on hydro available power as well as on embedded generation.

For each week, the hydro inflows are supposed at their average value.

Overhauls are consistent with the last schedule given by the Generators to RTE (beginning of September). A sensitivity analysis can be carried out if needed.

Outages capacity is calculated considering the unavailability rates of thermal units.

The weekly peak load is calculated for normal conditions.

The net weekly peak load takes into account load restrictions corresponding to the statistical value of load reduction available for customers with special contracts. It does not account for customers' offers on the Balancing Mechanism.

The severe load scenario is built considering a temperature lower by 8°C than the season normal temperature. The temperature of our severe load scenario has been decreased (comparing to the 5°C below season normal temperature last year) due to the peak load recorded last winter at 8,4°C below season normal temperature.

System services are composed of primary, secondary and 15 minutes reserve.

RTE considers that the acceptable risk level is for a remaining capacity between 12.5 and 16.5 GW.

The risk level is more important at period of peak load.

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Role of interconnection

In case of climatic conditions much colder than the average, RTE may reduce its export capacity from France to Spain, due to low voltage problems. The value of such a curtailment depends on the consumption in South-Western France.

The export capacities to Belgium could be reduced, if loop flows happen on the French-Belgian border. This situation occurs when the wind energy generation is low in Northern Germany.

For this coming winter, the maximum import and export capacities are respectively around 9 GW and 15 GW. These values take into account the maintenance already planned on the network. Some additional operations on the network should happen.

Conclusion

Under normal conditions, the generation – load balance on the French system is not considered at risk for the coming winter. In December and January, imports should be needed in over 1% of the cases in order to cover electricity demand in France.

Under severe conditions, margins should be tighter, during all winter period. Therefore for this period, imports would be needed to a value lower the acceptable French network limits.

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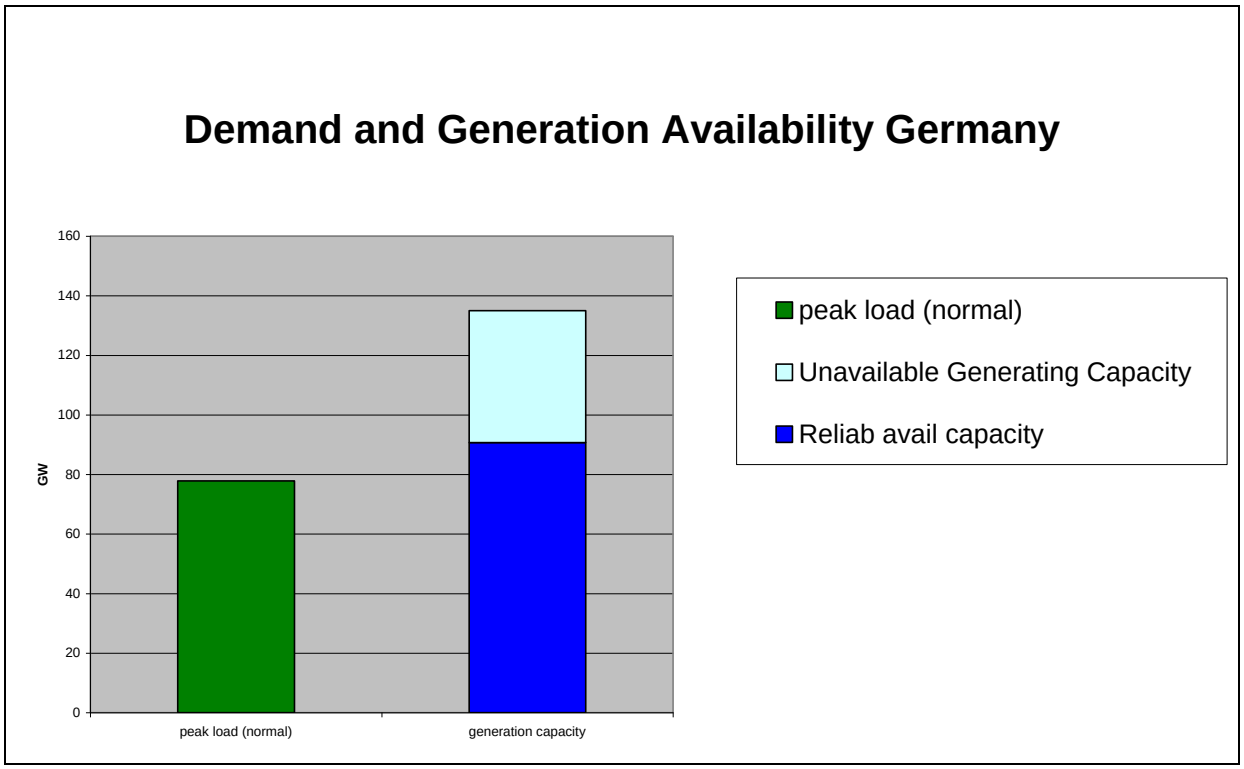
GERMANY



General Comments:

The German contribution to the ENTSO-E Winter Outlook Report 2010/2011 has been prepared on the basis of the 3rd Wednesday figures of January 2011 (estimated values) which have been delivered to ENTSO-E in the framework of the inquiry for the ENTSO-E System Adequacy Forecast 2010-2025 (according to the former UCTE Methodology).

It has to be pointed out that due to unbundling detailed information of elements of the power balance are not available for the German TSOs and thus a great many of the data required for Power Balance are estimations and approximations gained from experiences in the past before the liberalization of the electricity market (e. g. some elements of unavailable capacity; some parts of generating capacity, especially embedded generation).

The 3rd Wednesday figures available for January 2011 show a scenario for a typical winter month. The experience is that the situation is most severe in December and January and that the figures for January can be applied to December, too. The remaining months of October, November, February and March are usually not critical so that the given values are likely to represent the worst case.

Special remarks for the different control areas:

TenneT Control Area (former Transpower Control Area):

Bard 1, the first offshore windfarm in the TenneT TSO GmbH area connected by DC cable, will be put into operation during the winter months. In the final stage it will provide a net generation capacity of 400 MW.

Generally the installed wind power capacity in the TenneT area is increasing further. Thus the problems with large North-South power flows especially during extreme wind situations are expected to persist. A high demand for market-related measures like redispach during the winter will be the consequence.

Additionally, the Krümmel nuclear power plant in Northern Germany is scheduled to come back to service at the beginning of 2011. Its generation of 1350 MW is expected to sharpen the North-South power flow problem and further increase the demand for redispatch measures.

On the other hand network security is expected to benefit from the implementation of dynamic line rating which is started in the TenneT area during the winter months.

Shortages due to missing generation unit capacity are not expected.

50 Hertz Control Area:

Despite of the low amount of critical situations in the first Part of 2010, a further aggravation of the situation is expected due to the continuous strong increase of installed capacity in wind power plants. Additionally the installed capacity of solar power plants has risen drastically since 2009 and reaches a high importance for the system security in 2010.
The situation will become particularly critical if the mean feed-in power will again reach the magnitude of previous years.

Critical periods

In accordance with the large capacity installed in wind power plants in the Control Area of 50HzT, it is expected that in winter 2010/11 longer periods will occur during which network and market-related measures will have to be taken (within and beyond control areas) for complete integration of wind energy.
The average wind energy feed-in during the period from November 2009 to March 2010 in the control area of 50Hertz Transmission was 2129 MW based on estimations (Winter 2008/2009: 2110 MW). The highest feed-in of wind energy in this period was 9603MW also based on estimations. It occurred on 1st March 2010 (Winter 2008/09: 8257 MW).

Role of interconnections

In order to ensure the (N-1)-security, the interconnectors between 50HzT and PSE-O as well as between 50HzT and CEPS are not fully loaded. In exceptional cases, higher loads can be agreed temporarily. Due to the expected high wind supply in the control area of 50HzT, the interconnectors between 50HzT and TenneT will have to be operated frequently to the limits of their loading capacity.

Other issues

Extraordinary events and disconnections or outage of system-relevant operating equipment are not expected or known. Load-flow based allocation between Germany and Poland and between Germany and the Czech Republic of available transmission capacity (CEE region) is not likely to be introduced before spring 2011. Thus, like in the previous winter periods, the loading condition of the relevant interconnections is not likely to ease up during the winter of 2010/11. In December 2010 a common intraday allocation will be introduced between PSE-O, CEPS, SEPS, APG, TenneT and 50HzT.

Within autumn 2010 and winter 2010/11 effects of the new generation unit R at the power plant Boxberg with a capacity of about 625 MW has to be respected. The nuclear power stations of Brunsbüttel and Krümmel are likely to be out of service during the whole winter 2010/11.

EnBW Control Area:

Particular non-availability is not expected in terms of feed-in from power plants.

Large North-South power flows may still occur under certain conditions of strong wind.

Due to the congestion management existing for the borders between D/CH and D/F, it is possible to appropriately limit these power flows by a reduction of the „C function".
Under particular meteorological conditions, ice loads on conductors as well as galloping may occur. However, it is not possible to predict the probability of occurrence of these effects.

Amprion Control Area:

Due to existing market models, it is not possible to provide detailed information. Predictable events, like revisions, are supposed to have been priced in and thus taken into consideration.

High wind feed-in in combination with low load conditions (weekend and bank holidays) may lead to negative energy prices (EPEX). High wind feed-in usually leads to high North-South power flows. This can lead to an increased use of redispatch measures.

The economic crisis has had an impact on the demand for electricity, but a return to normal load situations as prior to the economic crisis is expected.

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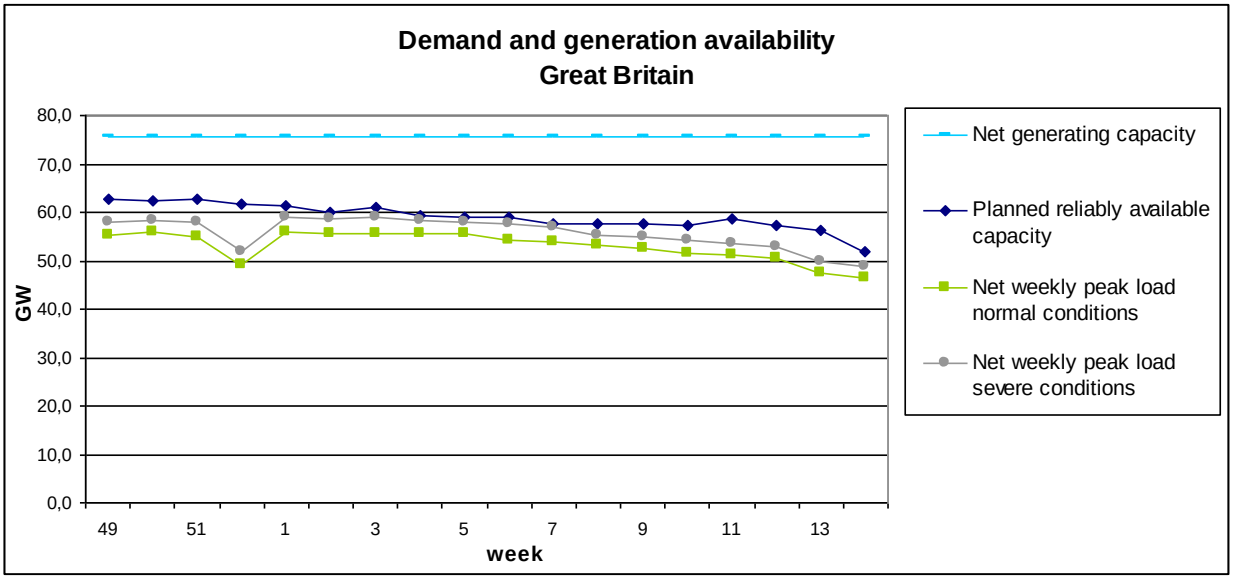
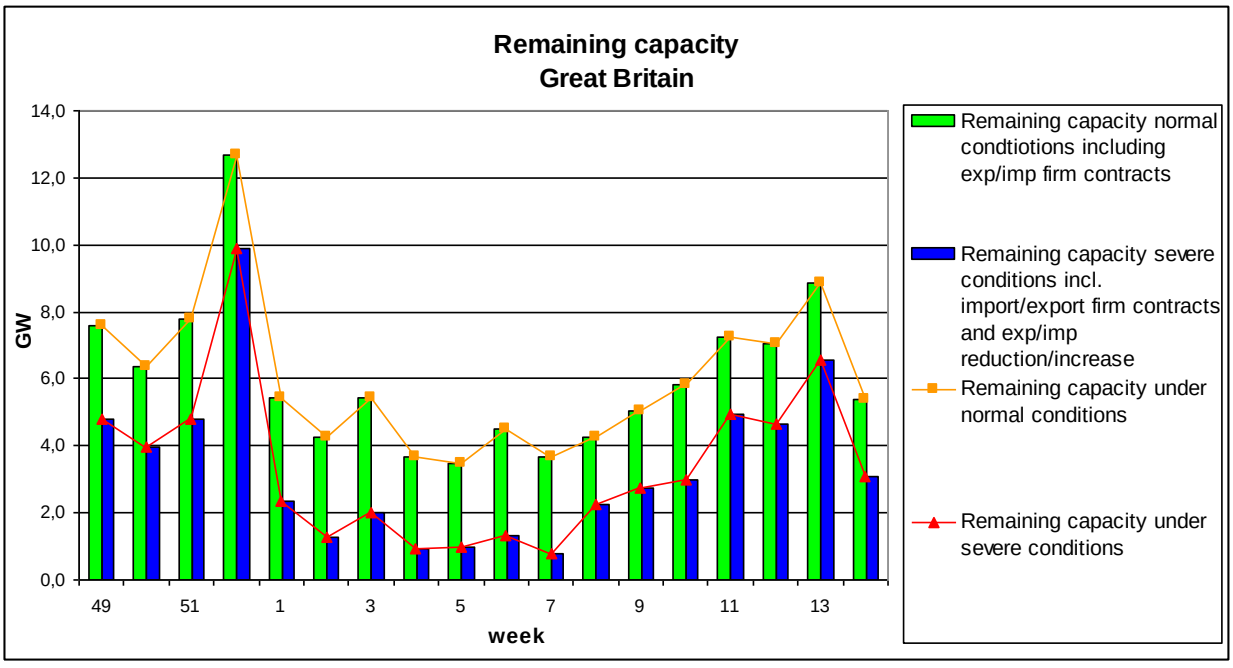
GREAT BRITAIN





General Comments

Apart from the two week Christmas and New Year period, the critical time is December and January when underlying demand will be at its highest and when a period of cold weather is most likely. However, there is sufficient capacity to meet forecast demand including reserve if 1 in 20 cold weather conditions occurred at any time over the winter as long as exports to France were not required over the peak.

Framework and method used to make the winter adequacy assessment

The winter has been studied on a weekly basis using a deterministic approach to forecasting normal weekly peak demand and a probabilistic method to forecast 1 in 20 cold weather demands. Available generation is assessed on the basis of the generators submitted outage plans with an allowance for unplanned outages and shortfalls based on recent history.

Generation – Demand balance

The generation – demand balance is not considered to be at risk this winter. Underlying demands have been forecast to remain unchanged from last year's levels on the basis of the continuing effects of the economic recession. A conservative view of available generation has been adopted by excluding three new gas fired power stations that are currently being commissioned. This means plant availability could be up to 4 GW higher than assumed. In the very low risk probability of demand exceeding the 1 in 20 cold weather level and none of the commissioning plants being available, the system would be managed by encouraging generators to improve plant availability by issuing forecast margin information sufficiently far in advance.

Role of interconnection

The Irish interconnector normally takes power from Great Britain but it has been assumed to be at float over the winter peaks in line with history from recent winters. Power on the interconnector with France flows in accordance with the energy traded by market participants and the net flow can be in either direction at up to 2000 MW. In previous winters there was a strong financial incentive on users of the interconnector to avoid exporting over the winter peaks but the incentive has now been removed by a change to the charging arrangements. There is therefore a risk of exports to France over the peaks. This is manageable in all scenarios except the 1 in 20 or worse cold weather conditions when exports could erode some of the reserve requirements unless other actions were taken. The new 1000 MW interconnector between the GB and the Netherlands may start commissioning over the winter but the commissioning programme will avoid exporting power from the GB over the peaks.

Aditional information

The contribution from wind powered generation has been assumed to be 10% of the currently installed capacity based on historic levels of wind generation at previous winter peaks. This amounts to only 0.3 GW and is therefore not significant. Generation from hydro plant is also uncertain as it is generally run of river and dependant on levels of rainfall. A conservative assumption of 60%, which amounts to 0.6 GW, has been made in line with the average from previous winters. Due to a transmission capacity limit between Scotland and England, there is a risk that some generation in Scotland may be sterilised, particularly during periods of high wind generation. However, this has been accounted for in the reserve requirements. A gas supply shortage is not envisaged this winter but in this event, the generators would normally be expected to respond to increasing gas prices by reducing load on gas fired plant through switching to distillate and pulling back overnight. This would reduce gas consumption without affecting generation availability for the daily demand peaks.

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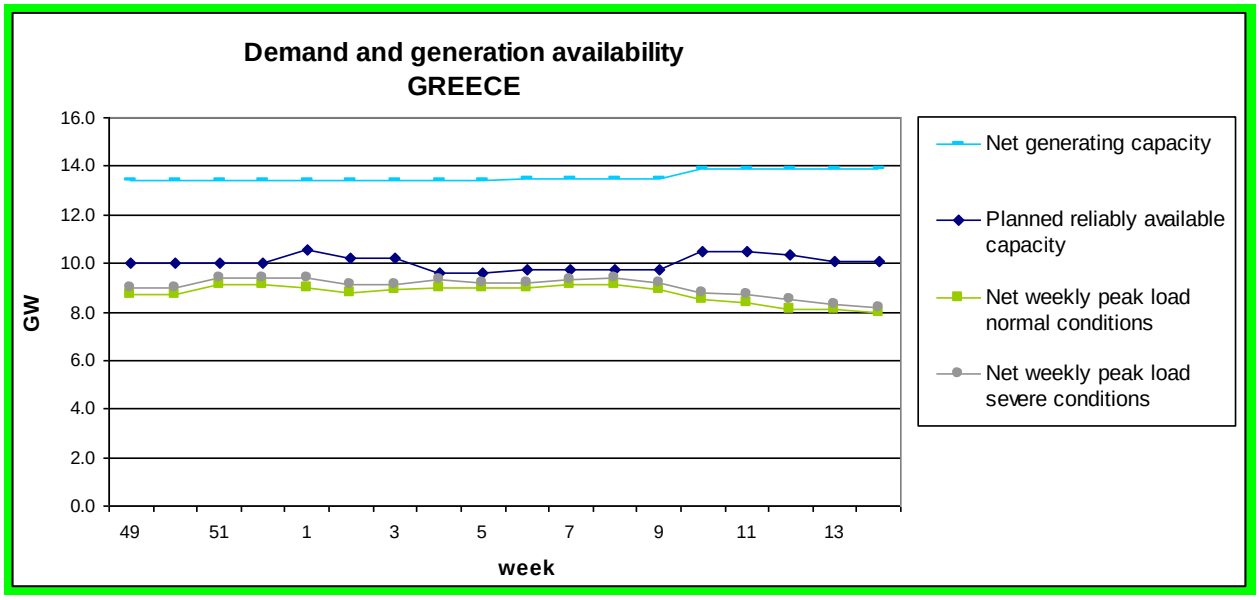
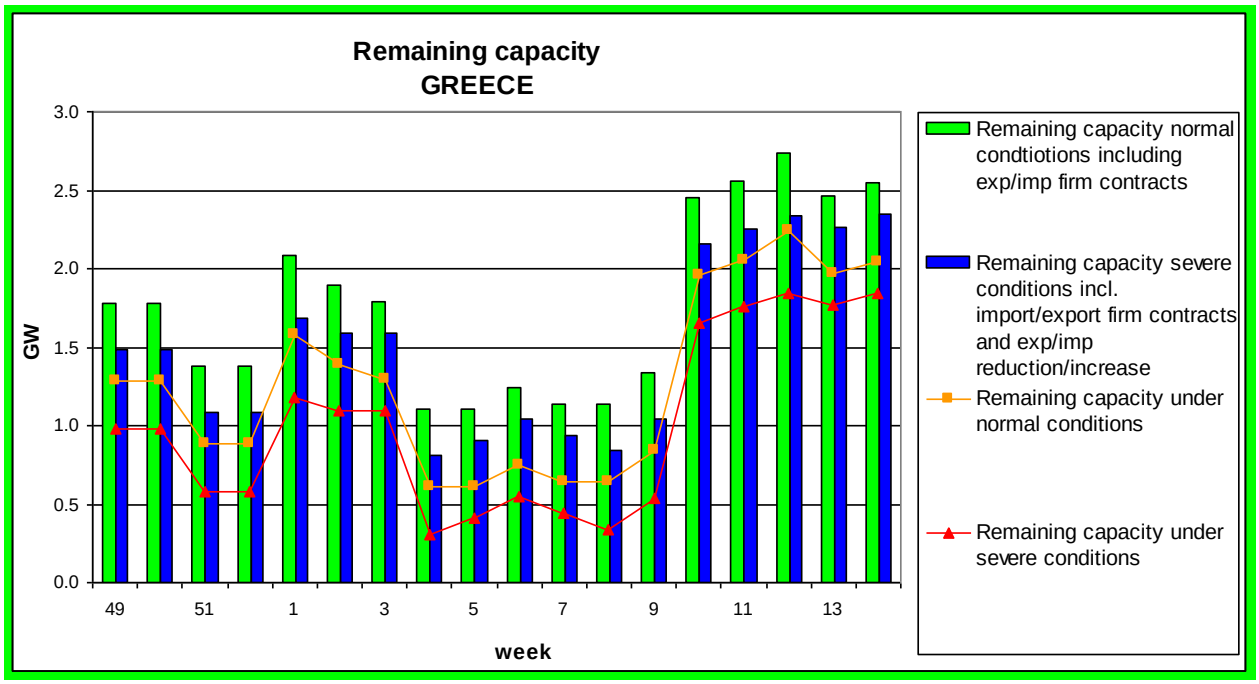
GREECE





General Comments

For the upcoming winter season 2010 - 2011, it is considered that the adequacy and security of the Greek interconnected system is not threatened under normal weather conditions, taking into account the available importable capacity of interconnections.

Strengthening of northern interconnections (the new 400KV connection between the neighbouring systems of Greece and Turkey) will increase the capacity from the northern

neighbouring systems. This has a positive effect on the facilitation of energy exchanges in the region.

The most critical period remains during December and January. Moderate imports are needed to meet our operating criteria under normal conditions.
In case of severe conditions, the usage of the maximum available import capacity of the interconnections will be needed.

Extreme conditions are not expected for the winter season. That case is more probabilistic for the summer season and in this case additional measures may be applied.

The Greek system is expected to be in balance in the upcoming winter period (2010-2011). The expected commissioning of a new unit in the system, the good hydraulic storage of hydropower stations and the strengthening of the northern interconnections ensure the adequacy and security of the Greek interconnected System, which is not threatened under normal weather conditions.

In long term, a five year System Load Forecast study covering both energy and yearly peak load is carried out every year. The results are included in the study for Transmission System Expansion Plan issued by HTSO and published upon approval of the Regulatory Authority for Energy and the Ministry of Development of Greece. In this frame, monthly peaks are also calculated.

In medium and short term, HTSO conducts studies concerning the Generation Adequacy Assessment. The studies include load forecasts and multiple scenarios on energy management using deterministic methods. The energy management studies aims at checking the actual energy situation and the level of hydro reserves. These studies are regularly revised to include mainly variations in the load and/or the availability of the thermal units.

The HTSO uses the power balance studies to assess the system adequacy in very short term, so the required information, on a weekly basis for the winter period, is not currently available.

To underline the most critical periods of next winter, this report focuses on the monthly peak demand. The power balance is based on the results of the UCTE System Adequacy Report – Forecast 2008-2020 and on the HTSO energy management studies for the generation adequacy report, in addition to the experience of HTSO's personnel responsible for the System Operation.

Concerning the national generating capacity, the total net output thermal capacity will be increased by one unit of 400 MW, in relation to the previous year. This new thermal unit in the combination with the good hydraulic storage of hydropower stations and the strengthening of the northern interconnection lines ensure the balance of Greek system.

A provisional overhaul schedule of the thermal power plants for the next year is communicated to HTSO by the generators. The final schedule will be agreed between the HTSO and the generators, having taken into account the forecasts carried out by the HTSO. The overhauls of the thermal power plants are avoided during periods of high demand. In this assessment the provisional overhaul schedule of the thermal units has been considered. As for the overhauls of the hydro power plants, they are implemented during periods of low use, that is low water reserves or low load periods. Therefore, the scheduled outages of the hydro power plants do not affect the remaining generating capacity.

In this assessment, the unavailability of the thermal power plants due to forced outages has been calculated according to the provisions of the new 'Grid Operating and Power Exchange Code'. The forced outage rate of the thermal generating units is expressed by the Equivalent Demand Forced Outage Rate (EFORd). According to the calculations, a usually made

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assumption of two typical large units of 300MW each is considered out of operation due to forced outages.

The non usable capacity includes mainly capacity of wind power plants. The hydro conditions were very well this year so the water reserves are in the sufficient level. The water management aims at saving the water reserves to use them at the peak demand and only for irrigation requirements. As for the capacity of the wind power plants, an average of 78% is non usable at the winter peak.

The monthly peak load is calculated both for normal and severe conditions. Monthly peaks, as well as yearly peaks highly depend on weather conditions, mostly temperature. A statistical approach is followed based on recorded hourly load and temperature data covering the period since 1997. For the winter peak load, the dependency of the load on the temperature averages 150 MW/C.

The load is the sum of two components. The first one reflects the load sensitivity to the weather (temperature, humidity), while the other one is dependent on miscellaneous effects (financial and human activities) The net monthly peak load calculated for normal conditions represents the 90% probability of not exceeding forecasted maximum, while in severe conditions the respective probability is 97.7%. The losses of the transmission system are included in the monthly peak load.

The financial crisis has lowered the expectations to electricity consumption which has improved the balance.

Load reduction is available upon decision of the Ministry of Development and the Regulatory Authority for Energy, but in this report it is consider no load reduction measures. System services include primary, secondary and tertiary reserve according to the UCTE OH Policy 1.

HTSO does not expect any congestion problem on the system (mainly on interconnection) for the forthcoming winter.

No issues on power imports from neighbouring countries were recorded and there was no reduction in electricity supply.

During the period December-January the plants outages will be minimized and the maintenance schedule will be interrupted.

On the 18th of September the Turkish power system was connected to the ENTSO-E/ RGCE system with one line from Greece and two lines from Bulgaria. The trial parallel operation will be from 18/09/2010 till 17/09/2011. After this new intercon-nection, the total capacity of all north interconnections increased and the system will be done more stable.

This year

The NTC of North Greek interconnections for imports, a mean estimation of which is in total 1200MW, is allocated to the market participants by long and short term explicit auctions. The notification for the usage of the long term allocated capacity is made during day ahead according to the auction rules. By experience, the firm contracts from the long term allocated capacity are estimated at 400-600MW.

For the period, December - February the notified interconnection capacity is expected to be low. Therefore, the final maintenance schedule for the thermal units may change in order to avoid

unit maintenance during winter peaks. According to the HTSO estimation, a remaining capacity of 600MW is necessary for the adequate and secure operation of the system.

1) The expected increase in penetration of wind in the main land will need additional meters (scheme) to the control. At the periods of high wind and low demand it will be necessary on a few occasions to constrain wind generation.
2) There are some issues concerning the oscillations of energy on the new tie-line between HTSO and TEIAS which maybe there is possibility to have an impact on the capacity of the tie-lines.
3) It is noticed that the economic crisis in Greece have a significant impact on the demand, so there is no possibility to make accurate forecasts of the load

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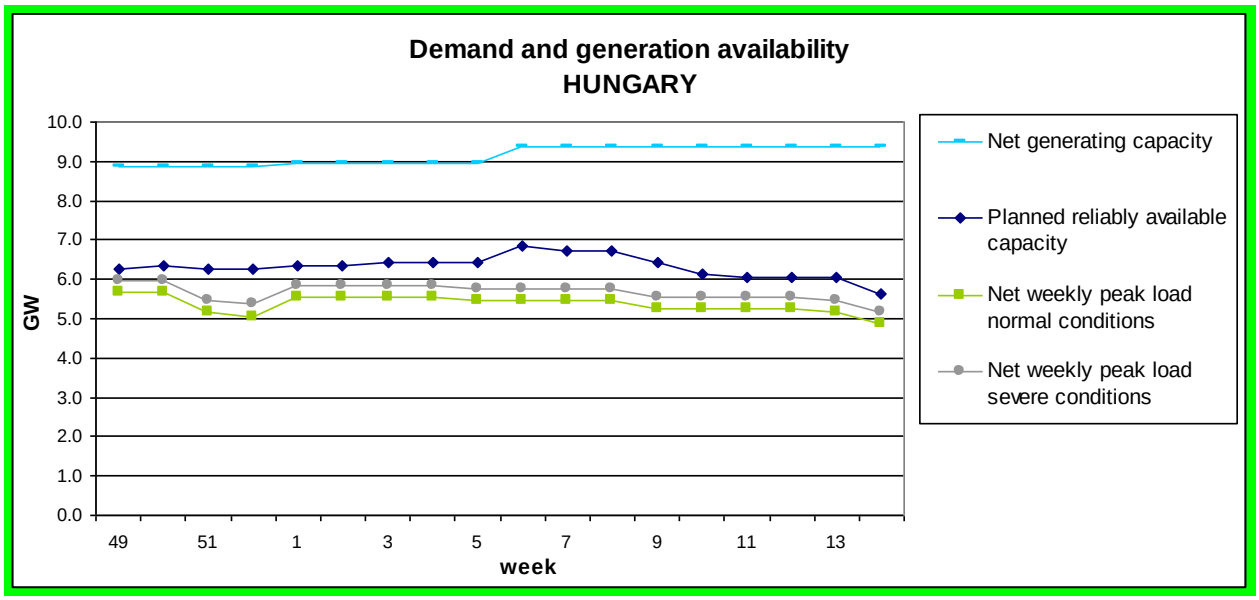
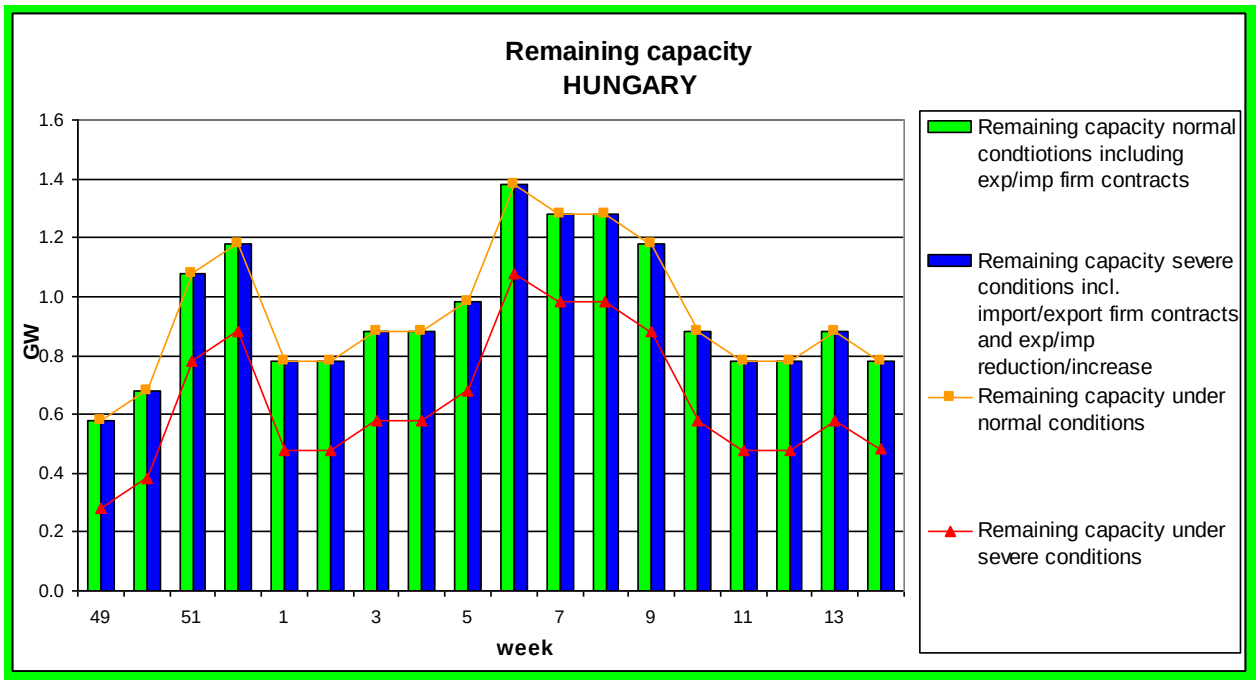
HUNGARY





General Comments

In spite of the growing uncertainty on both generation and demand side, as a result of liberalisation on the one hand, and promotion of intermitted generation on the other, the Hungarian power system is expected to be on the safe side during the next winter period.

However, there are a few risks that must be carefully managed by the TSO. These risks are:

- Availability of fuel, first of all that of natural gas. During long-lasting cold winter periods, demand for natural gas becomes very high at households and at power plants at the same time. Therefore, a well-functioning gas market, as well as satisfactory replacement fuel reserves at generators is essential to keep the lights on. A high capacity gas storage was built, so that the security of the gas supply could be increased.
- The required level of remaining capacity can only be guaranteed by a certain amount of import, mainly under severe conditions. Cross-border exchange is a matter of economy for market players. Their decision-making can be influenced by contractual conditions, e.g. on reserves.
- Overall cross-border capacity is satisfactory; however, allocation of cross-border capacity rights on the respective border sections may be an issue.

The reference adequacy margin at weekly peak is 0.5 GW, the capacity of the largest generation unit in the power system.

The Hungarian TSO (MAVIR Hungarian Transmission System Operator Co.) maintains a deterministic yearly rolling capacity plan.
For this purpose, load forecast, generation outage schedules, required cross-border exchange of electricity, forecasted production of intermitted generators are determined on a daily basis. The necessary data and information comes from the statistical database of the TSO itself, or from the generating companies and other market participants.
There are three scenarios for average, severe minimum and severe maximum loads.
The necessary reserve level is determined in accordance with the procedure described in ENTSO-E RG CE Operation Handbook, taking into consideration the specialties of the Hungarian power system.
The plan is updated and published monthly on the web-site of MAVIR, combined with actual data.

Generation capacity

Hydro generation is not considerable unfortunately. Mothballed capacities are practically not available under any circumstances. Renewable energy (mainly biomass, but lately increasing amount of wind, too) and co-generation has a growing portion in the generation mix (over 23 %), and their operation is very much legislation-sensitive, i.e. difficult to predict – take-off is obligatory, on regulated prices (feed-in tariff). Wind generation is growing (0.3 GW at the moment), but due to its low availability, it is not taken into account in the balance (i.e. calculated as non-usable capacity at peak load.)
In 2011, new units will come into operation: a CCGT unit with a capacity of 430 MW, and two OCGT units with a total capacity of 120 MW. These will improve system stability due to their higher response rate.

Demand

Overall demand level depends on the state of economy. Weather sensitive extremes can be handled by using different scenarios. Demand-side management is an efficient tool, but it is in the hands of the supply companies – therefore this is a considerable uncertainty for the TSO, resulting in higher reserve requirement.

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Ancillary services (reserves)

Our requirement for primary, secondary and tertiary reserve is calculated with respect to the ENTSO-E RG CE OH Policy 1, taking into consideration the Hungarian specialties. (See the note on demand!)

Remaining capacity

Secure operation requires at least 0.5 GW of remaining capacity during the weekly peak demand periods, even under severe conditions (i.e. the capacity of the largest generation unit in the power system.)

Interconnection capacity

The import/export capacities, stated in the excel table, are not NTC values. Since the Hungarian Power System is a part of the highly meshed Central-European network, volatile transit flows are comparable to those values. Therefore cross-border trade is considerably limited by transit flows. However, cross-border capacity is most of the time available for the necessary amount of import.

International exchange

The Hungarian electricity market is traditionally import-oriented, the import ratio is high. After liberalisation had been completed, international exchange became much more sensitive to market conditions, even in short-term. The Hungarian TSO does its best to stimulate, or even oblige market players through market rules (pricing of balancing energy) and contracts (on provision of reserve power) to ensure the required level of import, in order to guarantee reliability of the power system. For the time being, high amount of import energy is available on the market, which increases security.

ICELAND

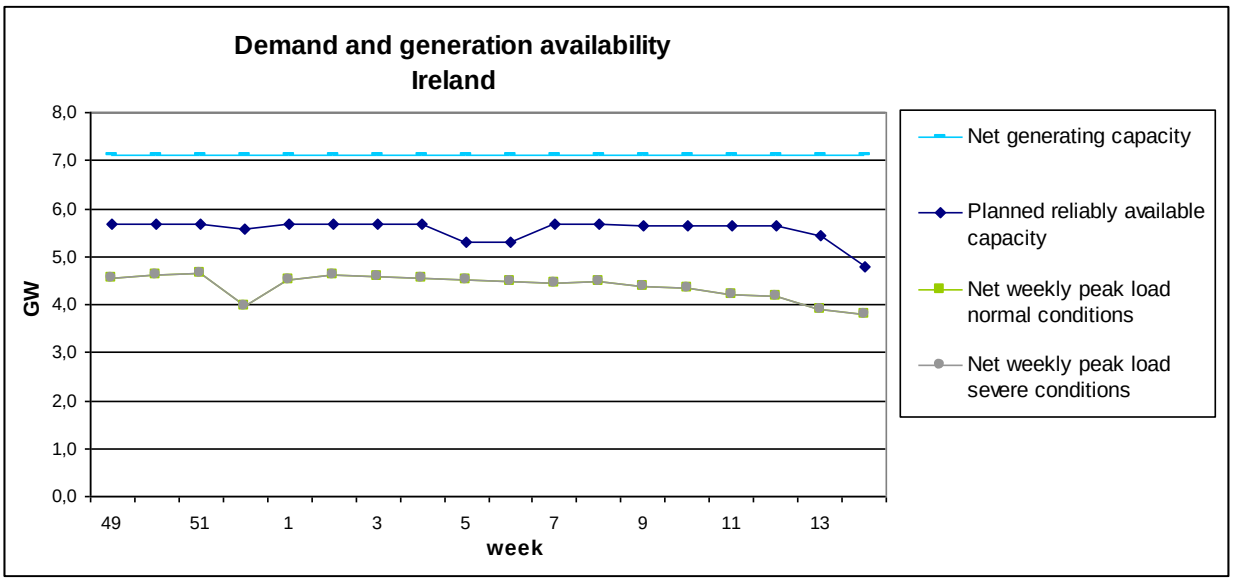
General Comments

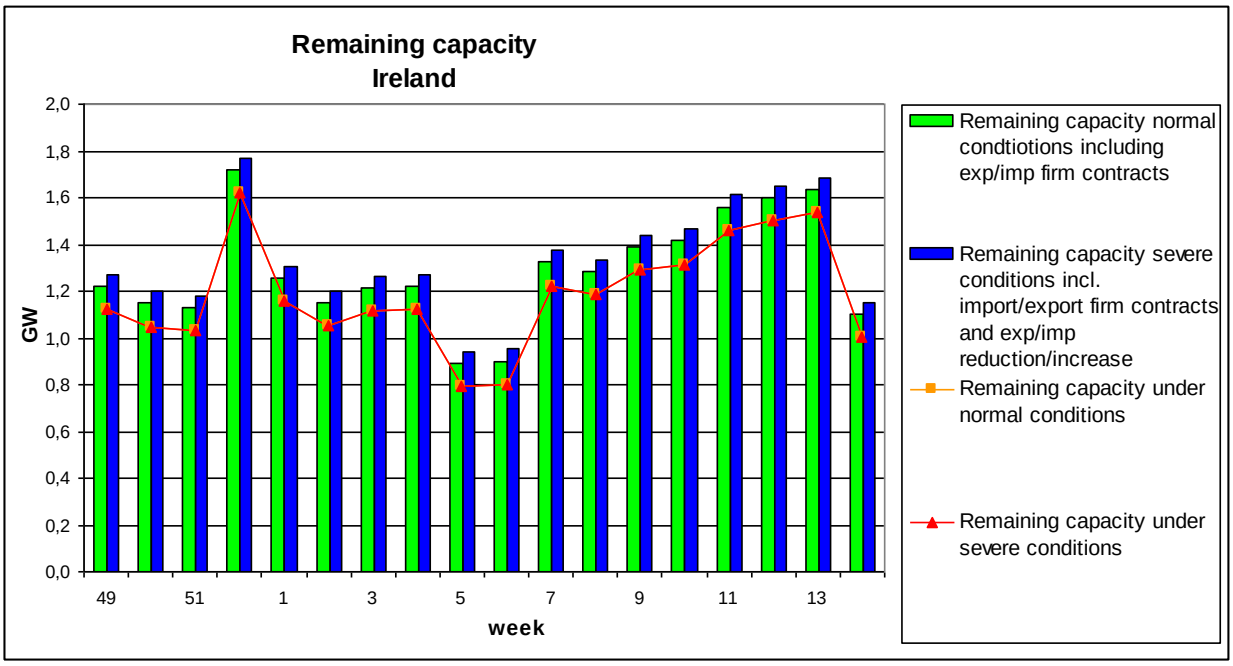
The generation capacity in Iceland is expected to be sufficient to meet peak demand this winter under normal as well as severe conditions. Landsnet does not anticipate any particular problems in the isolated Icelandic power system.

The installed generation capacity connected to the Icelandic transmission system is 2.4 GW, of which 77% is hydro based and 23% based on geothermal energy. No new generating capacity is planned this winter.

Long term Generation Capacity Assessment and Load Forecast for the Icelandic power system are made by Landsnet every year and reported in the Transmission System Development Plan and Energy and Power Balance report. For short term assessment, studies are made by Landsnet on a weekly basis for Generation Capacity, Reserves and Load Forecast.

IRELAND





General Comments

EirGrid carry out a Winter Outlook analysis every year in July and publish a Winter Outlook Report. Deterministic and probabilistic analyses are carried out. In examining capacity adequacy, EirGrid met all the generators and discussed the performance of the units and the expected availability of the units for the winter period. This year the report looks at the period from November 2010 to March 2011, with the following key assumptions:

- The installed conventional generation capacity will be 6,792 MW of dispatchable plant. The capacity figure also does not allow for any forced outages which could be expected in the winter period. Generation unit performance, and specifically Forced Outage Probabilities, are based on past performance and EirGrid's discussions with the generators. The system average Forced Outage Rate for the analysis is 8%.

- The installed capacity of wind generation is expected to increase to almost 1,800 MW over the coming winter, giving an average capacity credit of 274 MW.

- The generation portfolio on the island of Ireland is scheduled for dispatch as one entity rather than two separate systems. Imports from Northern Ireland provide an important contribution towards the ability to meet system demand in Ireland. The level available at any point in time is dependent on the generation availability in Northern Ireland, the status of the Moyle interconnector (from Northern Ireland to Scotland) and the status of the transmission network on both the Irish and Northern Ireland systems. Consistent with previous years, the analysis has assumed that 200MW of capacity is available from Northern Ireland.

- While the economic climate has had a negative effect on electricity demand growth, the extreme cold weather in early 2010 saw an unexpectedly high peak of 4950 MW on Thursday 7th January 2010. All factors considered, it is anticipated that the peak demand for winter 2010/2011 will be approximately 4650 MW (6% lower than last year's peak).

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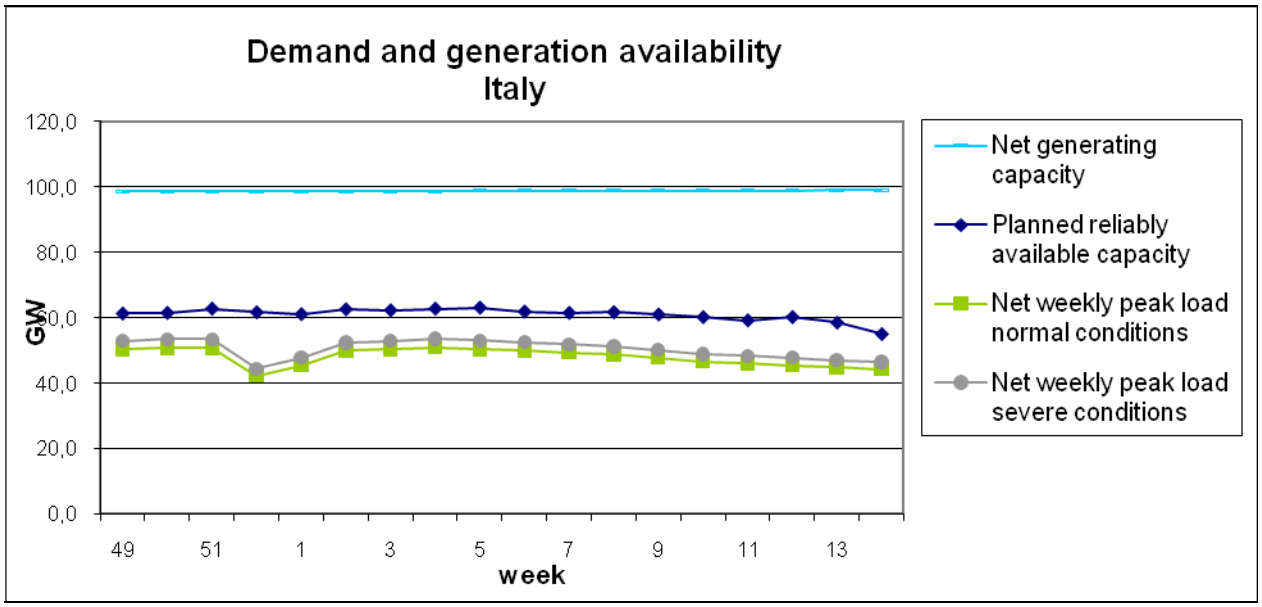
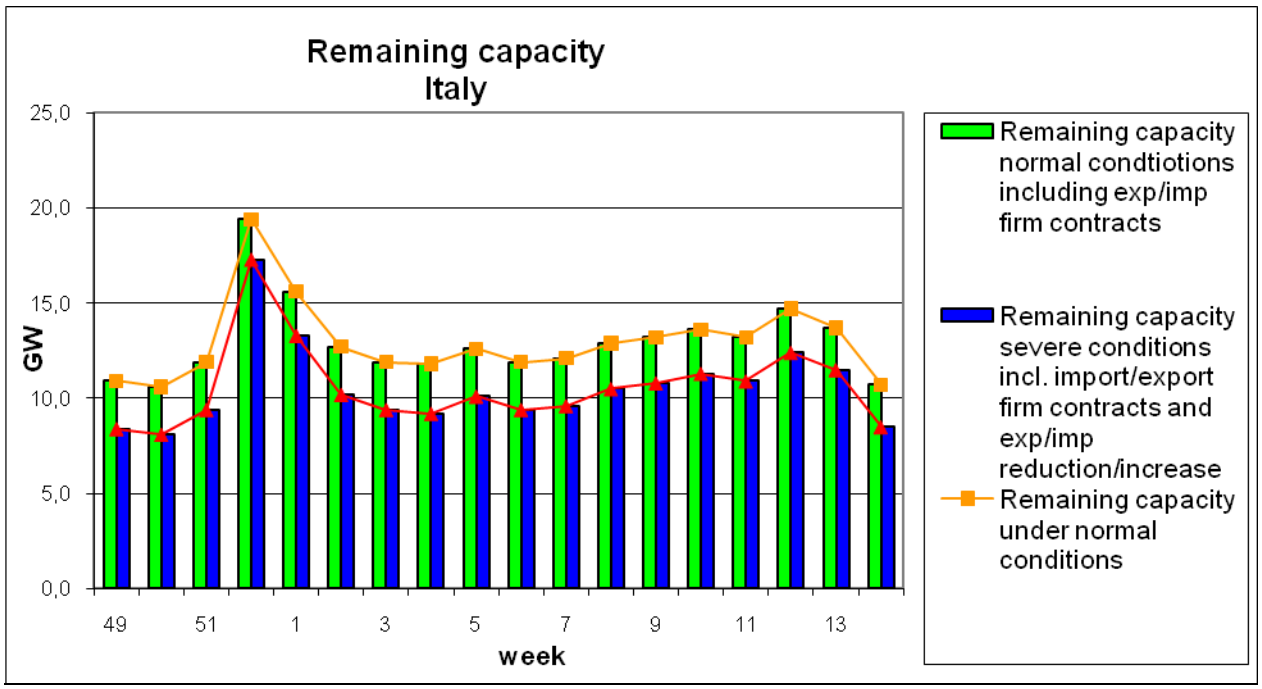
ITALY





General Comments

Under normal conditions the general situation for the winter 2010-11 is not critical with wide adequacy margins expected in the whole period.

Some consideration is required for the situation in Sicily where the forecast margins are still tight, but the outlook is more optimistic than in the past due to new thermal capacity now into operation.

In Sardinia with the second cable of the new undersea links with the peninsula (SAPEI, planned for the end of 2010), a comfortable adequacy level will be reached.

It should be noticed that extreme and unexpected events (i.e. very low temperatures, or unforeseen outages of fundamental grid elements) may lead to possible critical periods. Nevertheless proper countermeasures are already foreseen.

General Comments

Under normal conditions the general situation for the winter 2010-11 is not critical with the minimum remaining capacity higher than 20% of the expected peak load.

Some consideration is required for the situation in Sicily but with a new 400 MW CCGT into operation it will be easier to balance the peak load. In Sardinia with the second cable of the new undersea link with the peninsula (SAPEI, planned for the end of 2010), a comfortable adequacy level will be reached. Nevertheless, the electrical system of the main islands is still exposed to risks in case of very high failure rates.

It should be noted that unexpected events (i.e. lack of gas or unforeseen outages of fundamental grid elements) can lead to possible critical periods. Nevertheless proper countermeasures are already foreseen.

Short explanation of the framework and the method used for making the winter adequacy assessment

Terna performs deterministic adequacy studies on a weekly basis with a yearly horizon considering both all the available information (i.e. planned outages and new capacity scheduling) and our best estimates based on historical data (i.e. load, non thermal production, forced outages rate).

All the data used are market-related (i.e. installed capacity refers to the capacity of the plants registered for the market).

Generation – Demand balance

The balance between generation and load in the coming winter is not considered critical and shows no need for imports.

We assume that about 15% of fossil fuel power stations capacity will be unavailable, based on historical data.

For weeks 1 to 14 overhauls are based on generating companies' requests for 2011 maintenance plan.

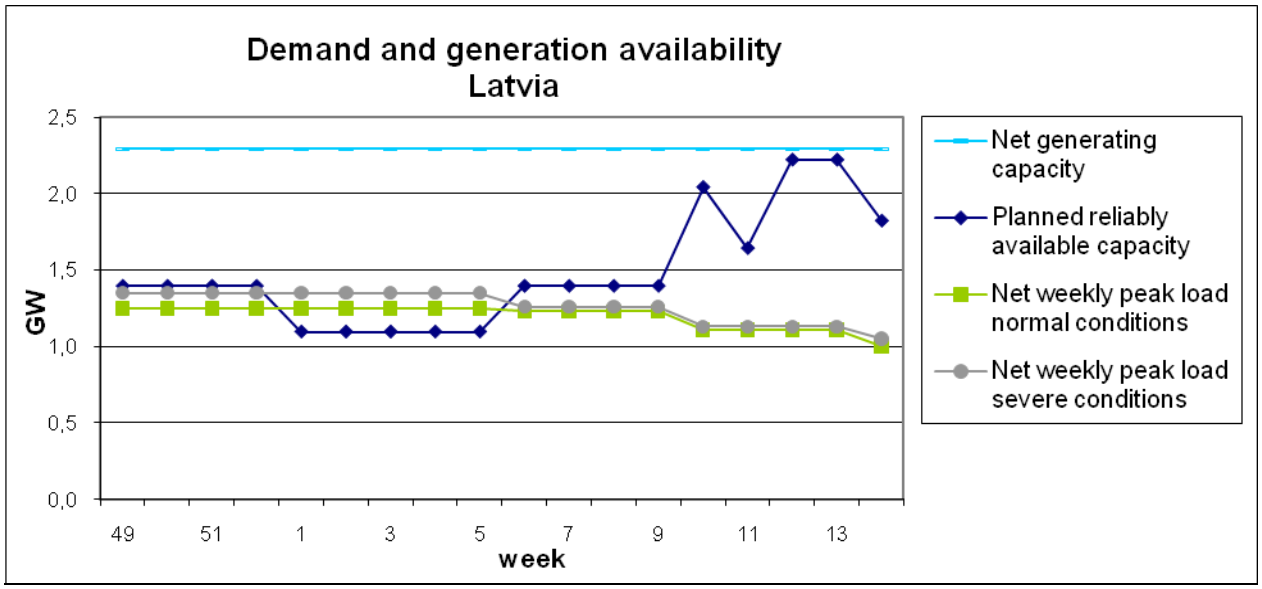
Hydro power output forecasts are in a range from 7,5 GW in week 14 to about 11 GW in week 4. Wind power capacity is expected to be 0 MW in our adequacy assessments.

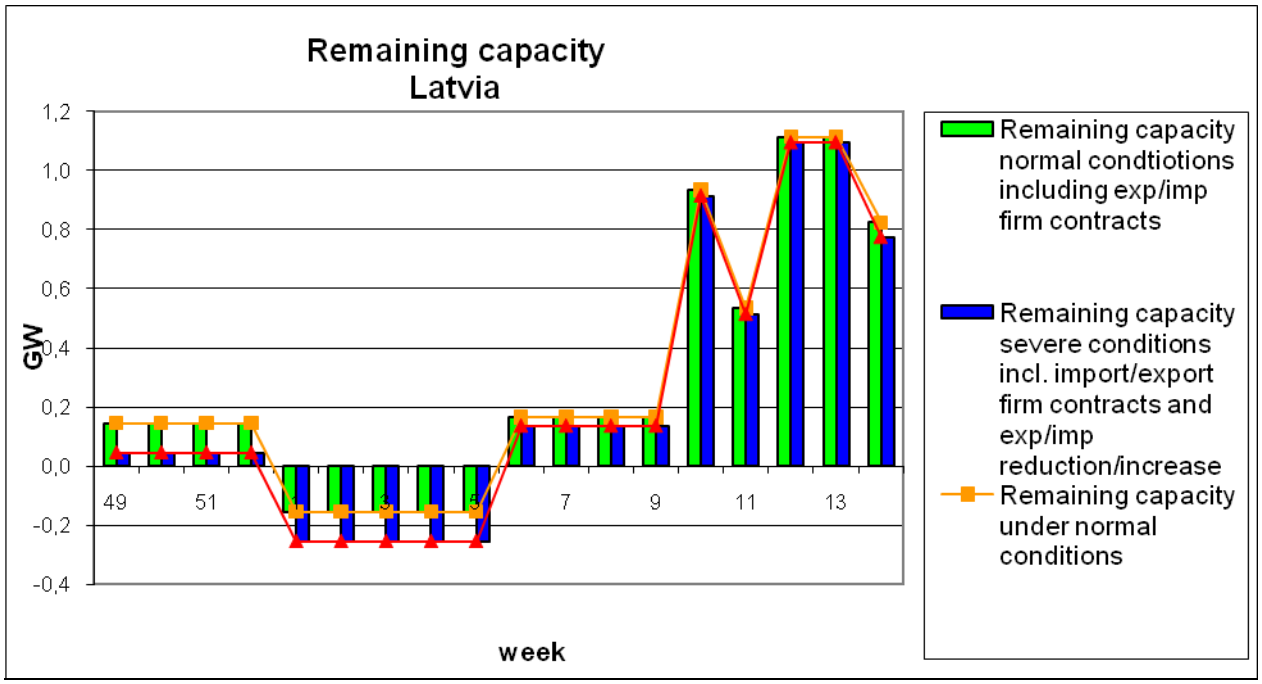
Role of interconnection

Although there is no expected need for imports, import at peak demand may improve the balance.

More than 7 GW of interconnection capacity is expected to be available at the peak load of each week within the report horizon except for the first ten days of January.

LATVIA





General Comments

Latvian power system base power is CHP plants and they cover about 40% of peak demand. Despite sufficient installed capacity on the hydro power plants, shortage of inflow waters is the main limiting factors for generation availability. Therefore low inflow scenario was chosen for this winter to address for probable energy deficit. Therefore Latvia plans to be dependent from energy import from neighboring countries during the winter and Latvian power system will be net importer from neighboring countries in this winter period. Starting from the week 10, spring high inflow period is starting turning the Latvian power system into a surplus generating system and providing energy exports to neighboring power systems.

High inflow period usually lasts until beginning of the May, after which Latvia turns into deficit power system again. Low water inflow level based assumptions on the power output of the Daugava HPP cascade are following:

- Week 49-52 700 MW
- Week 1-5 400 MW
- Week 6-9 700 MW
- Week 10-14 15280 MW

Due to current economic downturn in Latvia our forecasted weekly peak load is expected to be 2-3% lower than in last year forecasts.

TSO's appreciation of the generation – load balance for the coming winter

60 % of installed generation capacity in Latvian power system is installed on river Daugava in cascade with weekly regulating. Because of this system balance depends from water inflow during the forecasted period. Usually for Latvian system adequacy analysis minimal water inflow is used and because of this 15% of winter peak demand is covered by HPP despite that sometimes Latvian power system is in balance and CHP plants work in co-generation mode and covers about 40% of peak demand. Missing power Latvian power system imported from neighboring power systems.

Interconnection capacity in this winter period is greater than the summer period in normal conditions and transmission lines are repaired at the plan.

There were no stressed periods for system adequacy during winter 2010-2011 and no specific events during the winter period.

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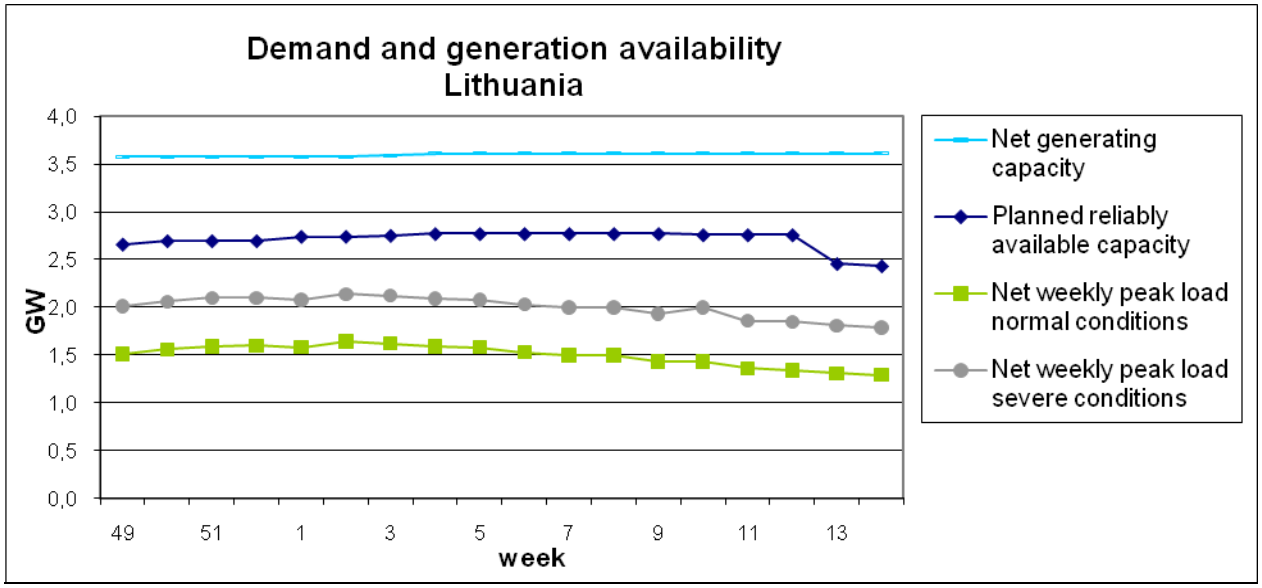
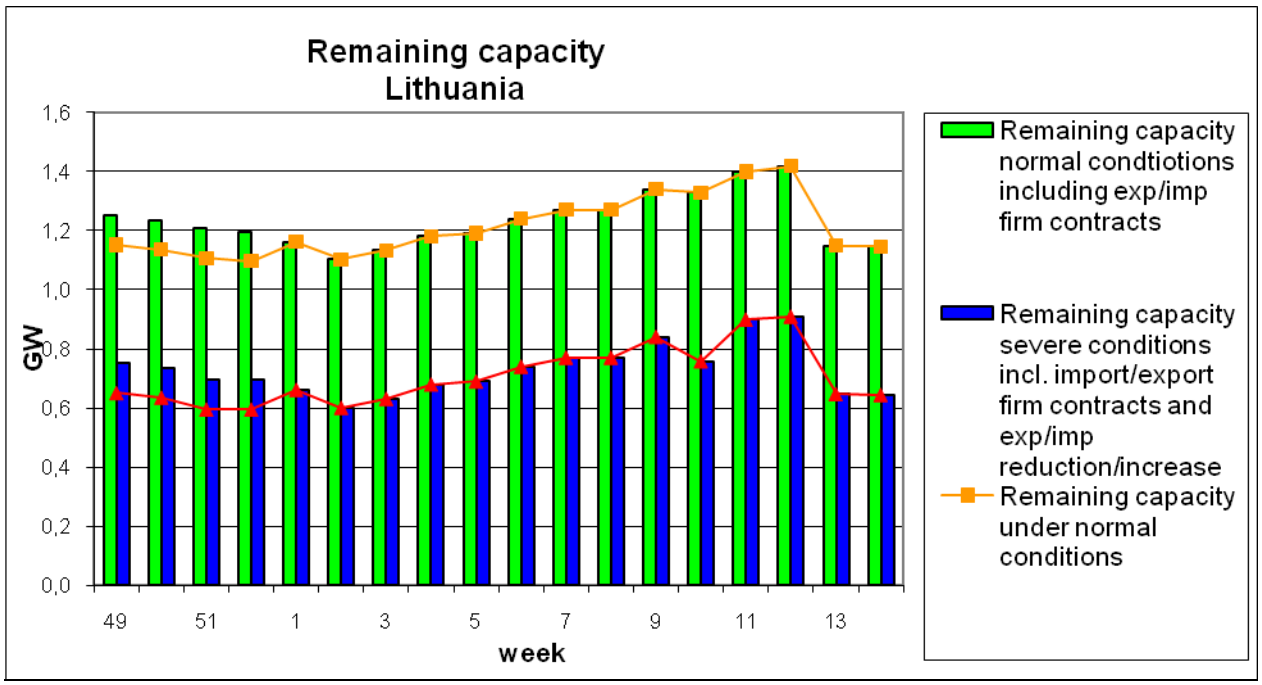
LITHUANIA





General Comments

LITGRID does not expect any critical situations during winter 2010/11. Winter peak demand is expected to be as during second week of January. Small increase of total consumption in comparison with previous winter is expected. The available generation capacity exceeds the expected peak load, however due to price difference Lithuania will be dependent from electricity import from neighboring countries.

Short explanation of the framework and the method used for making the winter adequacy assessment

The assessment is mainly based on Generation adequacy forecast and Demand forecast, prepared by Lithuanian TSO. The winter adequacy assessment takes into account information about generator availability, demand and planned outages of lines.
Hydro and wind generation is not considerable for the time being. Mothballed capacities are practically not available under any circumstances.
The assessment is made on a weekly basis for the week peak based on experience of previous years.

Generation – Demand balance

Due to ending economic recession the increase of consumption is foreseen, however previous winter was colder than normal winter, so the total increase is expected to be in range 2-4% depending on actual weather conditions.
Local generation should cover at least of 60% of total consumption during winter period.

Role of interconnection

The availability of imports mainly depends on the generation/demand balances in neighboring countries and also available cross-border transmission capacities. In case of emergency decrease of available transmission capacities Lithuania has available generation that can cover peak demand.

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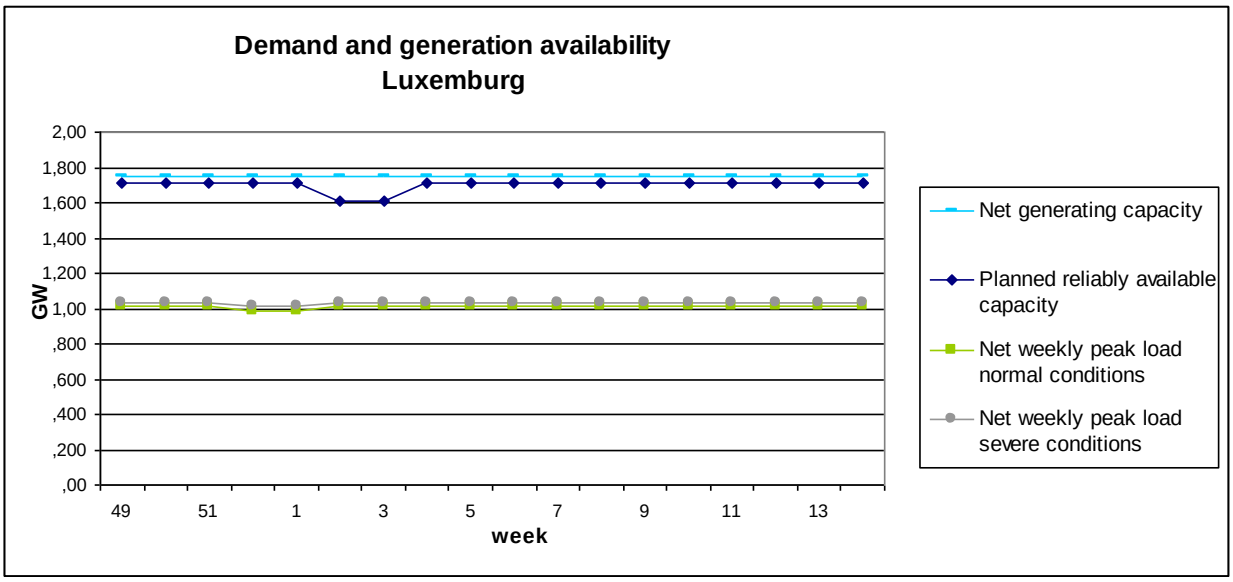
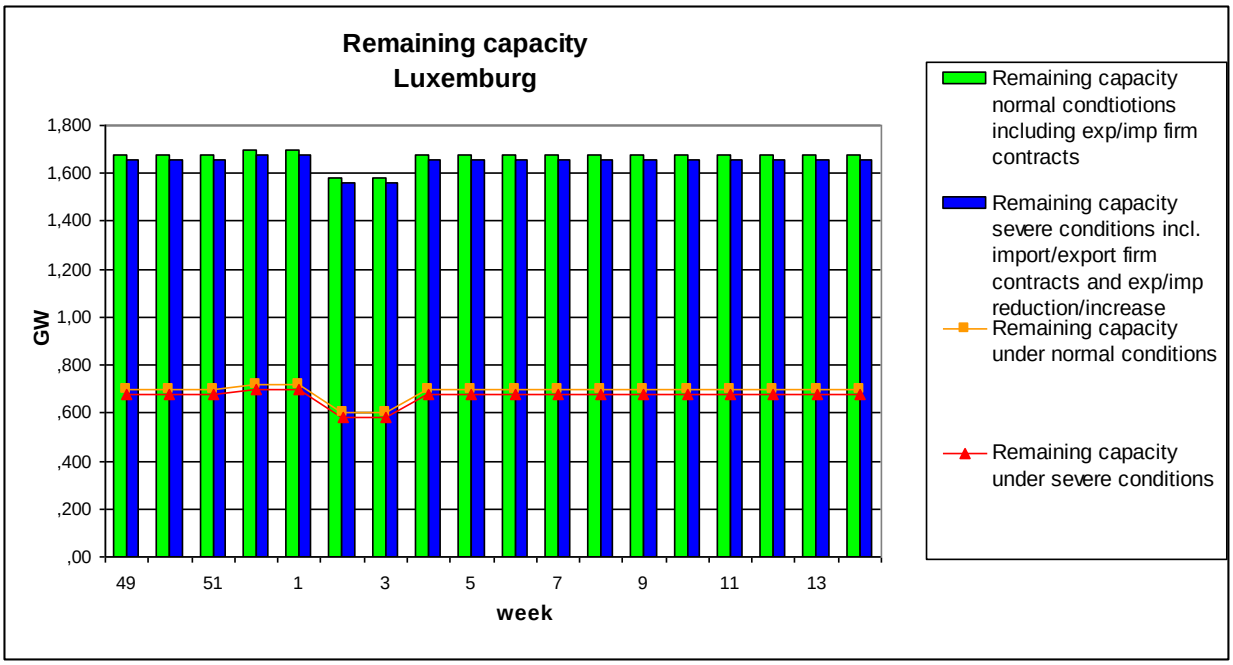
LUXEMBOURG





General Comments

The overall generation capacity in Luxembourg (including pump storage power) is higher than the consumption. Due to grid structure the whole energy has first to be exported and then re-imported again. Despite a reduction of the generation capacity of 100 MW for overhauls in week 3, 4 and 14 of 2011, the national generation adequacy is always given.

Creos is still a net importer of about 85% of electric energy. As no planed outages of lines are foreseen, the capacity of the interconnection lines is at all moments sufficient to cover the national load. Creos don't expect having problems during winter 2010/2011 period.

To have a direct relation between load balance and generation balance, the consumption of pumps is added to the load.

Generation – Demand balance

Generation Available

Luxembourg has two large generation plants, the pump storage of Vianden SEO (1.100 MW) whose start up is determined by Amprion, and the thermal plant of TWINerg (385 MW) whose production is injected to the Belgium grid.
During the weeks 3 and 4, and 14 one unit of 100 MW of the pump storage of Vianden will be out of service for maintenance.

The generation – demand balance remains positive even in the period where some generation capacity is not available due to overhauls.
The non-usable capacity is mainly determined by wind conditions but remains very low.
For energy supply, Luxembourg depends on the neighboring grids. Power plant outage in Luxembourg will not affect the energy supply to the grids.
System services reserves for the Creos grid is assured by the Amprion grid whereas SSR for the industrial grid are assured by ELIA

Demand

The peak load of the public grid and of the industrial grid is not necessarily at the same period. In the table the worst case is considered where both peaks would overlap. Possible load shedding in the public grid is very low (about 20MW)

Remaining capacity in normal conditions

Remaining capacity is always positive. It must be remarked that this generation capacity is determined largely by a pump storage power plant and by that this capacity is only given continuously for some hours.

Severe load conditions

The impact of load increase due to severe weather conditions is very low. Peak load depends largely of the industrial consumers. Nevertheless the most critical load situation is considered.

Role of interconnection

Interconnection capacity

As no larger power plant is connected directly to the Creos grid, the interconnection capacity is designed to be sufficient to cover the whole consumption at any time, even in n-2 mode.

Firm import/export contracts

The existent import/export contracts cover the load expectations in the grid.

Transit flows

In normal operation transit flows are not possible through the grid.

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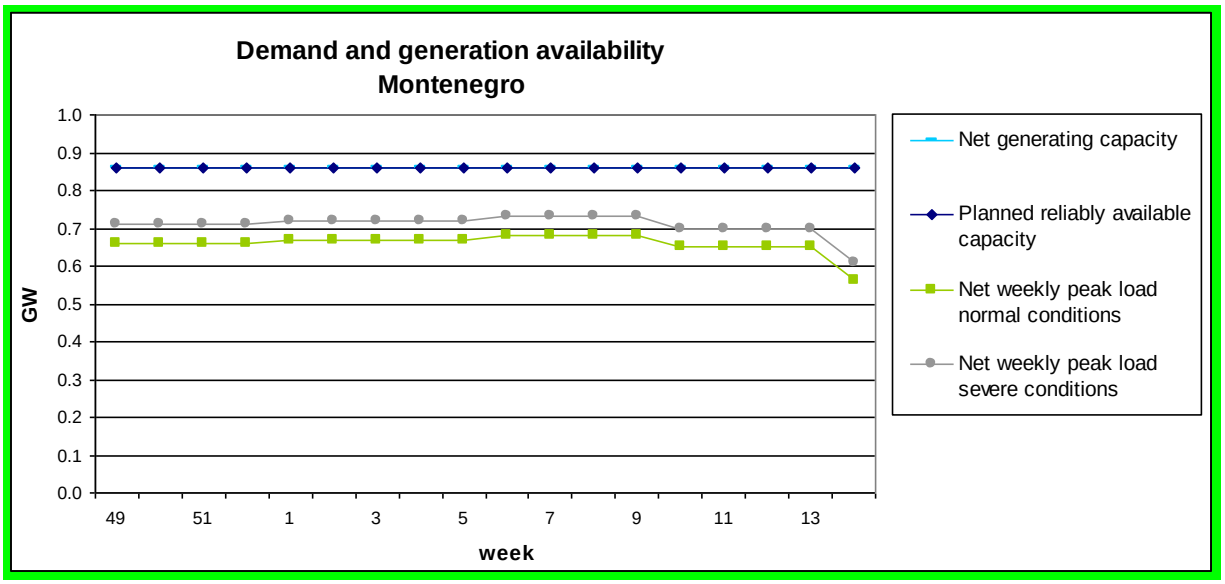
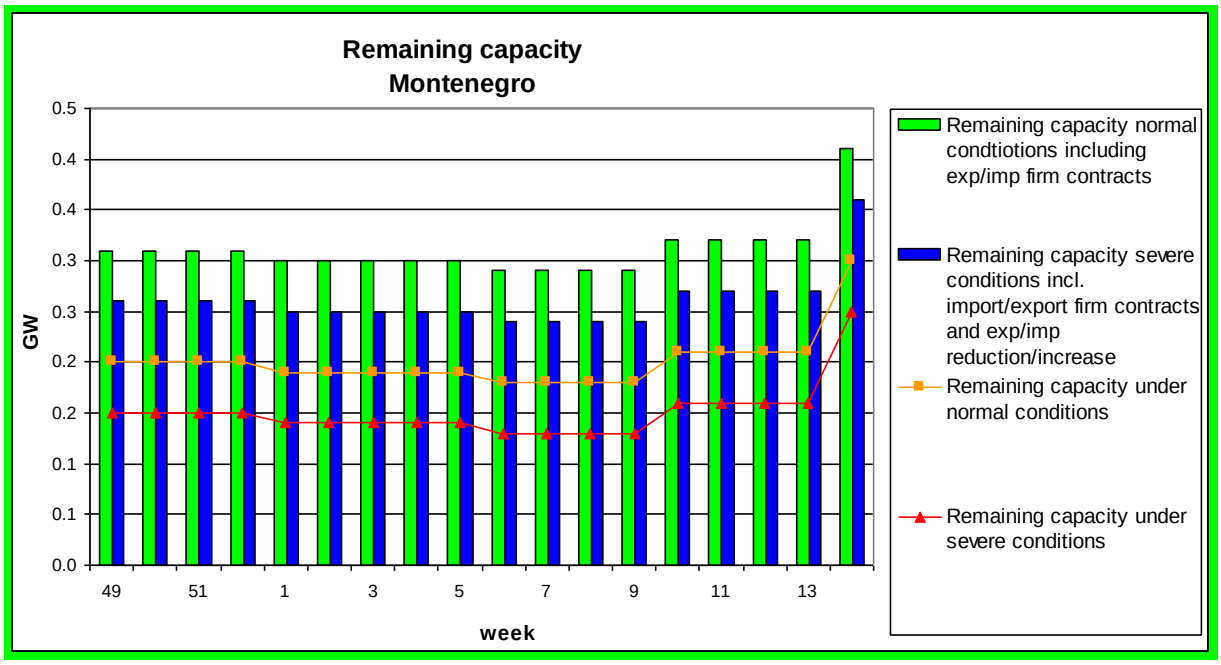
MONTENEGRO





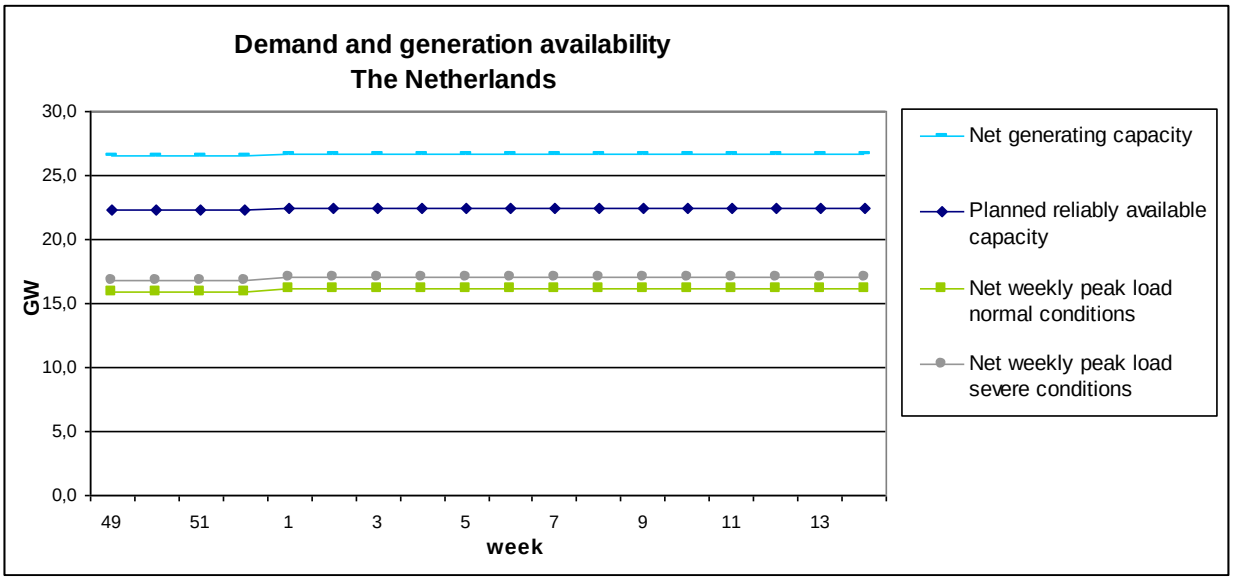
General Comments

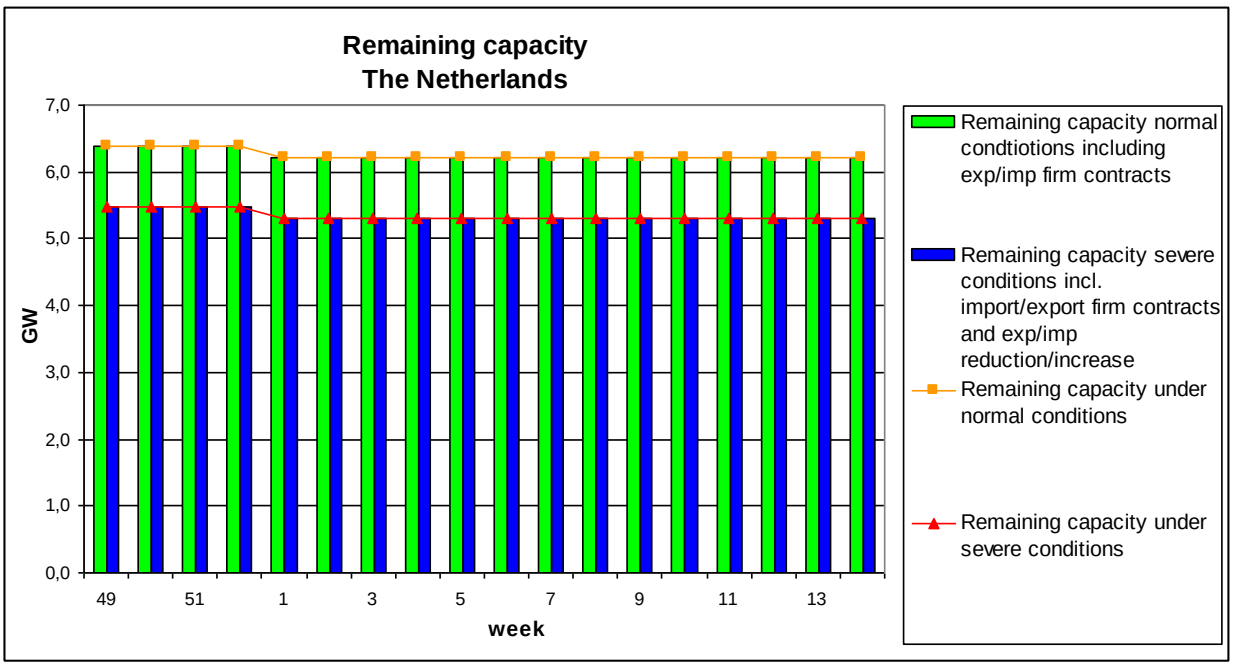
The operation of power system is expected to be secure and reliable over all winter period 2010 / 2011.

Montenegrin power system depends on imports of energy to cover difference between consumption and production.Due to high influence of aluminium and steel industry on Montenegrin power demand, some mistakes in demand prediction can be expected.
No major variations of the interconnection capacities are expected during the winter 2010/11.

Montenegrin power utility has firm import contracts in amount from of 110MW on Serbia-Montenegro border.

THE NETHERLANDS





General Comments

For the Netherlands no winter adequacy forecast has been done so far. To our opinion the supply-demand balance will be realised on the basis of the price-driven demand principle and it's not a task of the TSO to intervene in a good functioning market.

The specific TSO's task is balancing the system and supply emergency power when necessary. Nevertheless, there is no indication of lack of power based on weather conditions in following winter periods, as the Netherlands has not been suffering long period harsh winters.
TenneT TSO Netherlands provides on behalf the Ministry of Economic Affairs the report on Monitoring of Security of Supply 15 years ahead (Monitoring Leveringszekerheid). Visit our website for the latest report on Monitoring 2009-2025: www.tennet.eu

Framework and Method Used for Winter Outlook

No specific winter forecasts with regard to security of supply or adequacy assessments on a weekly basis will be executed by TenneT TSO Netherlands, see explanation above.
Yet, participation in ENTSO-E scenario development does bring national assessments of scenarios within a more harmonized scenario development in the North Sea Region. In times of expanding interconnection capacity and building new power plants, the necessity of short range adequacy assessments has been decreased in the Netherlands.

Generation-Demand Balance

In the aforementioned report on Monitoring the balance is not considered at risk for the coming years including the winter period 2010-2011. Nothing specific can be said more than the tables of the Winter Outlook will show.

Demand

Load forecasting for specifically a medium long period like this outlook has not been carried out by TenneT TSO Netherlands, however for quantifying developed scenarios and for the purpose of extended European cooperation between TSO's, forecasts have been made and used for this outlook.

Severe Load Conditions

TenneT TSO doesn't use scenarios for extreme weather conditions, as temperature dependency of load is limited. There will be more demand in periods of extreme heat and cold, though the entire market coupled system including available reserve power will be sufficient to meet demand.
In most years the peak load will occur in the late afternoon hours on the second or third Thursday in December as well as in periods of long warmth in July and August.

Role of Interconnection

Firm Import/Export Contracts

Since several years preferential import-capacity is not longer allowed as a consequence of the decision of the European Court of Justice, so all import and export market capacity will be available.

Comments on expected additional loads of interconnections due to transit flows which affect the import/export capacity

In past winter periods TenneT TSO Netherlands experienced vast transit flows through the Dutch network, originating from wind generation in Germany. But as since 2008 there are installed phase shifters on most interconnectors with Germany and Belgium these transits decreased. However expanding interconnection capacity as well as new power plants in the North Sea Region will lead to new situations in which TSO's will work together more and more to handle security and reliability of demand and supply.

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Additional Comments

Interconnection Capacity

There are two phenomena which could affect the import capacity of the Netherlands in the sense of reductions or congestions.
First TenneT faces high transit flows through the Dutch network originating from high wind generation in Germany. Last winter periods these flows threatened at some moments the (n-1) security of the cross border lines and TenneT TSO had to reduce import capacity for the market.
Secondly congested flows on the French-Belgian border reducing import capacity on the Belgian-Dutch border. In order to improve managing these cross border flows certain reductions of import/export were agreed on in relation to wind generation forecast in Germany. The reduction in dependency of the wind-generation will be realized on forehand as an operational measure. But as from 2008 phase shifters have been installed on most interconnectors with Germany and Belgium it is expected that wind energy related transits will decrease and that reductions will be smaller.

Very severe winter conditions combined with fuel supply difficulties as well as poor wind conditions and increasing power needs abroad can of course cause problems, even despite from geopolitical issues, but TenneT TSO Netherlands does not expect to happen most of these events at the same time.

As from late 2008 the effects on demand caused by the economic crisis can be seen, however there was a growth rate of 1.1% in electricity demand 2008 compared to 2007. Demand 2009 in the Netherlands decreased with 5.9%.
In 2012 the demand level will likely be equal to the year 2008.
Financial data from TenneT TSO Netherlands is available on website www.tennet.eu.

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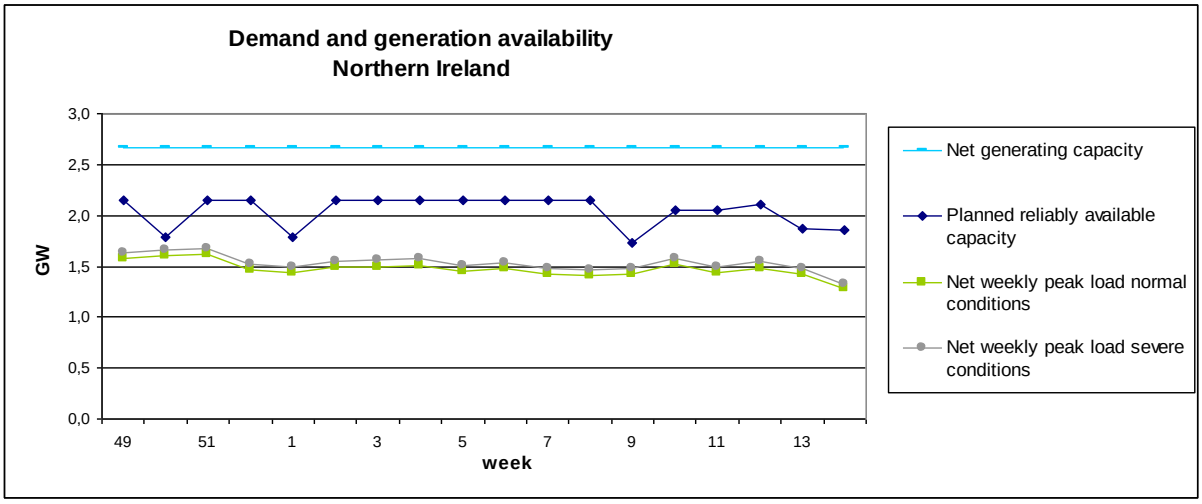
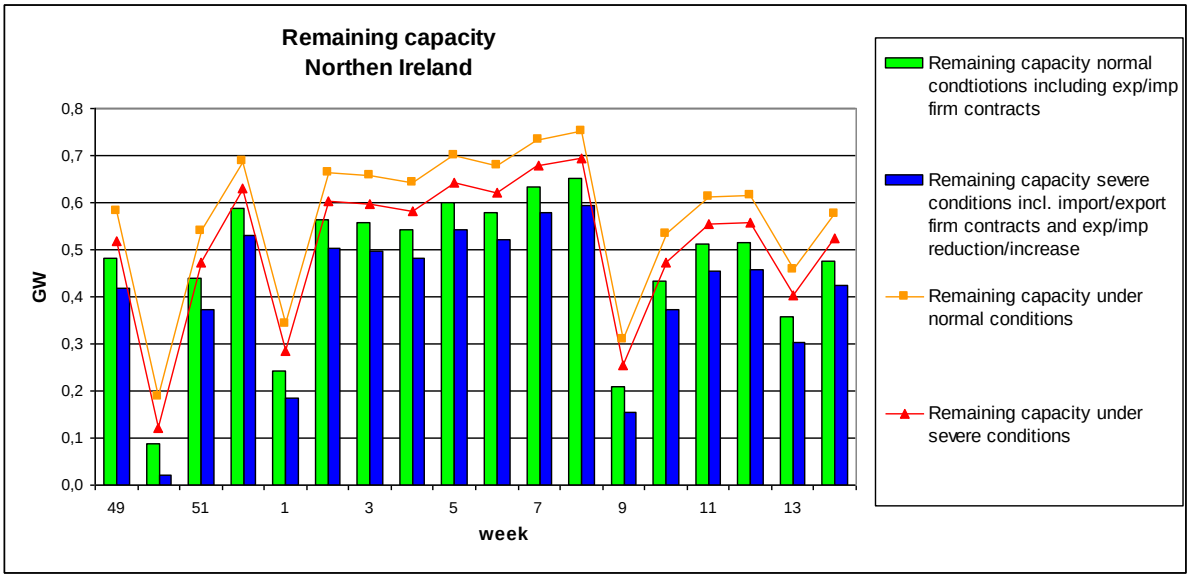
NORTHERN IRELAND



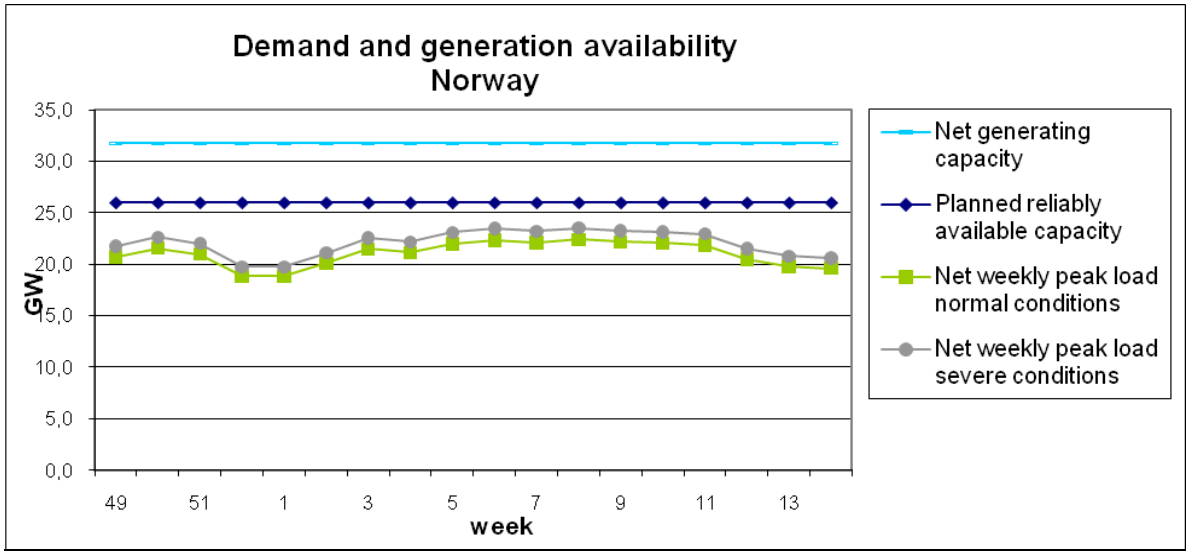


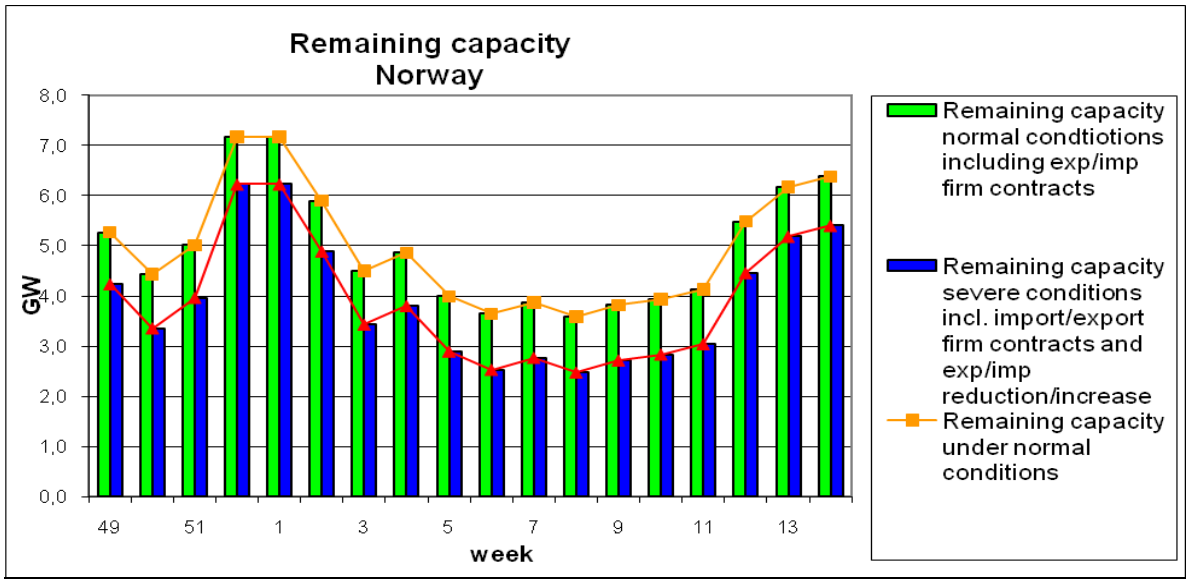
General Comments

Current SONI plans anticipate that there will be no significant problems on the system this winter. At present there are no events envisaged that could be regarded to represent a high risk period to SONI. To ensure that peak demand is met in Northern Ireland, SONI may be dependent upon imports on the Moyle interconnector and/or the North-South tie line. This dependency would impact upon Great Britain via the Moyle interconnector and the Republic of Ireland via the North-South tie line but again we are not aware that this presents any problems to our neighbors. As is normal in winter periods there are no plans for any generation outages, although plans are in place to cover any unexpected loss of generation

The peak demand for the winter 2009/10 was higher than anticipated due to the lengthy cold spell period experienced in Northern Ireland. At present, assuming normal winter temperatures, SONI would expect the peak demand for the coming winter to be lower. It should also be noted that the winter demand may also be affected by the ongoing economic downturn and the proposed government austerity measures.

NORWAY





General Comments

Statnett does not expect any critical situation during the winter 2010/11. The available generation capacity exceeds the expected peak load, even on a cold winter day. At peak demand in a normal winter, Norway is thus able to offer power support at minimum 3600 MW to its neighbouring countries.

Framework and method

The assessment is mainly based on historic data and Statnett's internal assessments. E.g., each autumn Statnett creates an internal report on the Norwegian power balance and maximum load in the coming winter.

Generation – Demand balance

Norway has a healthy generation/demand balance. Generation is higher than demand even on a cold winter day.

Generation availability
An internal study concludes that hydro power is 87 % available during winter time. The percentage is based on historical data. A conservative estimate assumes that wind power is 5 % available during winter time. The estimate takes into consideration that it is little wind during the coldest winter time.

Demand
According to statistical data for Norway, peak time for demand is most likely from 8 to 9 in week 7. During the last seven years, the week with the highest demand in hour 9 has been between week 50 and week 10. Statistics show that demand increases steadily up to week 4, except for a fall in demand during Christmas time. From week 4 to week 10, demand remains at a stable level, before it decreases rapidly after week 10.

Remaining capacity in normal conditions
The remaining capacity will be sufficient during the winter 2010/11.

Severe load conditions
Based on Nordel's methodology, a cold winter day happens one of ten years. On a cold winter day, demand is expected to increase by 5 % compared to peak demand in a normal winter. This corresponds to an addition load of about 1 GW. The remaining capacity will be sufficient to cover peak demand even on a cold winter day during the winter 2010/11.

Role of interconnection
Norway is not dependent on imports from its interconnection during the winter 2010/11 with regards to power balance. It is on the other hand expected that Norway will be able to export to the Netherlands, Sweden, Denmark and Finland during cold days.

It is expected that available capacity will remain stable during the coming winter. However, internal grid constraints may reduce the export capacity on cold days.

Additional information

The reservoir filling in Norway is at the time below the week's median value. However, with normal inflow during the rest of the autumn and normal consumption during the winter, Norway is self-supplied with energy this winter. Thus, a balanced energy exchange with the connected areas is expected. In a normal situation, Norway is a net exporter of energy.
The financial crisis has caused a reduction in consumption for power intensive industry. The consumption has increased from last year, but is still below the 2008-level. It is not expected a substantial increase in industrial power consumption during the coming winter.

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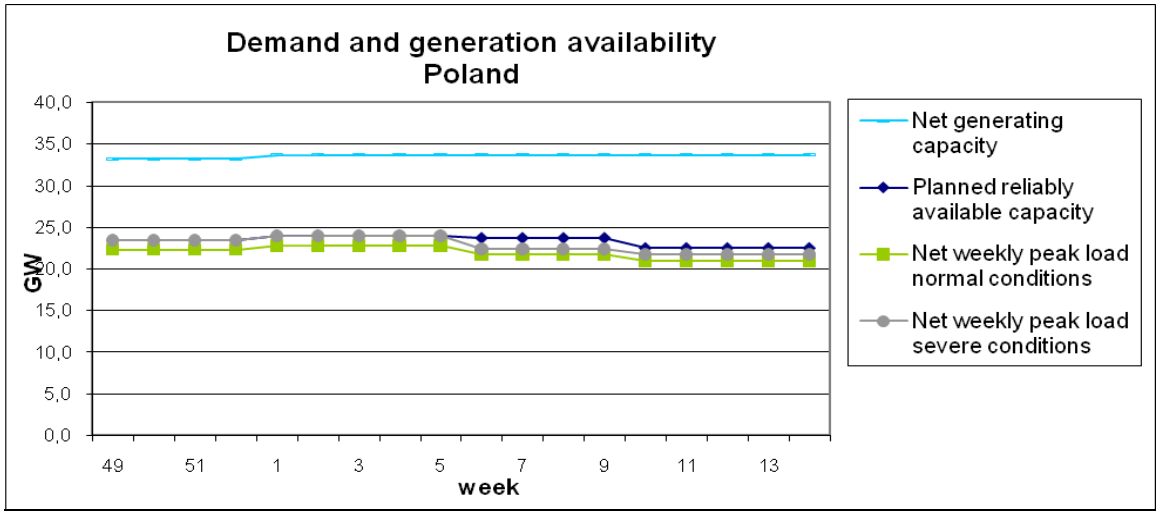
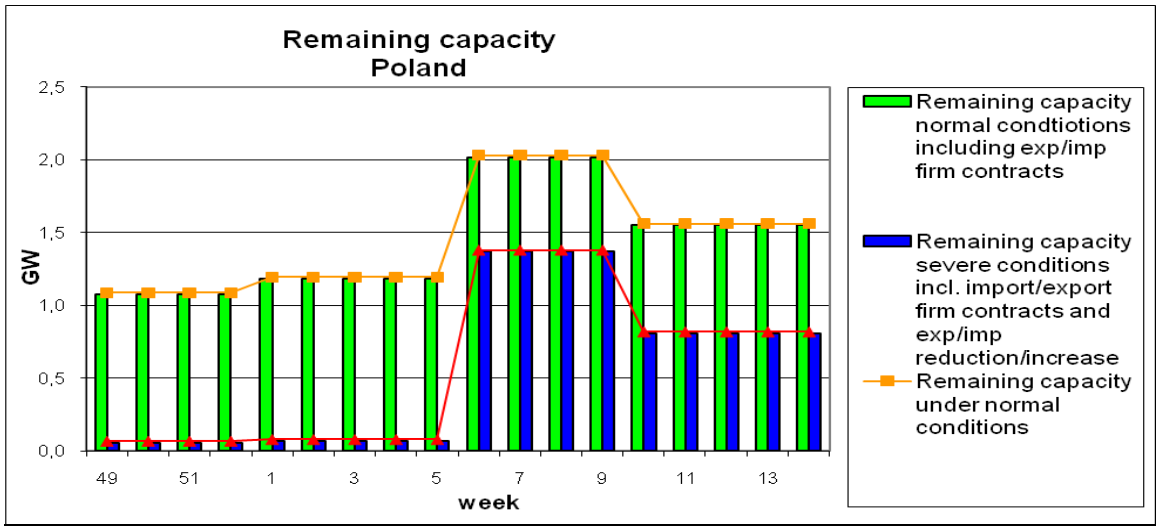
POLAND





Framework and method used for making the winter adequacy assessment

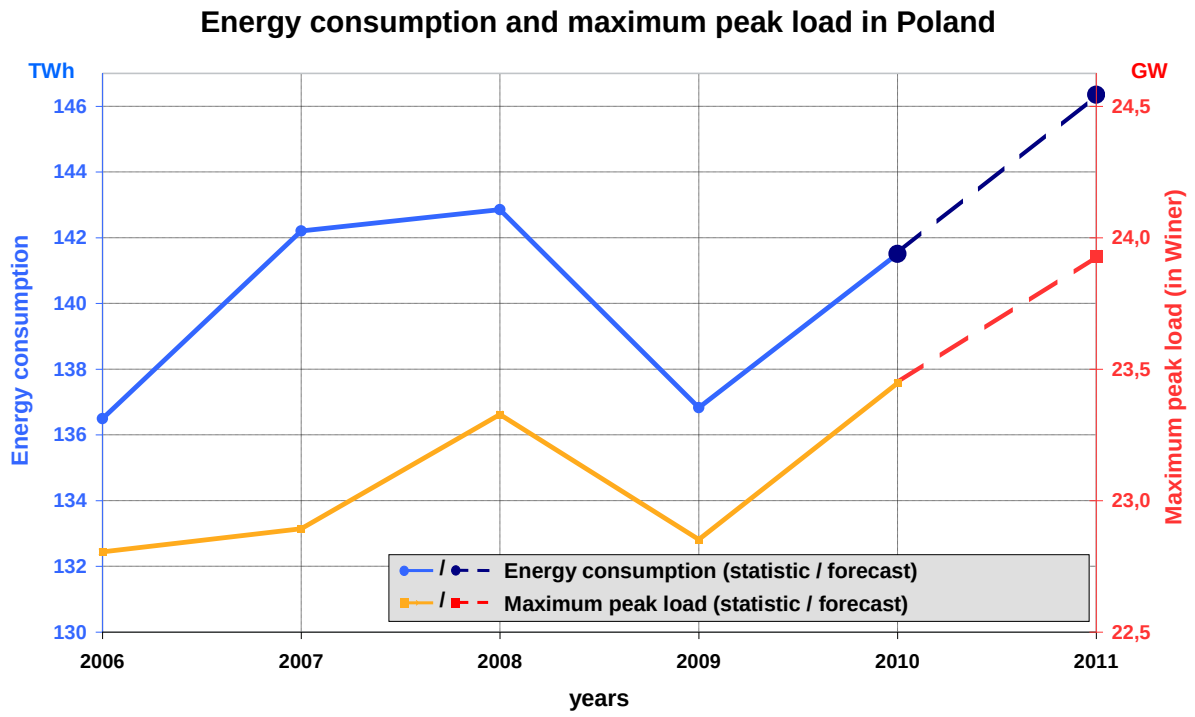
In Poland no special assessments for winter are made. Forecast plans (yearly[1] coordination plans) done for the whole year on a monthly basis, till 30th November every year.
On 26th every month Polish TSO publishes monthly[1] coordination plans, which include the precise information for all days of the next month. Further specification takes place in the operational planning. PSE Operator prepares one coordination plan – without different scenarios.
Polish TSO presents values divided into weeks, however weekly data for each month is the same:

- For December – weeks from 49 to 52
- For January – weeks from 1 to 5
- For February – weeks from 6 to 9
- For March – weeks from 10 to 14

[1] System balance plans (published on PSE Operator S.A. web site)

Generation – Demand Balance

PSE Operator does not expect significant problems in operation and balance of the system this winter even though since the beginning of this year Polish TSO has been observing quite high increase of load as well as energy consumption after the decrease in 2009 resulted from economic crisis. Forecast plan was updated and takes into account the mentioned growth.



Generation Available

1. National generation capacity:
   Changes in Net Generating Capacity are insignificant.

2. Elements of non-usable capacity:
   - Increase of the heat production in combined heat and power plants,
   - Average coefficient of unavailability of wind generation, which amounts to 75%,
   - Part (ca. 40%) of pump storage total availability is treated as non-usable (usage of hydro power according to duration of peak load in winter season),
   - Technological, environmental and economical constraints.

3. Maintenance and overhauls:
   Accepted by PSE Operator producers' proposals concerning maintenance and overhauls schedules.

4. Elements of outages:
   - Forced outages,
   - Present maintenances due to unexpected faults during the start of the unit.

   During severe winter this value may significantly rise.
   Data based on statistics.

5. Elements of system services reserve:
   - Primary and secondary reserves in conventional thermal power plants,
   - Pumped storage hydropower as the intervention reserves used exclusively by TSO.

Remaining capacity

Remaining capacity under normal and severe conditions for the whole winter period keeps positive, however its level in December and January is low.

Role of interconnections

Interconnection Capacity

PSE Operator S.A. provides aggregated NTC data for the whole 220/400 kV synchronous PL - DE/CZ/SK profile. Import and export capacities include also capacities of 220kV line PL-UA (radial operation) and of PL-SE DC link (commercial interconnection).

Directions / weeks	49	50	51	52	1	2	3	4	5	6	7	8	9	10	11	12	13	14
DE/CZ/SK → PL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PL → DE/CZ/SK	900	100	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900
UA → PL	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220
PL → UA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SE → PL	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
PL → SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sum of PL import	820	820	820	820	820	820	820	820	820	820	820	820	820	820	820	820	820	820
Sum of PL export	900	100	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900

Values in MW presented in the table above for weeks 49-52 take into account network constrains caused by planned switching off of the internal/international lines (or other elements), which limit transportable capacity on the Polish profile. Yearly schedule for the switching off for year 2011 has not been prepared yet therefore real values for weeks 1-14 could be lower. The

schedules for the next year are prepared on annual basis in cooperation with neighbouring TSOs till end of November.

Firm export/import contracts

Firm export contracts concerns non parallel exchanges for 110kV PL-CZ lines.

Potential additional areas to comments

Mechanisms are in place to manage the risk

Although Polish TSO is able to balance the system by itself without electricity import, agreements concluded between PSE Operator S.A. and neighboring TSOs for energy delivery in case of emergency situation are in place. Moreover, since autumn 2008 Polish TSO has the right to utilize “Cross Border Rescheduling” (DC Loop flow) using HVDC links under the Baltic Sea. The clockwise DC loop flow allows, for example, relieving network constraints on the Polish – German border in case of high wind conditions in northern Germany (by decreasing the physical flow from Germany to Poland).
The DC loop flow as well as other measures mentioned above are only remedial actions in emergency situations in the Polish/other Baltic Sea countries power systems and they are not taken into account when transportable capacities are calculated.

Influence of the potential gas crisis

PSE Operator does not forecast significant influence of potential gas crisis on Polish power system, mainly due to:

1. Gas production is only at the level of about 2,5% of total production,
2. Gas CHPs burn gas coming from local (Polish) deposit.

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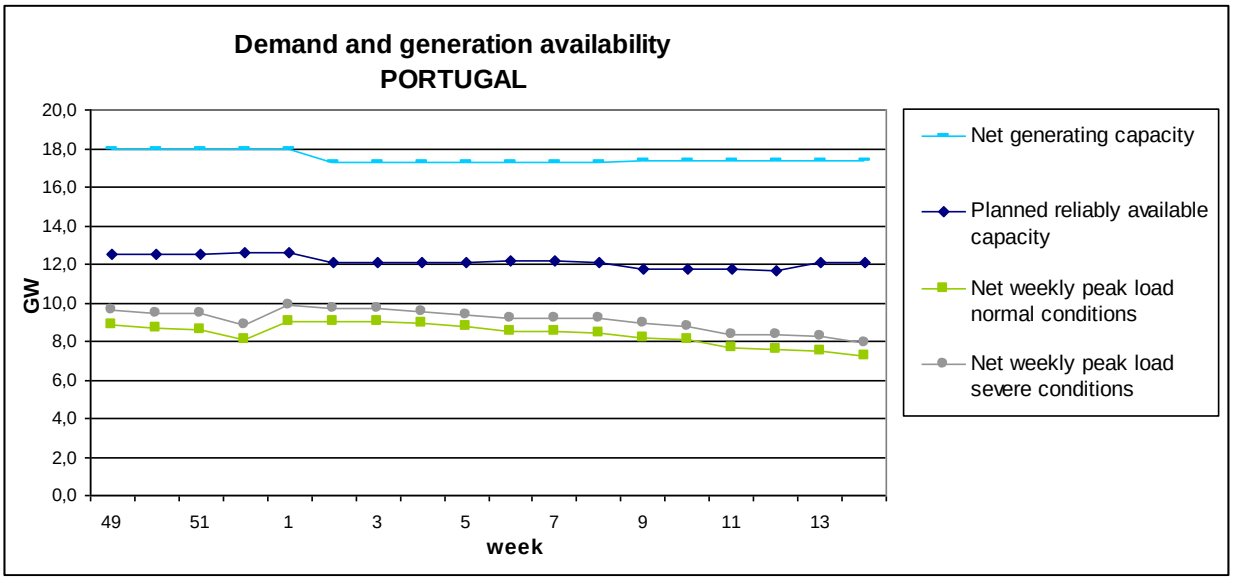
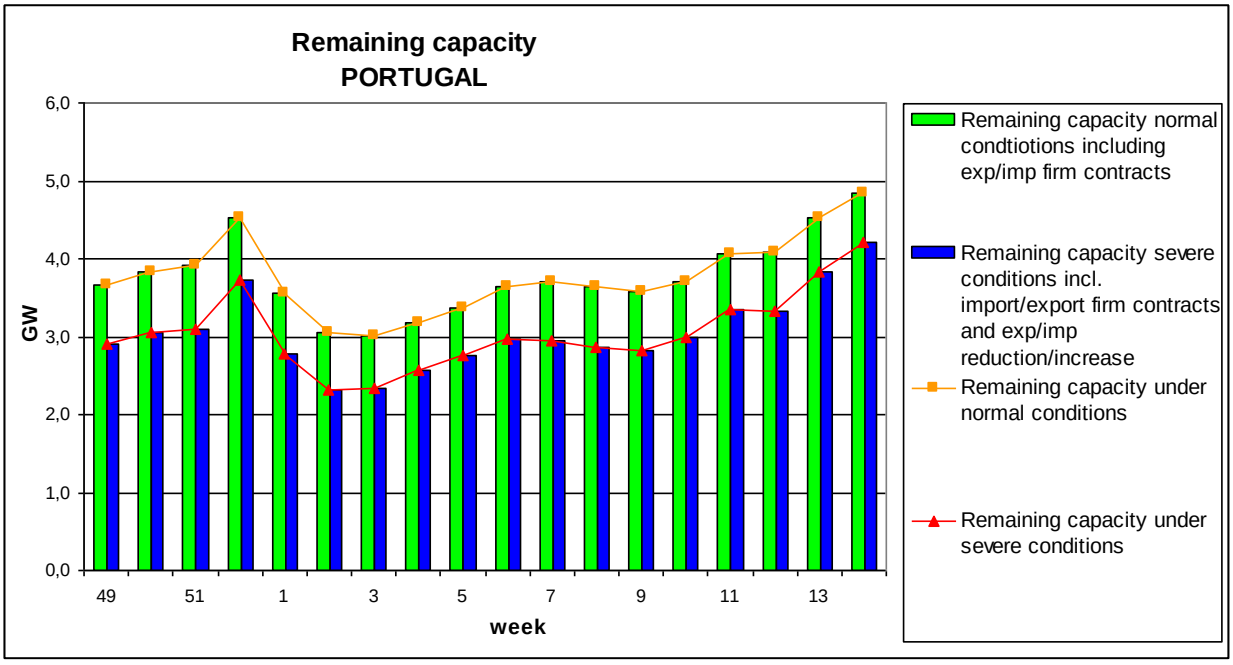
PORTUGAL





General Comments

The results are based on studies undertaken in the framework of guarantee of consumption supply analysis. These studies are made on a weekly basis, with internally developed tools, to assess the water value of the reservoirs and determine the optimal hydro and thermal production. The method uses a probabilistic approach where several hydro inflow scenarios are considered.
These studies are not public and are made for the horizon of up to the end of the following year.

The quantitative elements provided in this report were computed according to the UCTE Adequacy Reference Margin (ARM) criteria, so results are based on average conditions:

- Average hydro conditions (taking into account the actual levels of the reservoirs)
- Average wind production based on historical data (32% of utilization)
- Planned available capacity for the thermal power stations
- Average outages based on historical data

Variations to the demand level were considered, resulting in a severe load condition scenario that presents a 1% probability of being exceeded.

Although interconnection capacity plays an important role on the operation of Portuguese transmission grid, our results show that power balance can be achieved without resorting to neighbour systems.

Extreme condition from the supply side was also taken into account in further studies.
As contribution from intermittent energy sources, especially wind, is very significant in Portuguese system, we have analyzed the outcome of the combination of a low hydro inflow scenario with an extremely reduced wind production (5% probability of occurrence) in severe load condition.
In this scenario, the remaining capacity is about 6% on average, however, on weeks 2 and 3, this value could be less than 1%.

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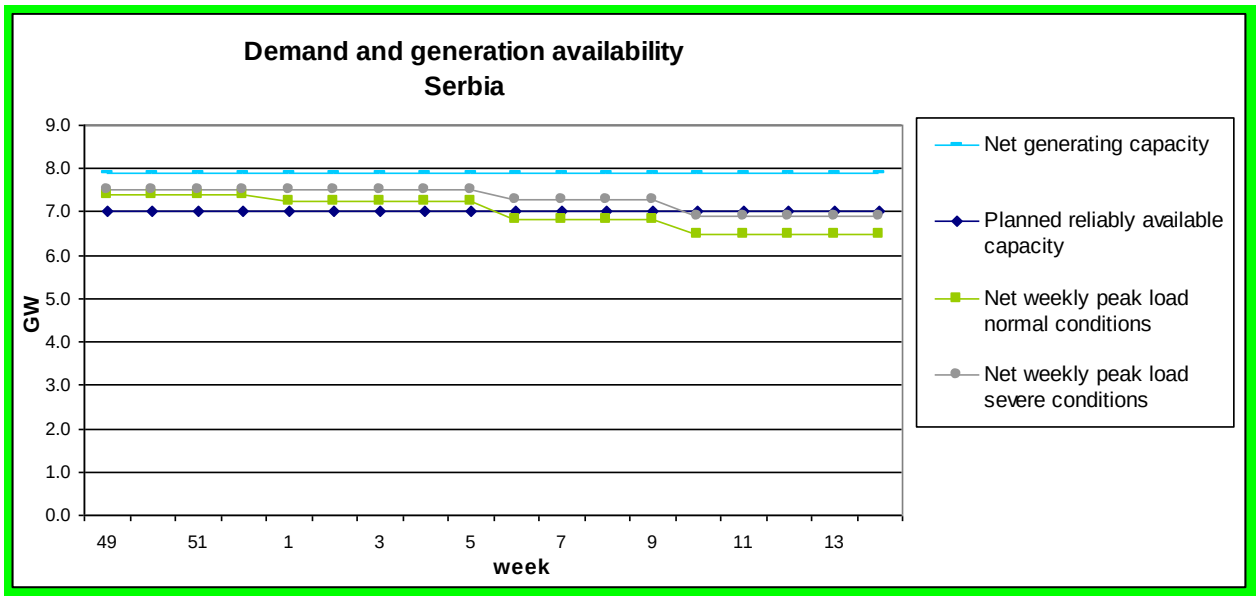
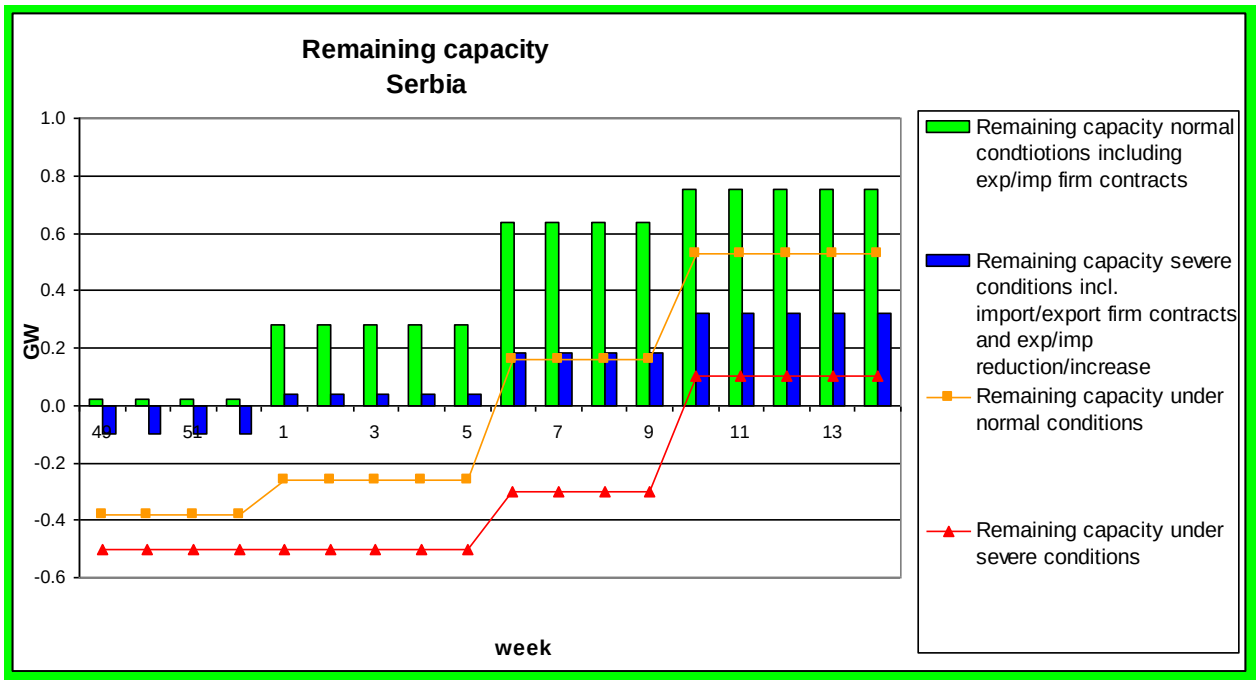
REPUBLIC OF SERBIA





Serbia satisfies most of its energy demands with its own generation capacity and import contracts in normal weather conditions, but in severe conditions depends on additional energy import from neighboring countries.

EMS is using software for winter adequacy assessment. According to grid code we carry out weekly, monthly and yearly forecast.

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Non-usable capacity at peak load is actually unavailable for our system for the whole period, because this is included capacity of two thermo aggregates in power plant Kosovo A, which aren't in use for several years.

Overhauls of all power stations are in accordance with repairing plan of Serbian generation company Electric Power Industry of Serbia (EPS).

Outages will be covered from System reserve.System reserve is increased relative to last year. Load reduction of 100 MW is available with voltage reduction.

Serbian Generation Company EPS won't be able to cover demand in peak hours without import of energy.Cross border capacity allows compensation of energy deficit and transit of energy for successfully functioning of electrical market.

Serbian Generation Company EPS has a long term contract with Montenegrin generation company EPCG which belong to the neighboring control area Montenegro which includes using of hydro power plant Piva. According to this contact from Serbian control area band energy is exported to Montenegro control area (0.12GW), and in exchange EPS has a right to use hydro power plant Piva (0.34GW). EPS is planning additional import of energy from December to February which will be enough to cover demand in normal conditions but not in peak hours for severe conditions. Deficit of energy in peak hours will prejudicially affect system reserve. As consequence it will reduce security of power system.

In case of shortage of gas supply Serbia will use its own reserves which are secured according to announcement of Government of Republic of Serbia. Gas power plants are only 4% of generation capacity what can be superseded with emergency help from neighbouring balance areas.

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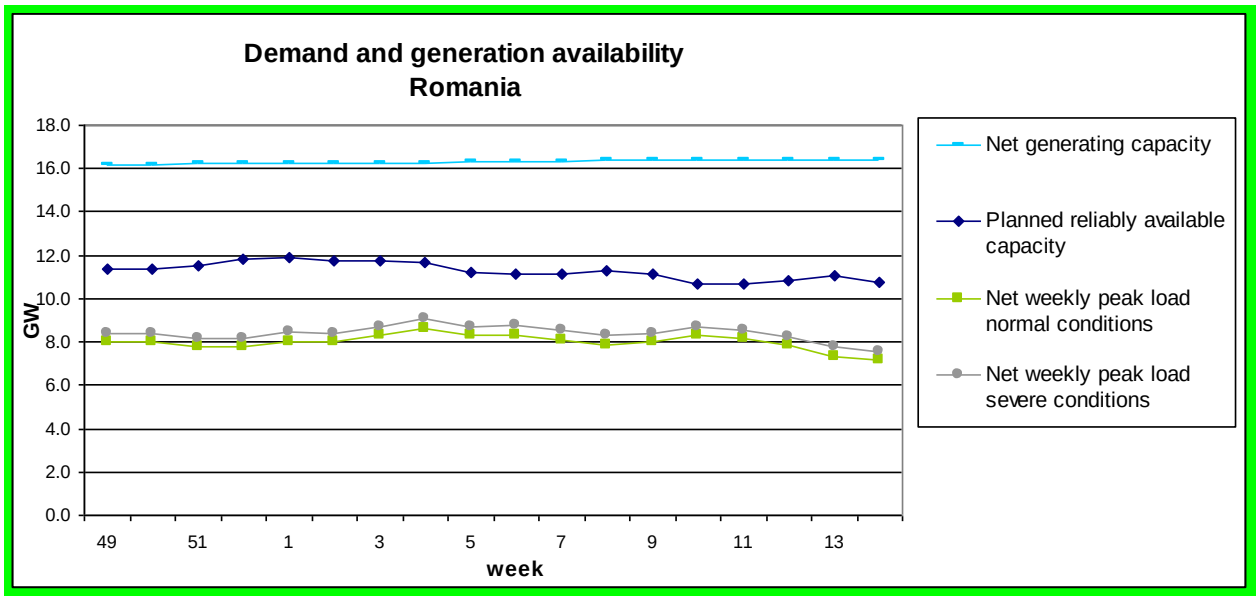
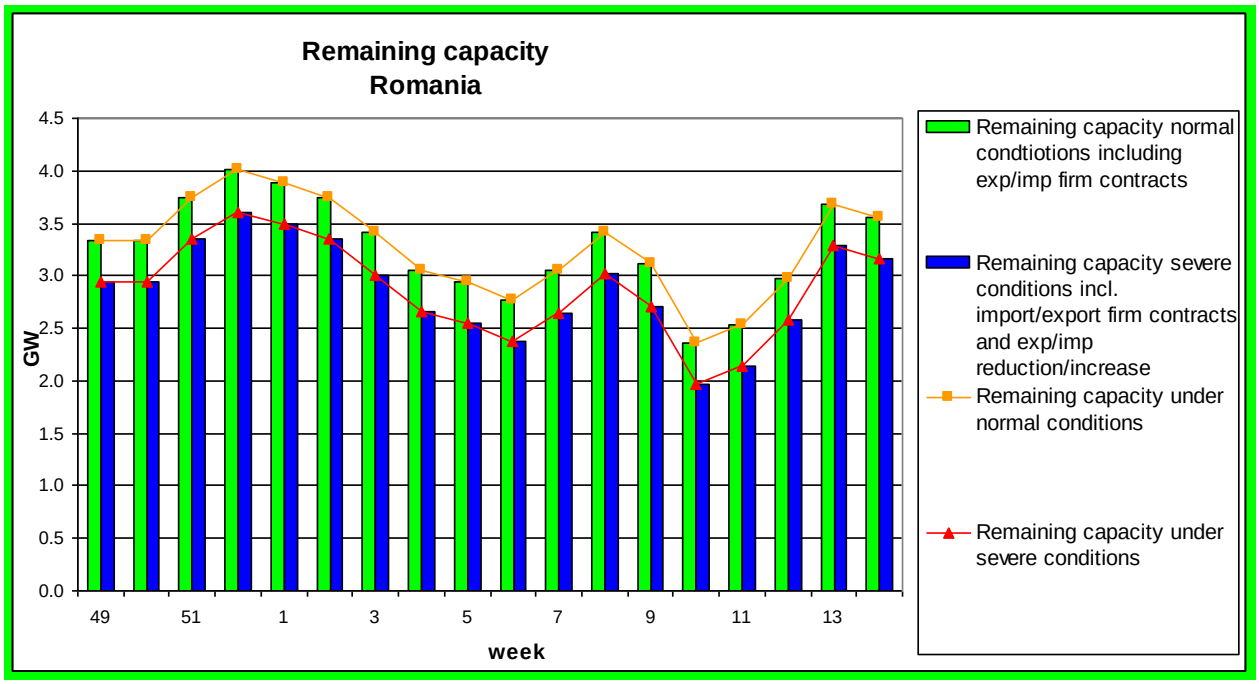
ROMANIA





General Comments

From the point of view of system adequacy, the next coming winter will not cause any problem to our system safety operation. The remaining capacity can cover any unit tripping which exceed the expected value for outages in either case for a normal or a severe winter.
A consumption value higher than the estimation for a severe winter can be managed by the remaining capacity as well.

Based on the Grid Code and the Commercial Code in compliance with ENTSO-E rules, Transelectrica Company performs all the activities in order to ensure a reliable and stable operation to our network. The main duty is to coordinate the operation of all installations with the purpose of satisfying the power demands in quality and safety conditions.

There are performed semestrial planning studies based on load forecast, load flow, steady state and dynamic stability analyses. The network input data are based to the following items:

- Harmonization of the producers schedules on yearly basis;
- An approved yearly internal line schedule (this product involves another analysis done by Transelectrica as well);
- Regional coordination of the tie-lines schedule with the neighbouring power systems.

The results include information concerning the necessary generation amount, the network topology, voltage level measures in order to obtain a safety power system operation in those time intervals.

When there are some deviations from the input data, Transelectrica has to perform another analysis on monthly basis.

However with updated data Transelectrica should carry out daily operational programming:

- To fulfill on the Balancing Market all the requirements for generation / demand balance, exchange schedules and system reserves;
- To check N-1 criteria for internal and tie-lines as well.

The national generating capacity value is established related to the yearly declaration of the producers. The planned maintenance/overhauls program corresponds to the producers schedules, in accordance with the specific characteristics for each power plant type. The equivalent outage rates for the generating units are based on multi-annual statistics taking into account the probability of the units' unavailability.

Regarding the electricity demand forecast, Transelectrica expects a slight increase of about 1% in the next winter, compared with the last one. This is correlated with the overall increase of about 1.3 % of the electricity consumption in 2011 compared to the estimated 2010.

Based on a Methodology issued by the National Energy Regulatory Authority, the consumption projection for the coming year is approved by the Regulator based on the hourly load forecasts delivered by the default suppliers and distribution companies. According to the same Methodology, Transelectrica receives also the planned maintenance / Overhauls schedules and units technical and economical data for the next year, on behalf of producers, in order to perform the market analysis that will provide the input to the Regulator for establishing the regulated contracts. These data are used to assess also the load and national generating capacity data for next winter adequacy assessment.

Relied to statistics the peak load sensitivity for winter interval is approximately 40 MW/ºC.
Concerning the system services reserve, yearly or for any interval is needed, Transelectrica signs contracts with the producers in order to be able to: control the system frequency and balance exchange after a disturbance, compensate the consumption forecast deviation or network losses, maintain the voltage level within regular range.

There is a regulatory frame regarding the load reduction, but in despite of this there are not any solicitations to license the consumers yet.

The NGC wind power values evolution for 2010-2011 winter takes into account the technical commissioning and not the commercial commissioning.

The synchronous interconnection allows Transelectrica to facilitate commercial exchange power performing with the neighboring TSOs and even to carry out some emergency help when somebody need it.

Transelectrica has coordinated bilateral yearly and monthly NTC values for commercial purposes with all neighbour TSOs.

Transelectrica performs complementary coordinated bilateral daily and intra-day auctions with Hungary and Bulgaria.

For the 2010-2011 winter the maximum indicative and non guaranteed values concerning the simultaneous interconnected synchronous operation are 2100 MW for import and 2050 MW for export, including the values on the West Ukraine border as well.

The above values do not include the capacity values for possible involved lines in island operation with non-UCTE countries that represent 480MW for import and 350MW for export.
Besides for the coming winter, Transelectrica does not expect transit flows which could jeopardize the interconnections.

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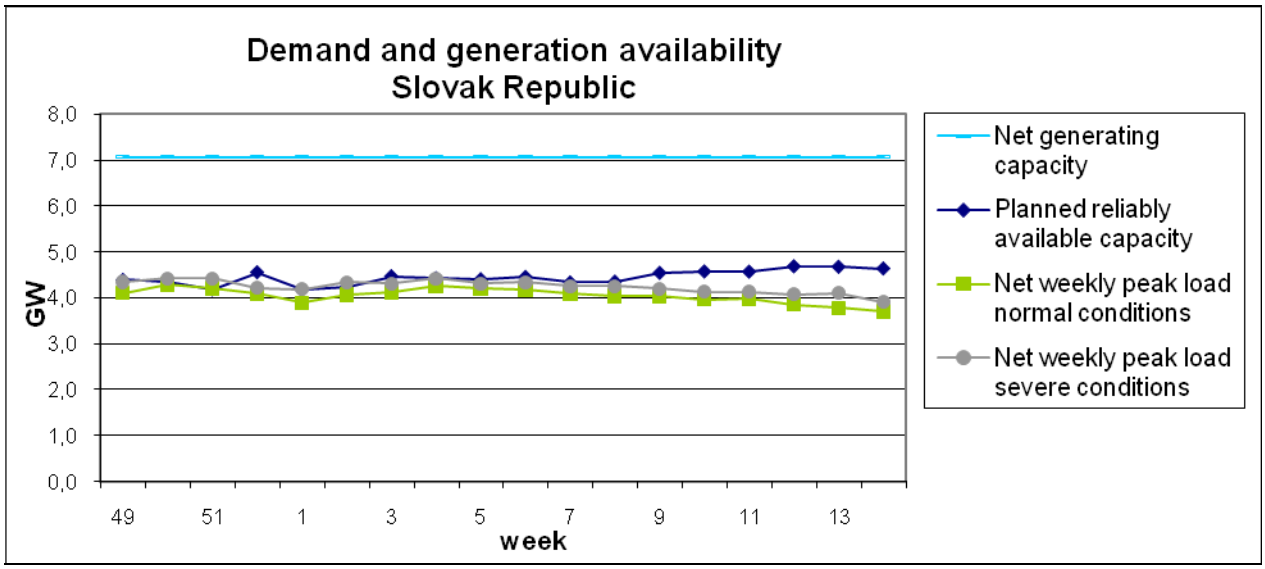
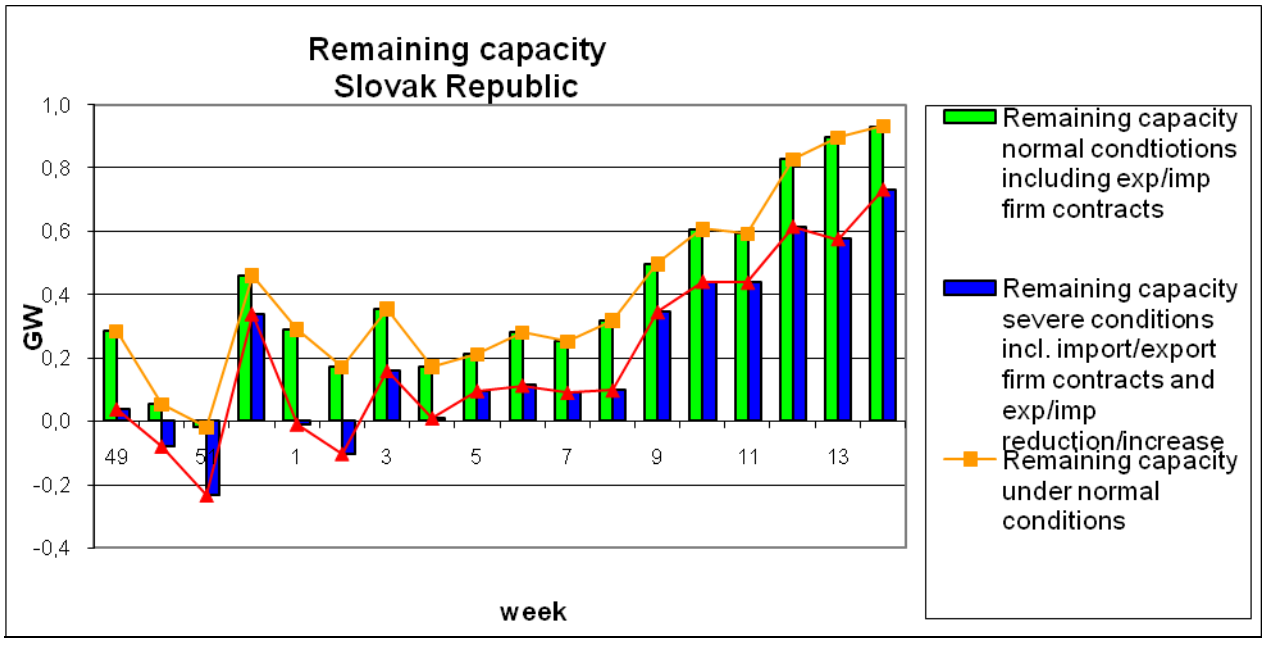
SLOVAK REPUBLIC





Generation - Load balance

No particular problems regarding the load/generation balance under normal conditions are expected in the power system of Slovakia in winter 2010/2011. The critical periods in the coming winter are not expected under normal weather conditions. Until September of this year the consumption increased by +5.1% compared to the same period of last year. The winter load under normal conditions for this outlook was foreseen at the same level as the last winter. The scenario under severe conditions was also analysed. In normal scenario (normal climate conditions) the generation capacities are sufficient for all weeks, except weeks 50 and 51. Under

severe climate conditions the insufficient of generation capacities may occur in the weeks 50, 51 (2010) and 2 (2011). Cross-border capacities on these weeks are sufficient to allow import of the required level.

Test period of the new CCGT power plant Malženice (430 MW) started in June 2010. Tests are planned till the end of the year. Commercial operation is expected from the very beginning of 2011.

Existence of critical period

The critical periods in the comming winter are not expected under normal weather conditions. Under severe winter conditions the available reliable margin is below 5% from December to February.

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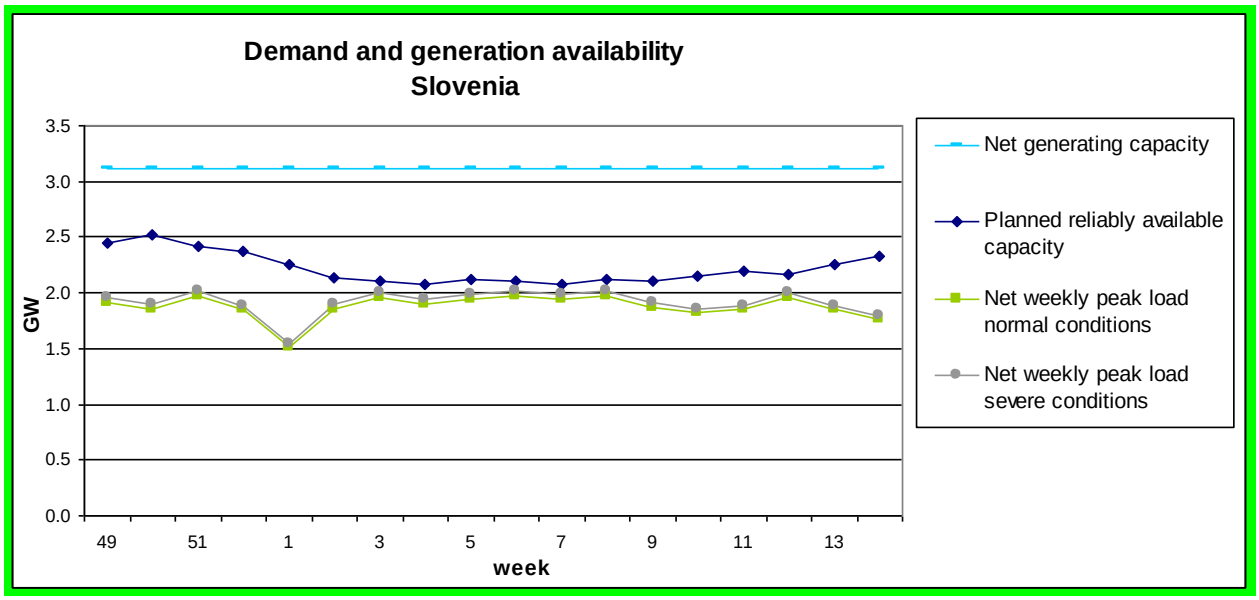
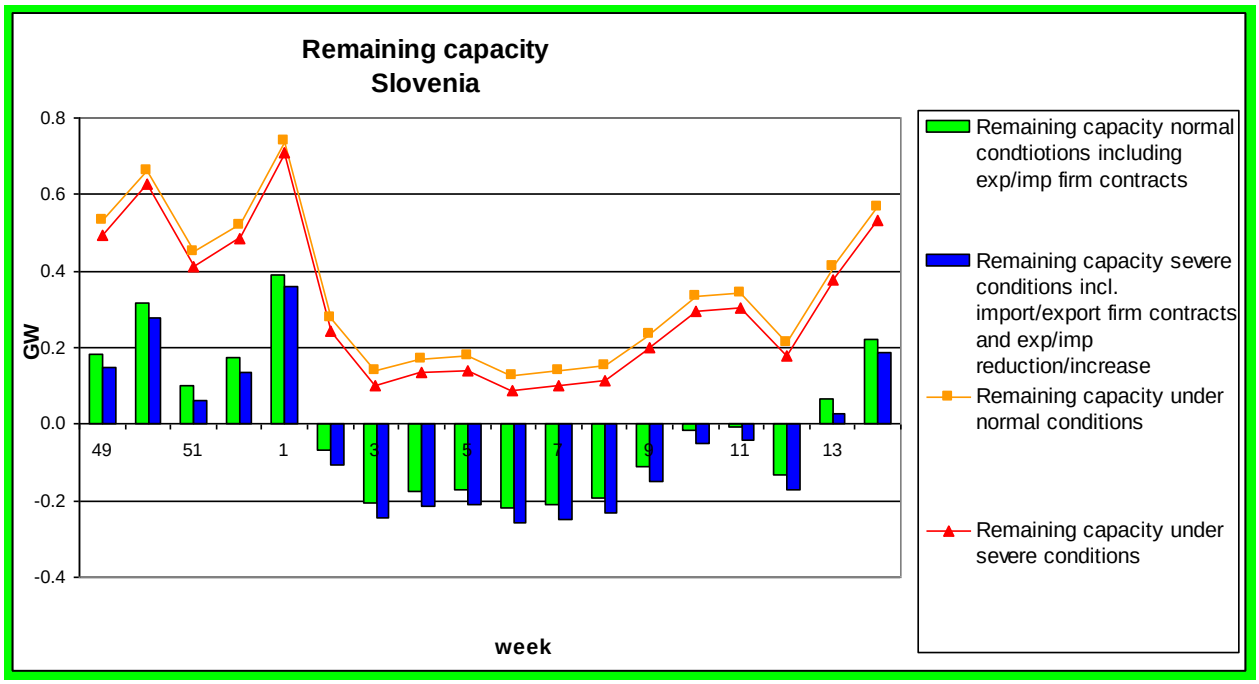
SLOVENIA



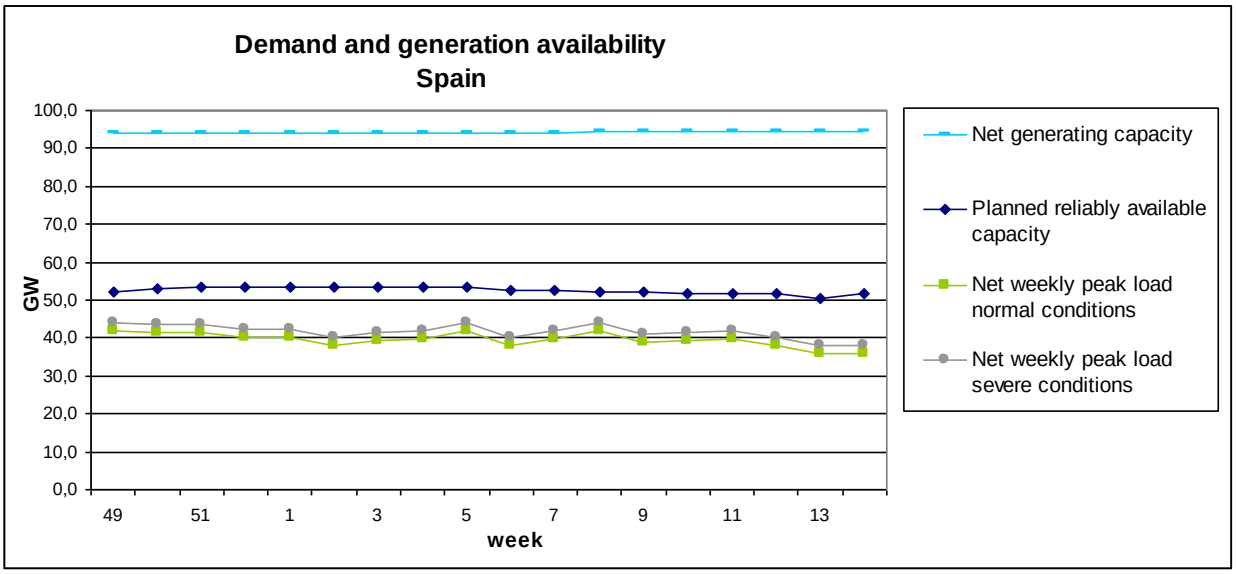


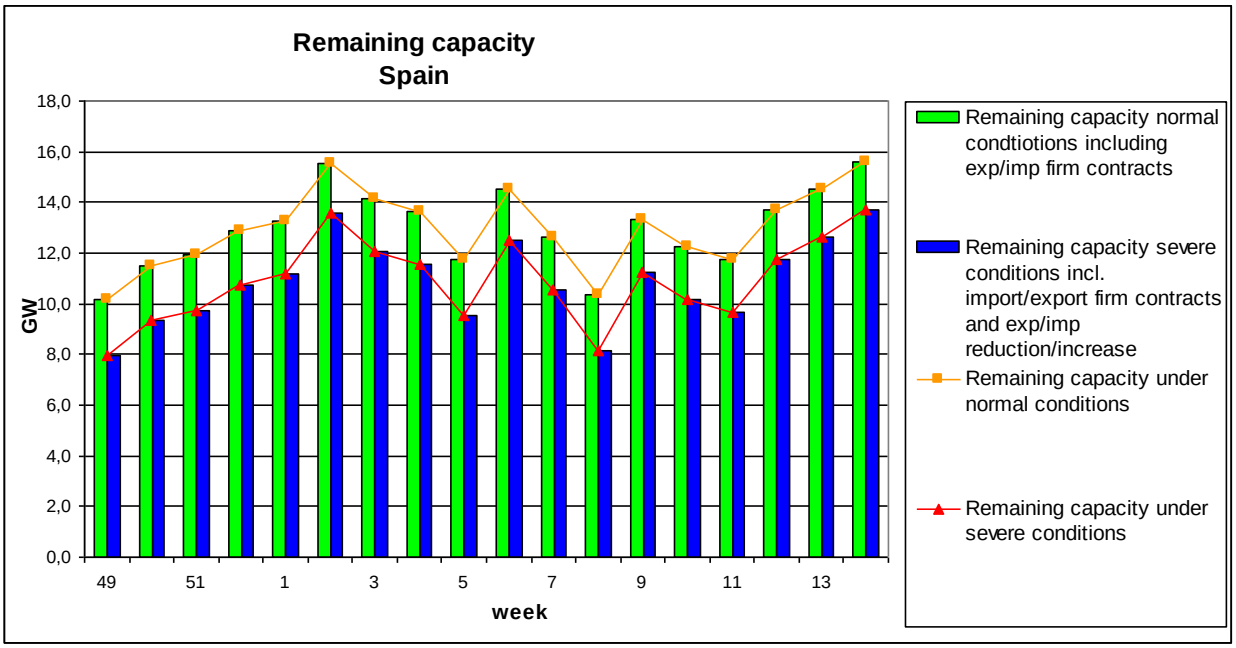
Transport capacities arrive from non-binding indicative Winter 2010/11 NTC values for Slovenia. In case of internal congestions, NTC reduction is expected in direction AT-SI and SI-IT.

Ownership of the nuclear power plant Krško is equally divided between Slovenia and Croatia, thus half of its generation is delivered to Croatia in accordance with the international agreement. With regard to past experiences no congestion on Slovenian- Croatian border is expected during winter period.

Due to unbalanced flow patterns on the Italian northern border, high transit-flows over Slovenian EPS are frequent. In case of internal congestions on Podlog-Beričevo corridor, NTC reduction and disconnection of interconnectors on SI-IT border may occur in accordance with pent lateral agreement

SPAIN





General Comments

After the significant drop of demand values during last two years, a stabilization of demand values is expected for upcoming winter.

Only in case of simultaneous extreme peak demand, very low wind generation (less than 8% of wind installed capacity), very drought conditions and a very high thermal forced outage rate, we can find values of remaining capacity of 7.950 MW.

The adequacy index is defined as the relationship between available capacity and peak demand. Available capacity is defined as generating capacity minus non usable capacity at peak load, overhauls and outages In case of normal conditions the forecasted adequacy index is always over 1.27. Only in case of severe conditions as described before, it could decrease down to 1.21.

However, the most important risk factors for this next winter in the Spanish system are hydro and wind conditions, very high sensitivity of load to temperature in extreme weather conditions and gas availability to combined cycle and gas thermal plants.

Short explanation of the framework and the method used for making the winter adequacy assessment

Among other reports, every month, a medium term system adequacy forecast report for the next 12 months is produced by REE (The Spanish TSO).

Medium term system adequacy forecast is carried out using a hydrothermal coordination model with stochastic dynamic programming that minimizes variable operation costs. The analysis is based on a probabilistic tool where hydro stochastic behaviour and non planned thermal outages are considered. In addition, regional studies are performed looking for congestions.
The medium term forecast considers several hydro conditions, available thermal capacity and wind production scenarios.

All scenarios are built under the following assumptions:

- Overhaul planning notified by generators for the incoming winter.
- Guaranteed fuel (gas) supply to combined cycle and gas thermal plants.
- Low wind conditions: wind generation considered is around 7% of available capacity. Wind generation has been above this rate with a probability of 95%.

Extremely severe conditions for the system are simulated as:

- Extreme demand due to severe weather conditions, typically very low temperatures
- Severe drought conditions. Significant non usable hydro capacity due to lack of water in the reservoirs.
- No import capacity is considered in the study in severe conditions. So, it is not taken into account in the load – generation balance.
- Unplanned average forced outage of thermal capacity with a 10% probability of being higher (around 3.800 MW).

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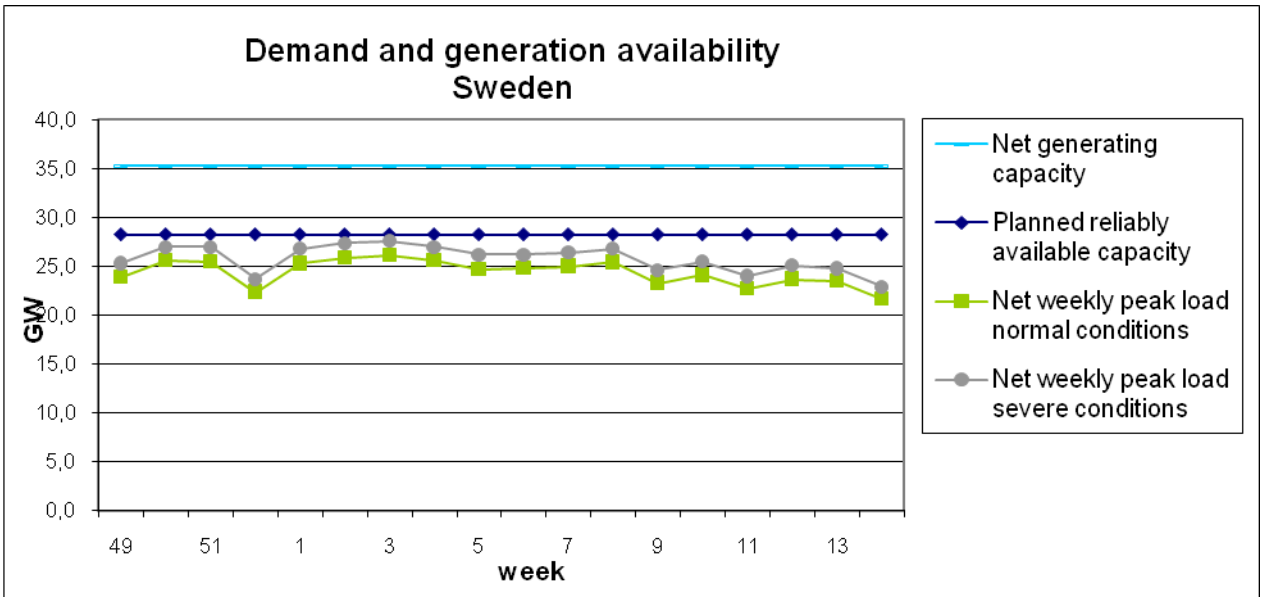
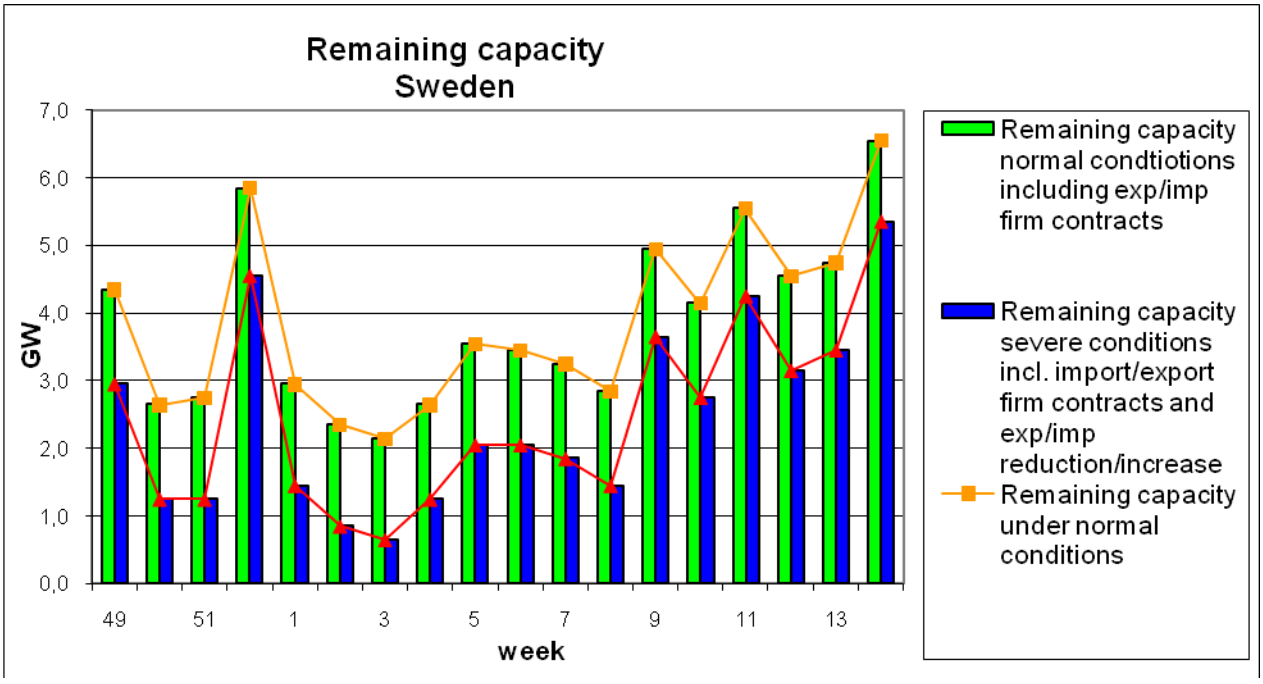
SWEDEN





General Comments

Svenska Kraftnät does not expect any critical situation during the winter 2010/11. The available generation capacity is higher than the expected peak load, even on a cold winter day. If situations with revisions/overhauls/outages occur, Sweden has the opportunity to import from its neighbouring countries.

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Framework and method

The weakly peak load and severe peak demand bases on historical data. The data forms a load curve which has been scaled up to meet the prognosis for highest peak load for respective case for the coming winter 2010/2011. For wind power 94% of the capacity, a statistical figure, is calculated to be unavailable because of the uncertainty of the wind. The load figures for the winter outlook concerns the load for a normal winter and a load for a severe winter.

Generation – Demand balance

The balance is not considered as a risk for the system; firstly it is positive, secondly if there will be more planned revisions/overhauls/outages than expected this could get covered be importing electricity via connections from other countries.

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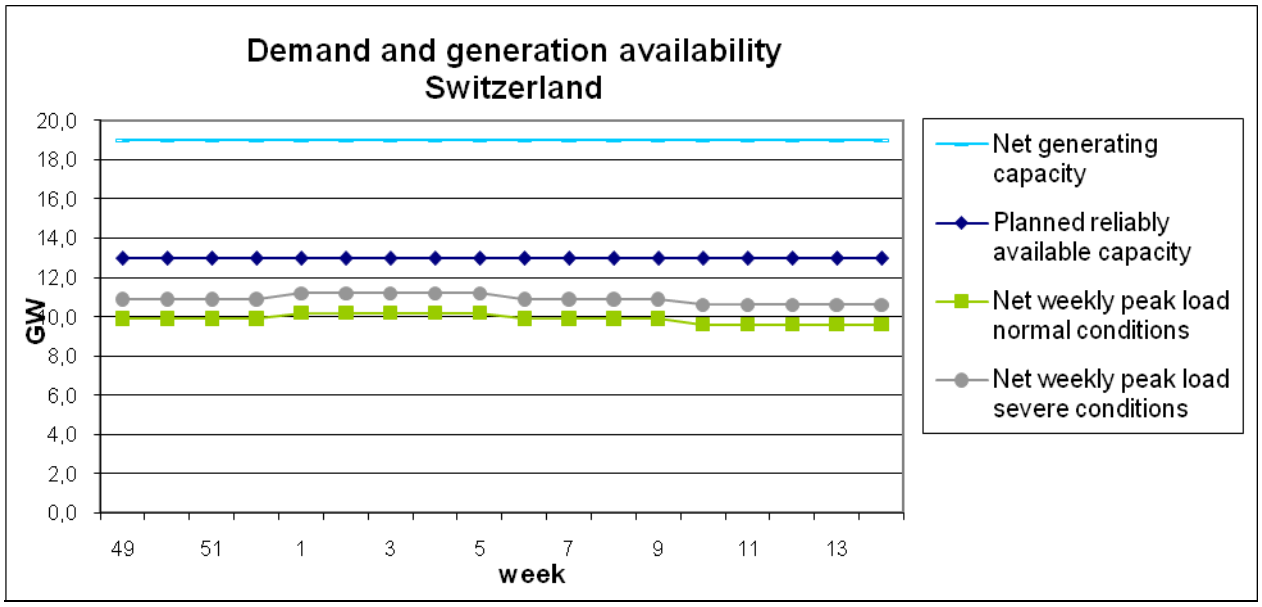
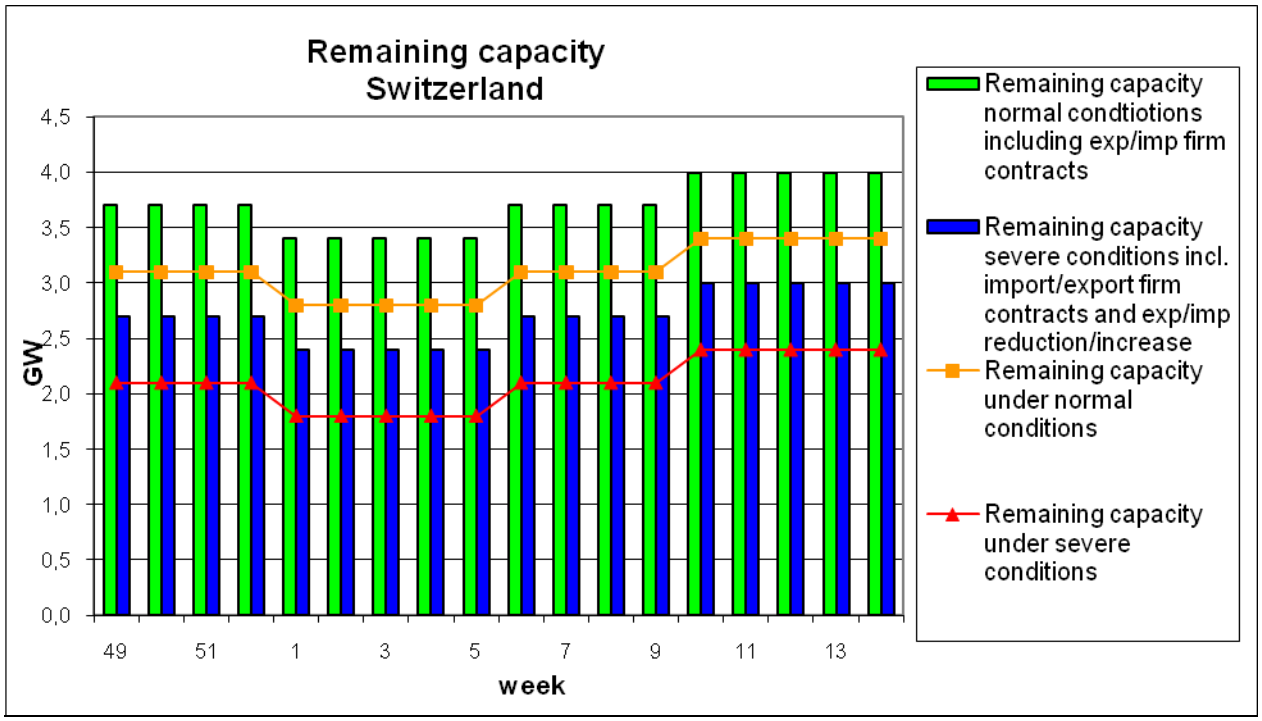
SWITZERLAND





SWISSGRID appreciation of the generation/load balance for the coming winter

The remaining capacity in Switzerland will amount to at least 2.8 GW even in critical situations during the winter 2010/11. Additional 0.6 GW are assured even during severe weather conditions through firm import contracts. Therefore, swissgrid appreciates the generation/load balance as unproblematic regarding the security of supply.

General Comments

The main result of the Winter Outlook Assessment is that under foreseeable conditions Switzerland won't have any problem with the electricity supply during the winter 2010/11. This will be true even in critical situations and even in the case of disturbed interconnections, because the inland generation capacity will be sufficient to cover the expected load.

No critical periods are expected during the winter 2010/11, because the load can be covered by remaining plants even in critical situations.

However, the final criterion for the determination of the system adequacy is the comparison of the remaining capacity with the reference adequacy margin. The former should be equal or higher than the latter.

The Swiss System Adequacy Forecast 2011 – 2026 states that in January 2010 the Swiss remaining capacity will be as of 1.9 GW under normal weather conditions by taking into account the outage of the largest nuclear power plant (1.2 GW).

On the other hand, the Swiss reference adequacy margin amounts to 1.5 GW at the same time. It contains three elements:

- 1.1 GW for severe winter conditions (-15° C),
- 0.2 GW as an average expected value for unexpected bigger (>0.1 GW) hydro power plant outages (the sum of the latter two, i.e. 1.0 + 0.2 = 1.2 GW amounts to ca. 7% of the national generating capacity (19 x 0.07 = 1.3 GW) and, by coincidence, it is equal to the power that can be lost at the outage of the largest nuclear power plant, i.e. 1.2 GW),
- 0.2 – 0.3 GW for the margin (i.e. excess) against the peak load measured at 11:00 hours.

As the most critical situation we consider either the case from the System Adequacy Forecast 2011 – 2026 i.e. normal weather conditions and the outage of the largest nuclear power plant (there are only 5 nuclear power plant units in Switzerland, i.e. this event is very rare) or another case that is partially included into the reference adequacy margin i.e. a very cold winter (severe weather conditions, which are also very rare) and the outage of an average bigger (>0.1 GW) hydro power plant (their number amounts to 37 in 2010, i.e. this event is quite probable).

The Swiss remaining capacity in January 2010 as of 2.8 GW is beyond the reference adequacy margin which amounts to 1.5 GW. From this it follows that Switzerland will match the reference adequacy margin during the winter 2010/11 even without taking into consideration the firm import contracts, which assure additional 0.6 GW.

Framework and method for the winter adequacy assessment

In Switzerland the winter adequacy assessment is not undertaken on the national level. However, each of the 7 largest Swiss utilities has its own supply plan containing all the necessary considerations from technical and economical points of view. Since the reference adequacy margin doesn't present any considerable problem, the economic part prevails in these plans. Therefore, the winter itself is only a special case within the frame of economic calculations.

Generation- demand balance

The generation/demand balance won't be at risk during the winter 2010/11.

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Generation available

In Switzerland there are 5 nuclear power units. Under normal conditions there is no maintenance or overhaul of nuclear power plants during the winter.

As to the other plants, they are all without significant exceptions hydro power plants. According to the ENTSO-E definition, their maintenance is a part of the non-usable capacity and should not be stated separately under maintenance, overhauls and outages.

Demand

According to the Swiss temperature statistic, January was the coldest month during the last 30 years with an average daily temperature in Bern as of -0.3°C. However, December and February are only about a single degree warmer (+1.0°C in both months). In November the mean daily temperature is as of +3.7°C and in March as of +5.0°C. Our observations suggest that there is a load temperature dependency that amounts to about 70 MW/°C. In the Excel sheet the load is given in accordance to this finding when we assume a load as of 10.0 GW in January. However, the last winter was very cold, especially during December and January, and that is why the load in January 2011 is specified 0.2 GW higher (i.e. 10.2 GW).

Remaining capacity in normal conditions

The remaining capacity in normal conditions will be sufficient during all the winter 2010/11.

Nevertheless, the following should be kept in mind. For the Winter Outlook Report the average capacity of power plant outages is recorded in the Excel sheet. It amounts to ca. 0.2 GW and is estimated using a probabilistic approach. On the other hand, for the System Adequacy Forecast the outage of the biggest power plant unit with its full capacity (1.2 GW) is normally considered. These two kinds of reports are based on different methodologies related to outages and accordingly deliver different results as to the remaining capacity (for January 2011, 2.8 GW in the Winter Outlook Report versus ca. 1.9 GW in the System Adequacy Forecast).

Severe load conditions

Under severe load conditions we understand a drop of the daily mean temperature from about 0°C to -15°C that is beyond any doubt the worst scenario. Using the load temperature dependency of 70 MW/°C one finds that additional load of about 1 GW will arise under these conditions.

Role of interconnection

The interconnections are, of course, important for the functioning of the Swiss transmission network, but the Swiss power balance is given even without them. On the other hand, via interconnections, the Swiss generation can contribute to the power balance of the neighbouring systems, if necessary.

We don’t expect any variations of the interconnection capacities during the winter 2010/11.

Firm import/export contracts

Swiss utilities have firm contracts with nuclear power plants mostly in France amounting to 2-3 GW. However, this capacity can be significantly reduced by the producers during a period of several weeks, so that in the end only 0.6 GW can be assumed as a guaranteed firm import capacity.

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Additional loads due to transits

Additional flows due to transits are not expected during the winter 2010/11. However, the transit flows throughout the Swiss transmission network are permanent and high. If necessary they will be reduced by using the NTC procedures.

Potential other areas for comments

No issues of special relevance. The contribution of intermittent energy sources (e.g. wind) in Switzerland is negligible. The treatment and the amount of mothballed plants is not known to swissgrid, but there can't be much of such capacity in a generation system which is almost completely based on hydro power and 5 nuclear units, whereas the latter are, of course, not mothballed. No special constraints are expected during the winter 2010/11 related to interconnection capacity, fuel supply or hydro power plants (i.e. no constraints which would go beyond the unavailability already recorded under the non-usable capacity).

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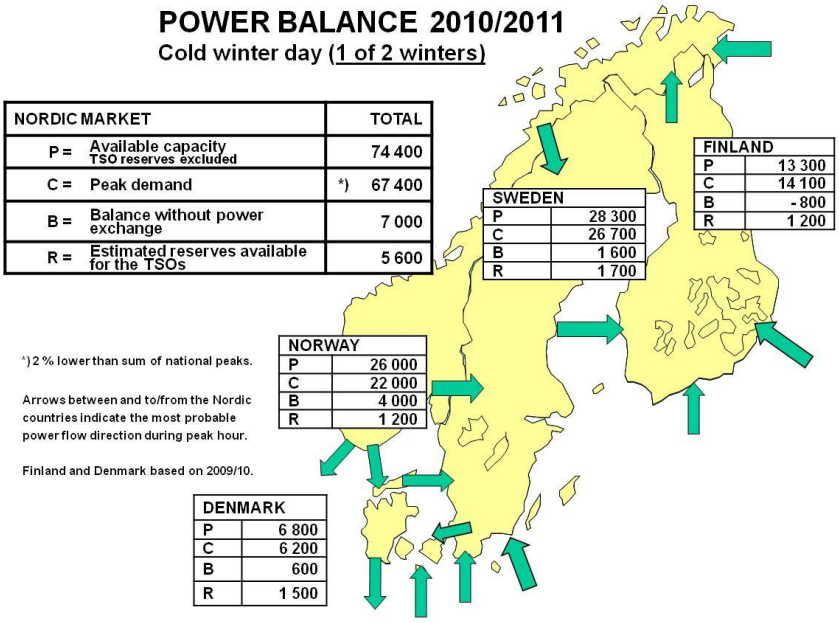
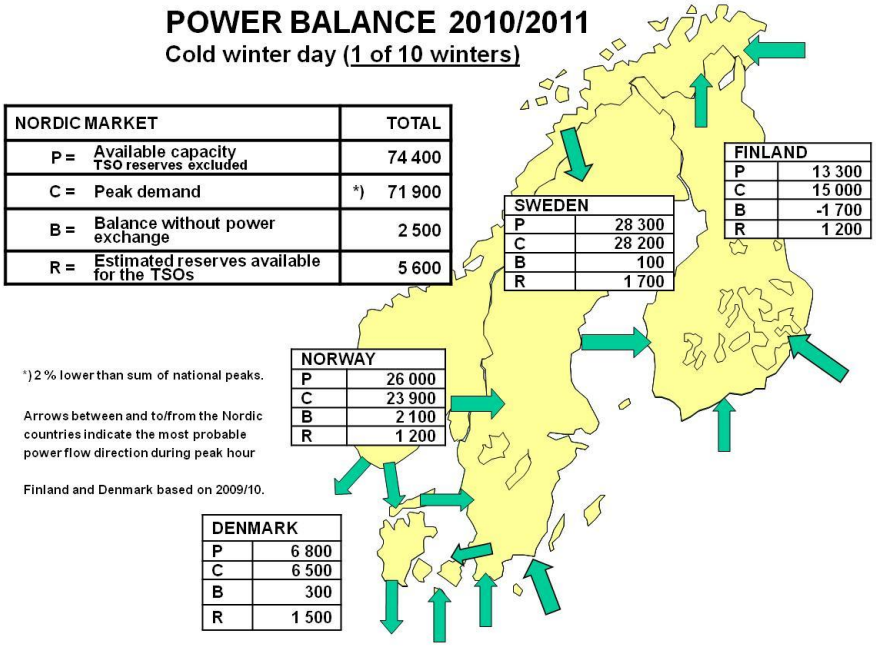
Nordic countries (Denmark, Finland, Norway, Sweden)





The total Nordic power system is for the winter 2010/2011 expected to have a positive power balance in peak hours, both in a normal and in a severe winter situation. The balance has improved compared to reality last winter. The main reason for this is that the prognosis assumes that the Swedish nuclear power plants will be in operation. On the other hand the demand has increased because of recovery after the financial crisis.

Norway, Sweden and Denmark have a positive power balance, both under normal and under severe conditions (1 out of 10 winters). Finland has a negative power balance, both under normal and under severe conditions (1 out of 10 winters). The deficit for Finland under severe conditions is expected to be 1700 MW. This is not an unusual situation and the deficit will be covered by import from neighbouring countries.

Baltic Sea region
(Denmark, Finland, Norway, Sweden, Estonia, Lithuania, Latvia, Germany, Poland)

In total, the Baltic Sea region has a positive power balance for the winter 2010/2011 under both normal and severe load conditions. When viewed nation by nation, a few countries have a negative power balance (see Fig.1), but when taking possible import from neighbouring countries into account these are balanced out as both the necessary power surplus and transmission capacities are expected to be available.

The columns in Fig. 1 represent weeks 49 to 14 in 2010/2011 and are based on weekly estimates. Germany has not reported Net Weekly Peak Load (NWPL) under severe conditions and therefore NWPL in normal conditions are used.

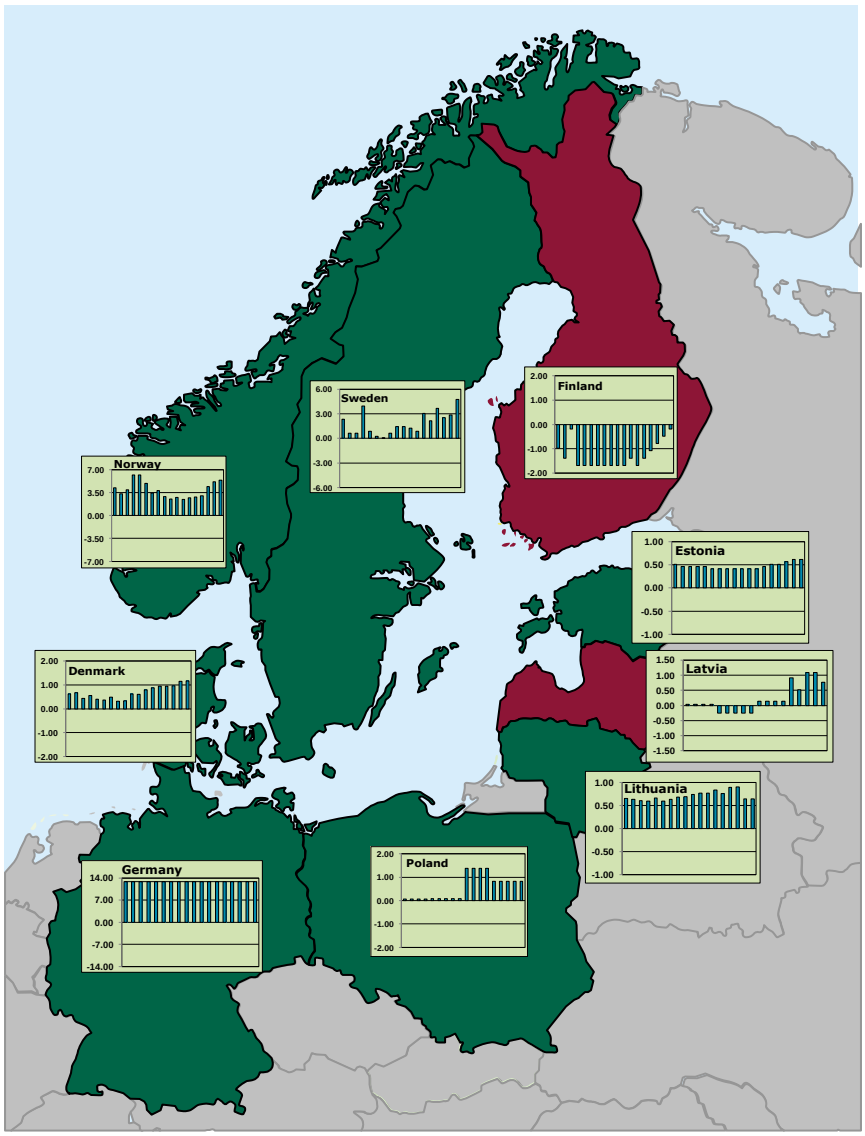


Fig. 1. Regional overview of individual power balances (GW) under severe load conditions, without import or export. The scale varies from country to country.

Adding all the individual balances in the region show that in total, the region (excluding Germany) has a positive balance of 3-14 GW (depending on the week) under severe load conditions. Taking into account Germany's net weekly peak load under normal conditions, the regional balance is 16-27 GW (depending on the week).This is under the assumption that the severe load conditions of all countries (excluding Germany) occur simultaneously. Previous statistical assessments, however, indicate that the simultaneously peak load is less than 98% of the sum of all peak loads. Also, wind power is not necessarily available at peak load and therefore only a smaller part of the installed wind capacities are included in the power balance. There are 35.4 GW of installed wind power in the Baltic Sea region. Countries in the region have included between 0% and 25% in their national power balance, and on average for the Baltic Sea region, approximately 5.2% of this is included in the power balance. Looking at this from a regional view, it was chosen to assume 6%[2] availability of all wind power in the regional power balance.

A regional power balance has been calculated based on the individual power balances which are described in more detail for each country in this report. The regional power balance, which assumes a 2% reduction in severe load conditions and that the wind power in each country has an availability of 6%, improves the overall power balance to 5-16 GW (depending on the week) under severe load conditions, excluding Germany and 20-30 GW taking into account Germany's data on net weekly peak load under normal conditions.

[2] Based on previous assessments for the Nordic region alone, where at least 6% of the installed wind power capacity will be available with 90% probability.

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6.2 Appendix 2: Questionnaire and WOR 2011 Excel data sheet

The "Summer Review and Winter Outlook Report 2010-11" will be published on ENTSO-E web-site and communicated to the Electricity Cross-Border Committee of the European Commission[3].
The period covered by the Winter Outlook Report will be from 6 December 2010 (week 49) to 10 April 2011 (week 14).

If any information (figures or comments) are to be kept confidential for use within ENTSO-E only, please identify them clearly and they won't be made available to other parties.

The proposed plan for the report is therefore mainly inspired by last year's document:

Main Report (about 10 pages)
Executive Summary
Introduction and methodology
Summer Review 2010
Winter Outlook 2010-11 (including comments per Regions)
Lessons learnt

Appendix (about 3 pages per country and when available per Region). On a country by country basis, graphs illustrating the generation-load balance and comments provided by each country.

The information provided should reflect the actual state of the analysis made by the TSO and based on the available materials.
For your reference the ENTSO Winter Outlook 2009-2010 is available on:
https://www.entsoe.eu/index.php?id=50

INPUT FROM EACH COUNTRY

The input expected from each country comprises 3 main parts:

One or two paragraphs emphasizing the TSO's appreciation of the generation – load balance for the coming winter; this synopsis will be included in the main report. No common form is suggested in order to fit with each country's specific case.
A table with quantitative elements with a common format; this table will not be published but sent only to those TSOs taking part in the exercise; the data will be used for building graphs attached in appendix to the report and illustrating the winter outlook for the country.
A one-page or half-a-page synopsis and 1-2 pages comments on the generation-load adequacy for the coming winter that will be included in the Appendix of the report. In order to facilitate the production and use of these comments, common guidelines are provided hereafter, including a section for additional comments to highlight the issues that are particularly relevant for that country next winter.

QUANTITATIVE ELEMENTS

See attached excel sheet.

[3] "The EC Cross Border Committee acts in accordance with Regulation (EC) No 1228/2008 of the European Parliament and of the Council of 26 June 2003 on conditions for access to the network for cross-border exchanges in electricity (Article 13), replaced by Regulation EC n. 714/09 . It consists of Member States' representatives.

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If weekly data are not available, the data for the third Wednesday of January should be at least available for countries of the Regional Groups “Continental Europe” (as provided in the framework of the system adequacy forecast); it is asked to provide again these data, possibly updated in order to take into account the increased knowledge of the situation since last SAF 2009-2020 (outages, status of hydro reserves, etc.) .

GUIDELINES FOR COMMENTS

Each TSO shall provide the following information:

3.1 Contribution to main report

A few lines on the main results of the assessment: general situation, most critical periods, expected role of interconnections, measures to be activated or foreseen in case of a gas crisis.

3.2 Synopsis

It is very important that TSOs express their appreciation of the situation for the coming winter at least in a qualitative manner.

This assessment should stress the main critical periods and the main factors of risk.
It would be useful to indicate, if any, which level of remaining capacity they consider as necessary when making this forecast in order to ensure a secure operation for the next winter (i.e. what is the reference adequacy margin).

3.3 Short explanation of the framework and the method used for making the winter adequacy assessment

Is this kind of study undertaken, at which time horizon (e.g. for the whole winter, on a monthly basis), considered items, internal or public documents, probabilistic/deterministic, use of scenarios….

3.4 Generation – Demand balance

Precise if this balance is considered at risk for the system, the main factors of risk (e.g. availability of generation, load sensitivity to temperature), how is this risk managed by the TSO, the time horizon of the studies made in this respect. This part will be included in the appendix only if the TSO wants to.

Please comment each of the following items and use the associated definitions in order to fill the associated excel-table.

According to their availability please provide these quantitative data either:

for each week of the considered period,
for each month of the considered period
for typical weeks or days (at least the third Wednesday of January)

Generation Available (lines 1 to 12):

The total generation capacity notified to the TSO as being planned to be available each week for the same period.
This available generation capacity could be computed according to a methodology directly inspired from the one used for the former ETSO system adequacy forecast report and within the former UCTE for generation adequacy assessment.

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The following data are requested:

National generating capacity (line 1 to 6)
Non-usable capacity at peak load (line 7): resulting from lack of primary sources (hydro, wind), insufficient fuel availability due to actual contracts, mothballed plants not in operation during the winter…., with detailed values for mothballed plants and wind power
Overhauls (line 8): notified by generators to TSOs
Planned available capacity (line 9) : corresponds to the generating capacity declared available by producers
Outages (line 10): corresponds to the average statistical data resulting from short notice breakdown according to TSO experiences
System services reserves (line 11): amount of capacity required by the TSO to provide operating response/reserves ; it corresponds to the level required one hour before real time (additional short notice breakdowns are already considered in the amount of outages).
Reliably available capacity (line 12): result of the above data but it is possible for TSO's to only fill this line. It corresponds to the average generating capacity which should be available for the current week to meet the load.

Additional relevant variations to the generation capacity can be mentioned so that a range of possible outcomes can be seen corresponding for example to scenarios covering lower availability of generating units.

Demand (lines 13-15):

Weekly peak demands (excluding any demands on interconnectors and net of any demand management/demand price response) in normal weather conditions for the period from December 1 to March 31 (line 13)
Possible load reductions in normal conditions should be mentioned (line 14).
It results in the net weekly peak load (line 15)

Remaining capacity in normal conditions (line 16):

It corresponds to the generating capacity available above net demand; it is the basis of the TSO appreciation of the generation adequacy for the current week.

Severe load conditions (lines 17 – 20):

Additional relevant variations to the demand levels to be shown for each week so that a range of possible outcomes can been seen rather than a single forecast: it is possible to describe a scenario resulting from specified extreme weather conditions; the probability and characteristics of such scenario should be indicated.

3.5 Role of interconnection

Specific information is collected in order to highlight the potential role of interconnection in the power balance and the possible contribution of each national system to the generation balance of the other countries.

For that purpose the following items should be covered:

3.5.1 Interconnection capacity with other national systems expected to be available each week and a range of possible outcomes for Interconnection power flow (line 21 - 22).

3.5.2 Firm import/export contracts (line 23-26): for countries where firm import/export contracts are notified to the TSO, their influence on the remaining capacity should be mentioned.

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Information on the possibility of export reduction or import increases will give a more complete view of the situation.

3.5.3 Comments on expected additional loads of interconnections due to transit-flows which affect the import/export capacity
3.6 Potential additional areas for comments

Contribution from intermittent energy sources e.g. wind included in generation available and assumptions made concerning availability (expected wind supply during wintertime) and whether included or excluded in above assessments (line 7a)

Treatment and amount of mothballed plant. Under what circumstances (if any) could it be made available? (line 7a)
Issues, if any, associated with utilising interconnection capacity e.g. existence of transmission constraints affecting interconnectors for export or import at time of peak load (such as maintenance or foreseen transit or loop flows)

Energy constraint issues particularly for hydro based systems.

Any other fuel supply issues which could affect availability e.g. gas supply issues

Do you expect any event that may affect the adequacy during the winter? If yes, what actions do you plan to activate (i.e in case of shortage of gas supply this winter)?

Please describe the effects on demand of the economic crisis in Europe and if any mitigation measure has been undertaken in your country (such as measures to improve forecasting, measures to mitigate the effects on TSOs revenues and so on)

Please describe any other forecast issues (such as effects on wind generation)

Any other issues of relevance

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ENTSO-E SUMMER REVIEW 2010

Following the publication of the ENTSO-E Summer Outlook Report 2010, a summer review will be provided with the objective to present what happened during the summer as regards weather conditions, and other factors and their consequences on the power system (temperatures, hydro and wind conditions), availability of generating units, market conditions, use/availability of interconnections and imported energy, and to compare what happened in reality with the risks identified in the Summer outlook.

The Summer Review covers the period 1st June – 30th September 2010

1. Did your system experience any significant/unusual events or conditions during the Summer period (e.g. major losses of supply, loss of interconnection availability/capacity, emergency situations etc.)?

2. What were the cause(s) and remedial action(s)?

3. What are lessons learned for future prevention/management?

For your reference the former ENTSO-E Winter Review and Summer Outlook Report 2010 is available on:

https://www.entsoe.eu/index.php?id=50

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