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entsoe

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Introduction

This document includes individual country reviews on security of supply situation in their system during last season. The reviews are also accompanied with country comments about the expected adequacy situation or specific operational conditions expected during the coming season.

The aim of the retrospective reviews are to present the most important events that occurred during previous season and to compare them to the previous Seasonal Outlook study results. Important or unusual events or conditions in the power system and the remedial actions taken by the TSOs are also mentioned.

The comments about expected adequacy situation and any additional information is presented to provide more background information about the particular power systems, which might not always be represented in pan-European adequacy models. Hence, giving extra information about the actual expected adequacy situation.

Countries did not comment or review anything if there was no relevant information to be reported.

Albania

Summer Outlook 2020

The summer season of 2020 is expected to be a normal one, within average historical values of demand and generation.

Demand will be mainly supplied by hydro generation and the import contract of distribution system operator (DSO).

Comparing with the summer 2019, generation is expected to slightly decrease due to low inflows and, consequently, import are expected to increase.

There is a potential risk that, due to the COVID-19 pandemic, the maintenance that was scheduled to be performed in early spring will be postponed until the summer. Nevertheless, the maintenance schedule could be managed in order to provide enough capacity for security and supply.

Also, due to low inflows in Hydro Power Plant, no downward regulation problems are expected.

Winter Review 2019/2020

Regarding Winter 2019/2020 in Albania, the season is considered as a normal one in terms of historical average temperatures and main indicative parameters of the power system.

Inflows in the Drin River cascade, which is the country's main generation source, were slightly below historical average values.

Also, demand slightly increased, which forced Albania to cover it with import contracts arranged by DSO. The maintenance schedule was reduced to a minimum, providing enough capacity for import or, in case of high hydro inflows, for export.

Thus, no adequacy or downward regulation issues were identified during the past season.

Austria

Summer Outlook 2020

For calculating the demand, time series for the SOR 2020 the MAF 2020 input data was used.

Due to various protective measures against the SARS-CoV-2 virus, maintenance works will take longer (e.g. because of social distancing, etc.) and lead to simultaneously unavailable power plants. Additionally, some other planned outages of thermal power plants were asked to be considered in the Summer Outlook calculations which were already stated in the PEMMDB. Consequently, the Austrian remaining capacity is probably lower by several hundreds of MW then stated by the author in the report.

Furthermore, big parts of the Austrian industry have been shut down which has led to a reduced demand of around 10%. From the current perspective, the demand for summer 2020 can be predicted with some uncertainty only. In case of a more relaxed corona crisis situation the industrial consumption could also lead to a higher load due to catch-up effects trying to compensate former outages.

Concerning the NGC it is worth to mention that the former hard coal power plant "FHKW Mellach" is now fired by Gas (new NGC: 165 MW; before: 210). Moreover, the net generating capacities of the "Kraftwerksgruppe Obere Ill-Lünersee" (turbine: 2.1 GW; pumping: 1.4 GW) and of "Kühtai/Silz" (turbine: 0.8 GW; pumping: 0.25 GW) are assigned to the German control block and are therefore not considered for Austria.

Regarding the deterministic approach and the respective generated energy of Austrian pumped storage plants (PSPs) in a normal year and in a dry year (normal conditions / severe conditions) the reliable available power was calculated by dividing this available energy by 60 h for each week corresponding to the energy constraints of this type of power plant. This approach considers the seasonal inflow and the sustainable exploitation of a PSP and assumes that the plants only generate during peak time (Mo.-Fr. 8:00-20:00), which leads to a time frame of 60 h/week of generation.

Winter Review 2019/2020

Winter 2019/2020 (Dec, Jan, Feb) was extremely mild. Especially in the lowland areas - where the majority of the Austrian population lives - the temperature was 2.7 ° C above the average and the second warmest winter in history. In the mountain regions, it was the fourth warmest winter in history.

Concerning precipitation, Austria was split in two - a dry "east and south region" (15%–50% below the average) and a wet "north and west region" (15%–40% above the average). In total, it was the 5th sunniest winter with 20% of sunshine hours above the average.

Belgium

Summer Outlook 2020

No adequacy issues are expected for Belgium for the upcoming summer.

Due to COVID-19 there are some changes in the maintenance schedules of the power units, mainly nuclear units, which is leading to periods of increased unavailability during the summer. On the other hand, there is also a reduction of the Belgian demand (up to 20%). It is expected that the demand will recover, however, the timing will strongly depend on the enforced measures.

For the moment there are no indications of an increased adequacy risk during the summer. The situation is monitored closely as new information arrives regularly.

Increasing volumes of installed wind and PV, leads to relatively high needs for export in case of good nuclear availability. The excess energy is mainly expected during weekends and the holiday period. The export capacities should be sufficient, however, in some specific cases additional measures may be necessary.

Winter Review 2019/2020

There were no adequacy issues in Belgium during the winter period 2019/2020, due to a good availability of the Belgian thermal and nuclear production park, very mild temperatures and sufficient import capacity.

Bosnia and Herzegovina

Summer Outlook 2020

No adequacy or downward regulation issues are expected in Bosnia and Herzegovina for the upcoming summer, and a positive power balance is expected.

Winter Review 2019/2020

No adequacy or downward regulation issues were identified during the past season in the electric power system of Bosnia and Herzegovina. As the biggest consumer in Bosnia and Herzegovina, an aluminium factory in Mostar, stopped working in July 2019, the consumption in winter 2019/2020 was significantly lower than in winter 2018/2019 (about 7%).

A maximum hourly consumption of 1827 MW was registered on 31 December 2019 at 18:00. This value is 167 MW lower than the maximum hourly consumption for winter 2018/2019 (1994 MW).

Bulgaria

Summer Outlook 2020

No adequacy are expected in Bulgaria for the upcoming summer as quite a large margin between available generating capacity and expected demand will be in place.

COVID-19 containment measures might cause some slight delays in the maintenance program of OHL and generating units but on the other hand there was a noticeable drop in demand in April 2020 (6% compared to April 2019) and this is envisaged to remain as a trend during the whole summer period of 2020.

As of the latest information, nothing suggests adequacy risks throughout the summer.

Winter Review 2019/2020

No adequacy issues were detected during the past winter season in Bulgaria. This was mostly due to the mild winter we had and the lower than expected peak loads.

Croatia

Summer Outlook 2020

It was recognized that the summer is a season with very high demands and it is not unusual that the summer peak demand exceeds the winter peak demand.

However, the circumstances this year are very unfavourable especially for tourism as an important economic branch and a cause of higher consumption. Consequently, the demand is expected to stay significantly under 3038 MW noticed in summer 2019.

The need for the imports is present during the whole summer. The amount of the imports depends on weather conditions, above all wind and precipitations.

In any case, no risk of the system adequacy is expected for the upcoming summer.

Winter Review 2019/2020

Mild weather and COVID-19 pandemic were the main reasons for the lower demand in Croatian power system during the whole season. The maximum demand occurred on 12th December 2019 at 6 pm and amounted to 2742 MW, around 160 MW lower than in winter 2018/2019. On the other side, the minimum demand on 13th April 2020 at 5 am amounted to 1067 MW.

During December 2019 hydro and wind power plants produced around 1100 GWh of energy, making exceptionally high share in the total electrical energy generation (around 75%).

There was no significant interruption of supply. No adequacy or downward regulation issues were identified

Denmark

Summer Outlook 2020

Energinet expects a stable summer period. The power balance situation seems fine. There are planned maintenances on power plants and some grid outages that affect the capacity, but generally it looks fine. The power adequacy in DK1 and DK2 seems to be quite well during summer.

DKW1 (DK1 bidding zone): There will be maintenance on the HVDC connection, Skagerrak 4, for approximately 2 months. It will give some restriction towards Norway (NO2 bidding zone or NOS0 study zone), but it will not affect the adequacy. In summer 2020, the capacity on the border between TenneT Germany (DE) and Energinet (DK1) will increase. Two new 400 kV connections will replace the 220 kV connection, which will increase the trading capacity as from July.

DKE1 (DK2 bidding zone): There will be periods with restrictions on the border connection between Sweden (SE4 bidding zone or SE04 study zone) and Energinet (DKE1) (Øresund). The reason for this is planned maintenance on the 400 kV cables between Denmark and Sweden. After some delay, Kriegers Flak will go into operation this summer. Kriegers Flak is a combined interconnector and offshore wind farm. The Kriegers Flak interconnector connects Denmark (DKE1) and Germany (50 Hertz TSO control area or DE00 study zone). Consequently, the trading capacity will increase between these two areas.

In DKE1 and DKW1, Energinet does not expect any problems with downward regulation. Energinet expects a large amount of countertrade. The common agreement between TenneT Germany and Energinet that gives an increased trading capacity to the market will cause a need for countertrade. Energinet will manage this with downward regulation in DKW1 and DKE1.

Winter Review 2019/2020

The winter 2019/2020 was characterized by favorable wind conditions in Denmark. This resulted in a total Danish wind production of 7255 GWh for the months, November, December, January and February. Compared to last winter this is an increase of 27 percent in Denmark.

In consequence of a relatively large wind production, the winter period is usually characterized by a large number of hours with negative prices. The previous winter also had hours with negative Danish prices in the day-ahead electricity market. In Western Denmark (DK1), there were 66 hours of negative prices, while there were 30 hours of negative prices in Eastern Denmark (DK2). For Denmark as a whole, this is a small decrease compared to last winter where there were 52 and 48 hours with negative prices in Western Denmark (DK1) and Eastern Denmark (DK2), respectively. For Western Denmark, on the other hand, this is an increase of 14 hours compared to last year. This can to some extend be explained by a more stable wind production in comparison to previous years.

Moreover, the favorable wind conditions also contributed to lower average electricity prices in Denmark during the winter 2019/2020. The average price for the winter period November to February was 202 DKK/MWh in Western Denmark and 222 DKK/MWh in Eastern Denmark. In comparison to last winter, this is a decline of more than 22 percent. Compared to last winter the average transmission capacity from Western Denmark to Germany increased from 56.5 percent to 68.0 percent of maximum Net Transfer Capacity (NTC) due to the stepwise increase in minimum capacities following Tennet's Commitment to the European Commission. On

Konti-Skan (DK1-SE3) and Skagerrak (DK1–NO2), the average transmission capacity was slightly lower than last winter, which primarily can be attributed to planned maintenance as well as failures on the cables.

In general, the winter 2019/2020 was to a large extent defined by southbound electricity flows. This implies that West Denmark acted as a transit country by importing electricity from Norway and Sweden and exporting electricity to Germany. Southbound electricity flows are rather common in winter months due to hydro storages being at their highest reservoir level combined with favorable wind conditions, which leads to electricity flows from the North to South.

France

Summer Outlook 2020

No adequacy issues (upward and downward) to be reported for Summer 2020 under the conditions of this study (before lockdown due to COVID-19).

Nevertheless, due to COVID-19 revised plans of nuclear planned outages were announced late April and early May. Nuclear generation availability will be in average 13 GW lower compared to summer 2019. As a result France will importing more often than usual, while it is usually exporting much in summer. In particular, France will be dependent to imports during hot waves. Yet, French analyses indicate that generation capacities in the rest of Europe and cross-border capacities should be able to ensure security of supply in France throughout summer.

Winter Review 2019/2020

The average temperatures of past winter were 2° C above normal conditions. Moreover, past January was among the 8 warmest January months since 1900. Thus, considering the high French load sensitivity, the consumption was low this winter, with a 83 GW peak.

Nuclear production was low this winter, with the delayed return of nuclear plants from planned outages. The intense strikes, particularly in January, have put some stress on the system, yet safety margins were kept all winter.

The French exchanges balance stayed globally oriented to export during most of the winter.

The November 11th earthquake in France had led the CRUAS nuclear power plants to shutdown to conduct classic safety checks for such situation. As a result, 2700 MW went on unplanned outage. This has not led to stressed situations, considering the mild temperatures of this winter.

Finland

Summer Outlook 2020

Typically, summer peak demand in Finland amounts to 60% to 70% of the winter peak demand. Therefore, summer is not as critical from the adequacy perspective as winter. However, as summer is the high season for power plant maintenances and overhauls, there is less generation capacity available in summer than in winter. In addition, there is some maintenance on interconnections during the summer season.

Nevertheless, demand can be met with available generation capacity and a high level of import capacity is also available.

No adequacy or downward regulation issues are expected for the coming season.

Winter Review 2019/2020

Overall, the past winter was very mild, and at the end of February, when the peak demand occurred, the temperatures were still relatively moderate throughout the country. At the Finnish peak demand hour, the consumption was about 12.4 GWh, which is the lowest figure in many years.

No adequacy or downward regulation issues were identified during the past season.

Germany

Summer Outlook 2020

The German TSOs do not expect significant problems with the generation-demand balance for the coming summer considering the technical availability of power plants. The German demand can be covered with the available capacity even under severe conditions. Therefore, Germany is not expected to be dependent on imports to maintain adequacy.

The pumped-storage power plants (PSPs) of the "Kraftwerksgruppe Obere Ill-Lünersee' '(turbine: 2.1 GW; pumping: 1.4 GW), which are installed in Austria but assigned to the German control block, are again considered by the German TSOs and included in the German dataset. For the same reason, the pumped-storage power plant Kühtai and storage power plant Silz (total turbine: 0.8 GW; total pumping: 0.25 GW) are also included in the German dataset.

Potential critical periods and foreseen countermeasures

A heat wave (longer hot and dry period) could constrain power plant availability because of problems with cooling water supply and high water temperature or fuel transporting problems due to low river levels.

Extensive conventional power plant unavailability abroad can also affect Germany.

No critical periods for maintaining adequacy are expected.

Potentially, the increasing PV generation could lead to high power flows in the German transmission system. In addition, a situation with high wind generation in the north of Germany and a low PV generation in the south could cause high power flows.

The time around Easter and Whitsunday could be critical concerning voltage problems in case of low demand. In addition to market-based redispatch, grid reserve power plants are used to solve voltage problems, if needed. In periods with high renewable generation and low (regional) demand, high power flows on interconnections are expected. In some power flow situations , regional infeed management of renewables might be necessary to maintain system operation security. Nevertheless, no critical situations are expected.

Winter Review 2019/2020

According to the German Weather Forecast Service (Deutscher Wetterdienst, DWD), December 2019 was generally very mild in Germany, with relatively low precipitation and very much sun compared to average values. Temperatures were colder in January, however milder compared to average values, with precipitation above average. In Alpine regions, extraordinary heavy snowfall occurred, lasting over several days.

On 22 February 2020 at 20:45, wind generation reached a new record with 45.6 GW. The winter storms 'Sabine', 'Victoria', 'Yulia' and 'Bianca' caused this high infeed. This led to negative prices especially during weekends. Infeed management for wind turbines was necessary.

On 31 December 2019 the nuclear power plant Phillipsburg was decommissioned.

United Kingdom (Great Britain)

Summer Outlook 2020

Most critical periods for maintaining adequacy margins and countermeasures:

Our analysis uses two demand definitions; a normal condition that is based on 30 of years historical weather data, and a severe condition which is normal condition plus an additional 1500 MW of demand. For normal conditions, peak demand during the summer is anticipated to be 36.9 GW on 30 September 2020 (week 40).

These demand forecasts do not contain any COVID-19 effects. Therefore, the actual demands could be lower if the current COVID-19 restrictions are extended further into summer 2020. COVID-19 has brought unprecedented change to the behavior of electricity consumers and demand across the country has already reduced as a result. This is largely owing to the decrease in energy use from industrial and commercial consumers being greater than the increase in domestic demand as people stay at home. The uncertainty of the situation at this time makes longer term demand forecasting challenging. Currently we observe weekday demands being 17% lower during daylight hours and 13% lower overnight; at weekends the changes are less significant.

In order to balance supply and demand, we can take various day-to-day actions and in addition, a number of specific tools can be used when system conditions are particularly challenging. If the summer demand for electricity continues to remain lower than normally experienced due to COVID-19 measures remaining in place, we would expect to need to take more action to balance and operate the power system. As a result, we would expect to use these tools more frequently and for longer than in past summers. Lower summer demands will also likely increase the amount of work needed to manage high voltage levels.

Interconnector outages are more likely to be subject to change due to a COVID-19 impact on maintenance programs. Interconnector outages planned for this summer are:

- Interconnector France-Angleterre (IFA) bipole: outage will reduce capability from 2 GW to 1 GW from 21 September to 16 October (week 39 to 42).
- BritNed Interconnector: no outages planned.
- East West Interconnector (EWIC) will be on maintenance from 19 August to 20 August days (week 34).
- Moyle Interconnector will be on maintenance from 29 June to the 7 July (week 27 to 28).
- NEMO link to Belgium will be on maintenance from 21 September to 27 September (week 39 to 40).

Interconnector France-Angleterre 2 (IFA2) 1000 MW is planning to start commissioning during the summer.

Eleclink (now planned to commission next year) and IFA2 have been set to zero in the analysis throughout the summer.

For normal conditions, our forecasted lowest operational surplus is 5.7 GW on 10 June (week 24). Even during this week, we expect to be able to export a full 5.0 GW on the interconnectors, if necessary to do so. Using severe condition factors, the lowest margin is 1.5 GW on 10 June (week 24) where we would still be able to export up to 1.5 GW on the interconnectors, if necessary to do so.

According to the latest operational data, we are able to meet normalized demand and our reserve requirements throughout the summer.

PV continues to impact the daily demand as embedded generation suppresses demand on the transmission system. This can make forecasting difficult. Solar PV and wind generation connected to the distribution networks are now about 13.1 GW and 6.2 GW respectively.

Most critical periods for downward regulation and countermeasures

Minimum demand is expected to be 17.7 GW on 24 June, 1 July and 8 July (weeks 26, 27 and 28). Lowest downward regulation capacity is expected to be -2.4 GW on 16 September (week 38). Downward regulation capacity is expected to be negative on 3 June, 24 June, 26 August, 2 September, 9 September, 16 September, 23 September and 30 September (weeks 23, 26, 35, 36, 37, 38, 39 and 40). During these weeks some imports may be required on the Interconnectors. Daytime minimum demand, again under normal conditions, with no impact from COVID-19 measures, is expected to be 22.6 GW on 22 July (week 30).

Lowest daytime downward regulation capacity is expected to be 4.2 GW on 2 September (week 36). Even during this week, we expect to be able to export 4.2 GW on the interconnectors if necessary to do so. Increased supply and demand variability caused by periods of low demand and high levels of renewable generation can create operability challenges such as Negative Reserve Active Power Margin (NRAPM) and Rate of Change of Frequency (ROCOF) issues. As a result, we may need to take additional actions and to curtail generation and possibly instruct inflexible generators to reduce their output in order to balance the system.

Again, these minimum demand forecasts do not contain any COVID-19 effects. Therefore, the actual minimum demands could be lower if the current COVID-19 restrictions are extended further into summer 2020. This would make the downward regulation management more challenging and we would expect to use the specific tools more frequently and for longer than in past summers.

Winter Review 2019/2020

Great Britain has had reliable generation supply this winter and transmission system demand was lower than forecast except in March. This resulted in peak transmission system demand of 46.8 GW on the 20 November 2019.

Temperatures were higher than average for most of the winter, by about 0.6 °C above normal. This resulted in peak transmission system demand of 46.8 GW on the 20 November 2019. This was after 400 MW of customer demand reduction for Triad avoidance.

Winter was much wetter and unsettled than normal especially in February.

Flows through interconnector from France, Netherland and Belgium to Great Britain were close to full capacity on most days at the peak hour. However, in the first week of December, the flows were reduced or even exporting from Great Britain to Europe.

The highest wind generation recorded was 13.7 GW on 7 January 2020 at 17:30.

Planned maintenance outages occurred on French interconnector, pole 2 from 29 March to 27 March (week 13) and on EWIC from 5 February to 6 February (week 6) and from 18 March to 22 March (week 12).

There were no major maintenance or unplanned outages on any of the other interconnectors: Moyle interconnector to Northern Ireland, BritNed interconnector to Netherland and NEMO interconnect to Belgium.

Hungary

Summer Outlook 2020

As long as the COVID-19 virus and the countermeasures last, we expect reduced demand, although there is no period of time when the import could be ignored. The unavailable capacity will remain at a high level, which strengthens the dependence on the import and decreases the flexibility of the system.

The most critical periods can be caused by severe weather conditions in June and July, since both the system demand and the reliably available capacity of the units are temperature-dependent. Further, a high increase of PV installed capacity is expected in the near future, but the procured amount of system reserve can mitigate the risk of balancing problems.

Most critical periods for maintaining adequacy margins and countermeasures

The maintenance level during summer is mainly between 0.0 GW and 0.93 GW. The most critical periods are the 22–25 weeks in summer when the level of maintenance is approximately 0.93 GW. However, COVID-19 influences the power plants' planned maintenances due to availability constraints of foreign specialists and components. The owners of power plants are continuously examining the possibility of planned outage rearrangements or postponements. MAVIR, as TSO, is constantly analyzing the possible risks and making action plans for our preparedness. MAVIR and the power plants in Hungary do their best to protect their employees' safety and to guarantee business continuity.

Most critical periods for downward regulation and countermeasures

Critical periods for downward regulation are not expected. The available downward regulation reserve can ensure the system balance besides high level of PV generation as well.

Winter Review 2019/2020

During winter time, the demand of the Hungarian system increased compared to historical data of last year despite the mild winter. The demand exceeded the expected level multiple times in December and January and the power system experienced a new record for peak demand on 5 December 2019 with demand reaching 7105 MW. The level and frequency of generator outages were significant in January, but did not pose risk for system adequacy.

Hungary usually imports 2–3 GW of electricity at daily peak demand. The major part of this import is necessary to guarantee system adequacy. We had no major issues concerning cross-border exchange during the winter time.

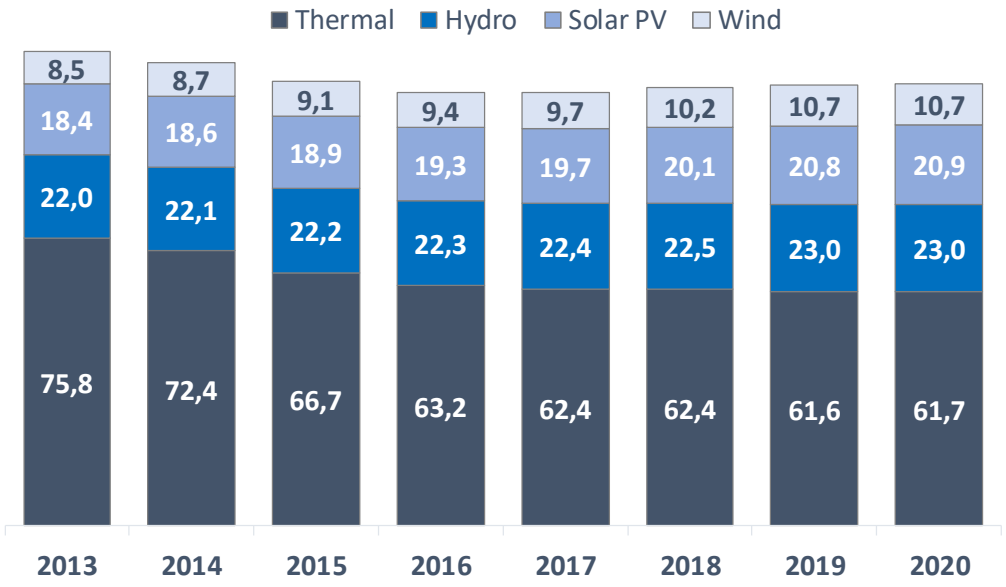
No critical event occurred last winter.

Italy

Summer Outlook 2020

Generation capacity in Italy

In recent years, the Italian Power System has faced a significant reduction of the conventional (thermoelectric) power fleet. The growth of variable (e.g. wind and PV) generation, together with a drop-in demand, is putting commercial pressure onto traditional generators, leading to the decommissioning of the oldest power plants. Between 2012 and 2018, the following phenomena affected the power system operation and adequacy in Italy: about 16 GW installed generation was phased out. The total amount of installed conventional power plants fell from 77,8 GW down to 61,7 GW and additional 3.0 GW conventional power capacity is not available due to environmental/ legal constraints and mothballing. This trend can be observed on the Figure below. This phenomenon has been seriously affecting the power system adequacy in Italy and some important warning signals in terms of adequacy on the national level scarcity were already registered in last years during the summer 2015 period as well as for winter 2016/2017.



Until 2018 «Statical Data on electricity in Italy> prepared annually by Terna are used. For 2019 onward provisional data are considered.

Since 2017 (SOR 2017), the decommissioning of conventional capacity has reduced, and the available thermal capacity is similar to the values of the last year.

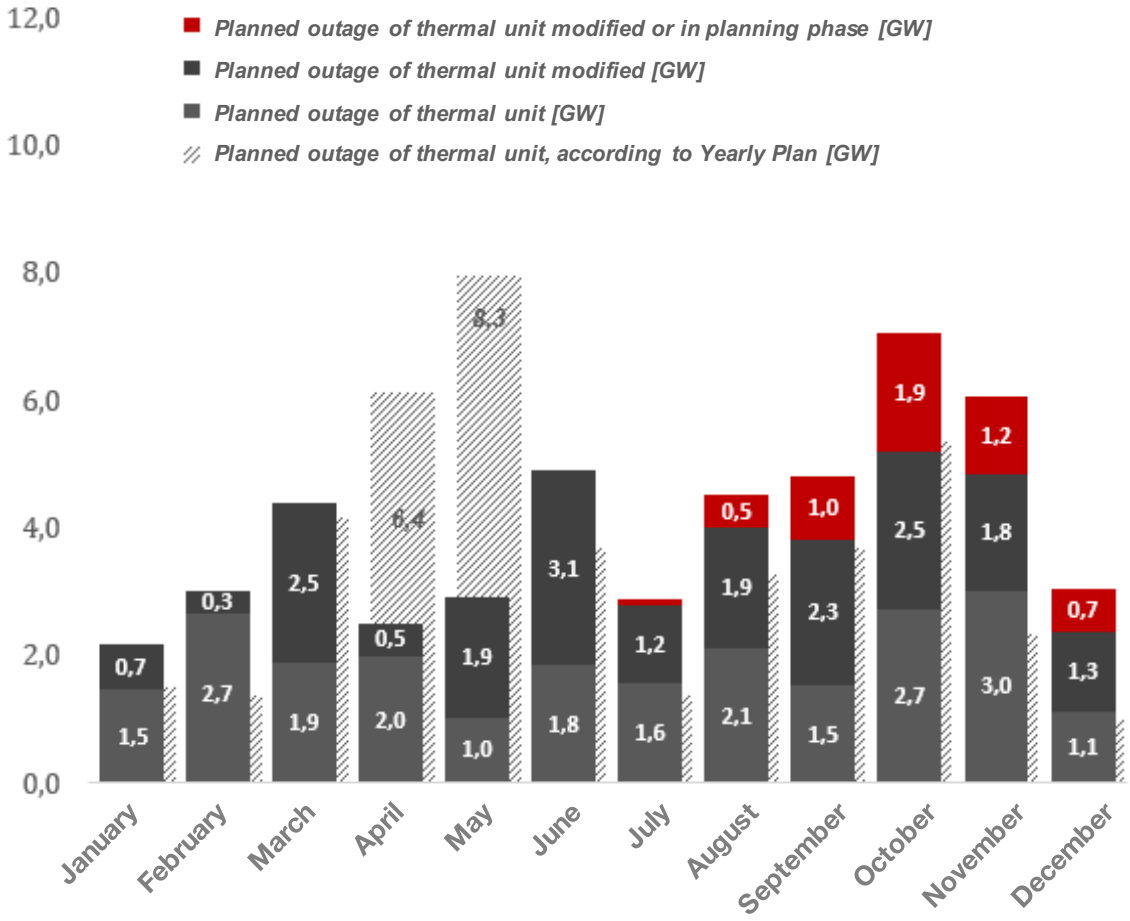
Grid reinforcements, developed by the Italian TSO in these last years, also helped to smooth out some effects caused by the power plants decommission (especially in the main islands).

COVID effect on upward adequacy assessment

The analyses were performed with data provided before the COVID-19 pandemic situation. After the fall registered in March, the electrical demand is expected to increase but with uncertainties. Various scenarios are hypothesized: the best scenario foresees a full recovery in September 2020, while the worst case is characterized by a full recovery expected in 2021.

Nevertheless, for the coming summer the load is expected to be lower than past years even in case of heat wave.

The opposite effect of COVID situation is that planned outages were not executed during the spring period and maintenances were postponed to the following months, even in period typically critical for adequacy.



As a consequence of these facts even if the load is expected to be lower, the high rate of planned outages could lead to a remaining capacity similar to a typical summer.

Regarding the simulation results, the detected risks for Sardinia in June seem to be unrealistic as the load will still be low.

On the other hand, the low risks identified in the second part of the season in Sicily, during the planned outage of the interconnection line with the Peninsula, are more likely to happen as the load will be higher.

In conclusion, adequacy margins are similar to typical summer values, confirming the necessity of import from neighbouring countries. Critical situations could happen in case of low availability of import (values lower than 10° percentile of registered values). Nevertheless, postponement and/or cancellation of maintenances could be used as countermeasures.

Furthermore, improved regional coordination processes (including regional weekly adequacy assessment -STA project) will support the definition of proper and efficient countermeasures in case the risk of incurring in critical situations will be detected at short term horizon.

Most critical periods for downward regulation and countermeasures

The worst weeks for downward regulation are expected to be the central weeks of August, the starting and the ending part of the summer period (June and September). In order to cope with this risk, the Italian TSO (Terna) prepared preliminary action and emergency plans and, in case of need, will adopt the appropriate countermeasures. In order to guarantee system security, Terna could adopt enhanced coordination with neighbouring TSOs and special remedial actions, such as the curtailment of inflexible generation. Further special actions, such as NTC reductions, could be planned in cooperation with neighbouring TSOs.

Winter Review 2019/2020

General comments on past winter conditions:

During the past winter (period considered: 1 December-30 March) the weather was rather mild, with average temperatures about 0.8 °C higher than of normal times.

Temperatures were higher especially in the last ten days of December 2019 and the last two weeks of January 2020.

The electricity demand was lower, compared to that of the previous year. In particular, in the period 1 January –30 March the consumption was 4.15% lower than the same period of 2019 (this percentage is corrected considering the effect of the temperature).

During the COVID-19 pandemic and the consequent lock-down of activities, which in Italy began on 14 March, a significant decrease in electricity consumption has been recorded. As compared to the same period of 2019, the peak demand has fallen by ~20%.

Specific events and unexpected situations that occurred during the past winter:

During the COVID-19 emergency period:

- the share of the demand covered by renewable energy sources has increased in comparison to the same period of the last years
- there have been only limited cases of partial unavailability of generating units due to difficulties to staff the plants and in finding spare parts
- non-urgent maintenance work, outages and construction sites have been postponed, though reparation strictly necessary to ensure the security and the continuity of the supply has been fully operational
- high-voltage levels recorded during special low load periods have been controlled by adopting available remedial actions

Lithuania

Summer Outlook 2020

The demand estimation under normal conditions was based on statistical data of the previous three years. However, COVID-19 effects and restrictions because of the pandemic highly influence the change in consumption. Demand reduction is expected to reach up to 6%.

Since the last summer season net generating capacity decreased by 3 MW and is currently equal to 3418 MW.

The total volume of frequency restoration reserves for the summer season will not change significantly and replacement reserves will decrease by 45 MW. Reserves will be equal to 875 MW during the whole season which represents 26% of NGC. The maintenance schedule will not be intensive, the largest maintenances will reach only 7% of total NGC. This is planned to happen during maintenance of a generating unit of Kruonis Pumped Storage Plant on the week 40.

No adequacy or downward regulation issues are expected for the coming season.

Winter Review 2019/2020

In winter 2019/2020, national consumption was 2% lower than in winter 2018/2019. Maximum demand (1932 MW) was reached on 12 December 2019, while the minimum demand (959 MW) was on 2 January.

In general, the winter balance portfolio consisted of 31% local generation and 69% imports from neighbouring countries. During the winter 2019/2020, total generation was 38% higher compared with the winter 2018/2019. Wind generation grew by 48% (182 GWh), thermal power plants produced 53% more (77 GWh) and hydro generation increased by 33% (67 GWh) compared with winter 2018/2019. Generation from other sources did not change significantly. This was the main reason why imports to Lithuania decreased by 10%.

Lithuania imported 3.4 GWh and exported 1.1 GWh in the winter of 2019/20. The largest shares of imported electricity came from Sweden (48%) and Russia (41%), while 63% of exports were directed to Poland.

Import contributed significantly to adequacy in Lithuania.

Malta

Summer Outlook 2020

Enemalta has four main electricity supply sources which during the summer outlook period shall be fully available and enough to cover the demand.

The forecasted demand included in the Summer Outlook 2020 report was calculated at an increased normal rate of 4% over 2019.

However, due to COVID-19 situations, the cumulative demand to date (week 18) is of 3.3% less than 2019, with the largest discrepancies starting as from week 14 when further measures were taken to close the restaurants, bars and any unnecessary services.

Enemalta is envisaging an annual decrease of 5.8% over 2019.

Winter Review 2019/2020

Specific events and unexpected situations that occurred during the past winter

On 23rd December 2019, the Malta-Sicily Interconnector sustained severe damage by a ship’s anchor causing a nationwide blackout for about three hours. The emergency gas turbines had to be started and synchronized in order to allow restoration of supply to consumers within a short time. The emergency gas turbines consist of gasoil fired combined cycle gas turbines and open cycle gas turbines.

During the period when the Malta-Sicily Interconnector was unavailable the Maltese grid was islanded and disconnected from the European grid. In a limited number of instances, during the first few weeks of Interconnector unavailability, the local generation experienced failures, triggering automatic load shedding of consumer load to maintain grid stability.

Throughout the period that the Malta-Sicily Interconnector was unavailable, the emergency plant was dispatched as spinning reserve, in order to limit consumer load shedding during instances of local generation plant failure.

Repairs of the Malta-Sicily Interconnector started in February 2020, and the Interconnector was back in service on 13th March 2020.

Planned outages

Due to the current situation whereas no inbound and outbound flights are possible, the outages and maintenance works which were planned from March 2020 to May 2020 and October 2020 to December 2020 had to be postponed and shall commence as from end of August 2020 up to April 2021.

North Macedonia

Summer Outlook 2020

Expected available transmission capacity is sufficient to meet the need for energy imports, transits and exports for the coming summer. The maintenance of the generation units is expected to take place in the period from June to September. No problems in the transmission network are expected even though numerous reconstructions/revitalizations in the Power System will take place during the summer period.

Winter Review 2019/2020

No significant unexpected events of local or regional character occurred during the winter period this year in the North Macedonian Power System. During this period a high-paced reconstruction/revitalization procedure was ongoing in the Power System, which is expected to continue in the coming summer period. During the winter period of 2019/2020 North Macedonia had below average snowfall, which will result in dry to normal hydrology in the coming summer period.

Poland

Summer Outlook 2020

Performed simulation for Summer 2020 shows that there is a negligible risk of inadequacy (very small level of inadequacy in 4 out of 3500 scenarios). This seems to be an unfavourable coincident of weather conditions and forced outages in the system.

PSE is currently analysing power balance situation for the upcoming summer. From one side, COVID pandemic situation caused the decrease of load, on the other hand dry winter and continuous dry spring season may cause higher hydro constrains in the thermal power plants than usual.

In such cases, import via interconnections may be a key issue. In particular, the level of available import capacity on synchronous profile with Germany, the Czech Republic and Slovakia, is hard to predict due to high uncertainty caused by the level of unscheduled flows through the Polish power system (the issue is described at length in the previous Outlook' s report). Therefore, it may happen that there would be enough available solar generation in Germany at midday to support adequacy in the Polish power system, while interconnections (towards Poland) might be congested. On the other hand, it is expected that the full capacity of interconnections from Sweden and Lithuania will be available but generation resources, e.g. in Lithuania, might not be sufficient to cover the import needs of the Polish power system.

In the event of adequacy issues during the extremely severe conditions and the need to increase import capacity on synchronous profile, PSE has a dedicated agreement with 50Hertz. This remedial action is described in detail in the Summer Outlook 2018 report .

In addition, PSE has contracted at least 0.68 GW of DSR for Summer 2020 which may be activated in case of inadequacy. The mentioned DSR potential was not considered in the Summer Outlook 2019 study as this DSR is procured to be used as a remedial measure and is out-of-market.

Winter Review 2019/2020

No significant events of local or regional character occurred in Polish power system during winter 2019/2020 as the weather was rather mild.

Serbia

Summer Outlook 2020

For the upcoming summer, we do not expect problems to cover demand. The hydro reservoir levels are high and the levels of maintenance are moderate. Significant energy exports are expected under normal weather conditions through the summer months.

Under severe weather conditions—i.e. extremely high temperatures and longer dry periods—extremely high peak demand might occur. It might lead to a reduction of planned export of energy or even to import of energy to cover demand.

Winter Review 2019/2020

The last winter passed without major problems. Weather conditions in general included periods with higher temperatures than usual and had no extended periods of very low temperatures.

Small amounts of energy imports were realized in Q4 of 2019 and January 2020, while the unexpected warmer weather in February 2020 and first half of March 2020 led to significant energy exports.

Problems that related to the lack of energy in sub-area KOSTT which operates within EMS Control Area, continued throughout last winter. However, RG CE managed to keep the synchronous time deviation caused by the lack of energy in KOSTT sub-area within the permitted limits.

Slovakia

Summer Outlook 2020

No adequacy risk is foreseen in the summer outlook 2020 of Slovakia. In summer 2020 the expected generation capacity of Slovakia will be sufficient in all weeks for under normal and under severe conditions as well. Cross-border capacities for electricity import are still sufficient.

During summer 2020 the expected maximum weekly peak load is foreseen to be 3 890 MW under severe conditions in September (in summer outlook 2019 it was 3 880 MW). The real peak load in the previous summer 2019 was in June (3 895 MW).

Scheduled maintenance of generation units is at the same level as it used to be. The most important scheduled maintenance relates to nuclear units (500 MW) in the beginning and in the end of summer.

Winter Review 2019/2020

Winter 2019/2020 was mild and slightly warmer than previous year. Average temperature during winter months from December 2019 to March 2020 was 3.1° C (winter 2018/2019 it was 2.5 ° C).

Total production of electricity of Slovakia during the winter period was slightly higher compared with the previous winter (index 101.1 %). Increase in the total production of nuclear power plants (index 102.6 %) was noticed in the winter period. Increased generation of fossil fuels power plants was from natural gas (128.2 %).

The electricity consumption was lower compared to the previous winter (index 97.7 %). Increase in consumption was recorded only in February (101.3 %). Significant decrease in consumption was in December (95.9 %), January (97.8 %) and March (96.2 %). The winter peak load of 4 485 MW was on 24 January 2020 at 9:00, in the previous winter it was 4 571 MW (22 January 2019 at 9:00).

Except for months February and March, the electricity was imported to the power system of Slovakia to cover the load of the system. The total import of electricity decreased significantly compared to previous winter (index 56.6 %). Also the share of imported electricity in consumption decreased to 3.5 % (compare with 6.1 % in winter 2018/2019).

Metered cross-border physical flows of electricity increased substantially in winter 2019/2020 in months January, February and March. Total import increased to 102.9 % and total export increased to 111.2 % compared to electricity cross-border physical flows of previous winter.

In the category of specific events in winter 2019/2020 higher voltage occurred in the 400 kV substation Varín on 26th Dec 19 (duration 3 hours), and 30th March 20 (duration 4 hours).

Slovenia

Summer Outlook 2020

For the upcoming summer, we do not expect any serious adequacy or downward regulation problems.

Some hydro power plants will be under maintenance in that period, however our two biggest power plants will be in operation and the expected import capacities are sufficient to cover any energy shortages. An export of maximum 60 MW will potentially be required during the low consumption periods..

Winter Review 2019/2020

Slovenia did not identify any adequacy or downward regulation problems past winter.

Spain

Summer Outlook 2020

No adequacy risk is expected in the Spanish peninsular system for the upcoming summer. Generation availability is enough regardless of import availability from neighboring countries.

A set of coal power plants in Spain won't be able to produce since the 1st of July due to the environmental restrictions related to the emissions directive (EU regulation 2010/75/UE). The estimated amount of installed capacity of those plants is 4.5 GW. There are no adequacy risks foreseen related to this fact in the Spanish system.

Hydro reservoirs levels are currently slightly above the historical average values. Although there are no assessed adequacy risks, the factors which could reduce the remaining capacity during the next summer in the Spanish system would be the sensitivity of the demand to temperature in extreme weather conditions, and gas availability to combined cycle thermal plants during situations of low RES. There are no downward regulation issues expected.

Winter Review 2019/2020

No adequacy or downward regulation issues were identified during the past season

Sweden

Summer Outlook 2020

All through the summer outages are planned in order to allow rebuilding old substations as well as power lines and connecting new wind power farms to the grid. The national grid is old and many reinvestment projects are planned, not only for this summer, but for many years to come. Roughly 2 GW of wind power is expected to be installed during 2020 and the trend of increased wind power generation is expected to continue.

During summer time, adequacy problems are not expected in Sweden since peak demand occurs at times with cold weather. However, less generation capacity is available during summer due to maintenance of nuclear reactors during this period. In addition, all the remaining generation capacity should not be assumed to be available for export since internal congestions are not accounted for in the analysis.

There is a risk of not meeting the requirements for frequency stability as a result of a large power imbalance occurring in a low inertia situation. The risk is higher during the summer when less conventional power plants–the main source of inertia–are operating. Countermeasures, such as faster frequency reserves or reduced power output from the largest production unit in operation, is expected to be activated in some low inertia situations.

Excess of inflexible generation can normally be managed due to a high share of flexible hydro power in the system. However, at minimum demand and high wind conditions in combination with high nuclear power generation, dependency on export is expected for some hours in order to manage the excess of inflexible generation.

To manage the bottleneck known as "the West Coast Corridor" (inside the western part of SE3 bidding zone or SE03 study zone), limitations on import and export capacity might be needed, especially during times when demand is low and nuclear power generation is high.

Winter Review 2019/2020

The winter was very mild. Nationally, power adequacy was not of critical concern as southern Sweden (where most consumption is located) experienced above-average temperatures.

Generally low demand combined with high wind production resulted in very low electricity prices, even reaching negative prices (for the first time ever for Sweden) on 10 February 2020.

Concerning nuclear: Ringhals 2 closed permanently at the end of 2019 (and was unavailable from 1 to 19 December due to transformer failure). Ringhals 3 was unavailable from 14 to 26 February due to failure, and Ringhals 1 from 14 to 19 February due to cold shutdown after unplanned maintenance repairs. Forsmark 2 was running at half capacity from 2 to 16 December due to main transformer failure.

The strategic reserve was at no time readied or activated during the winter 2019/2020.

Switzerland

Winter Review 2019/2020

In 2019/2020, Switzerland experienced its warmest winter since the beginning of the measurements in 1864. The average temperature was 3 °C higher than the 1981–2010 norm.

In most regions, the precipitations were sufficient (100% to 120% of the 1981–2010 norm), except in the Upper Engadine and in the South of the Alps.

In November 2019, flows from France, Germany and Austria to Italy transiting through the Swiss network, combined with high Swiss generation led to bottlenecks in the Swiss grid that had to be solved. In December 2019, the Mühleberg nuclear power plant was definitively put out of operation. The 380/220 kV transformers in the north of Switzerland were strongly utilized during the winter. In February 2020, a relatively high number of grid element perturbations due to storms (especially storm Sabine) occurred. In March 2020, the COVID-19 virus led to new and exceptional load flow situations that created challenges for the topology, the voltage maintenance and the ancillary services.