



EUROPEAN POWER MARKET OUTLOOK 2018

JANUARY 2018

European electricity markets will be shaken up in 2018 by country-specific policies as well as EU-wide projects.

The long overdue XBID project is expected to launch on 12 June with the aim of increasing the efficiency and liquidity of trading on a single cross-zonal intra-day market across Europe.

The German-Austrian bidding zone is due to split in October which could have a wide-reaching price impact on surrounding wholesale markets given Germany's status of a benchmark for European power. While the parties are preparing for the split, the European Court of Justice has yet to rule on a complaint by the Austrian regulator against the decision.

Spain, Germany and the Netherlands are due to come up with more detailed plans for the shape of their generation mix in the future, especially with regards to the decreasing role of coal-fired capacity.

Poland and Italy are preparing for the launch of capacity mechanisms following in the steps of the UK, which has already held successful capacity market auctions, with more to follow in 2018.

While fears over the availability of French nuclear capacity have dissipated, nuclear regulator ASN will continue the review of component documentation for France's entire 58-reactor fleet in 2018. Market participants are likely to take ASN's findings as price signals for the French wholesale market.

Renewable expansion across Europe will continue, albeit at a varying pace. Renewable tenders are expected in Poland, Greece, the Netherlands and Germany, while the Baltic states and Bulgaria will be rethinking their renewable energy subsidy systems.

) UK

Two UK mechanisms aimed at dealing with the variability of renewable power generation across the system as a whole will be of primary importance in 2018, while the development of new wind farms, particularly offshore, will continue at pace.

Consistent with annual outlooks for the UK electricity market, it is a safe bet that there will be more installed renewable capacity come the end of 2018 than at the start.

Despite doubts about the ability of new onshore wind and solar projects to get off the ground in a zero-subsidy world, offshore wind projects are set to continue deploying new capacity during the year.

The UK currently has just over 6GW of offshore wind installed, with another 4GW in the process of being built by 2020.

Capacity market auctions are due at the end of January, start of February and December for existing and new capacity aiming to secure investment contracts for 2018-19, 2021-22 and 2022-23. Most capacity for 2018-19 has already been procured by the government, but an additional auction at the end of January will allow power



plants that have not yet secured contracts to bid for them.

This winter is the first where power plants have been operating with capacity market contracts. Supply margins have been improved beyond expectations with the return of some plants which would otherwise have remained mothballed without such contracts.

Further changes will be made to the imbalance price methodology, otherwise known as cash-out, on 1 November 2018. The changes are likely to result in even higher imbalance charges and incentivise positions to be settled in the wholesale market.



THE NETHERLANDS

Following an eventful year in 2017 in which a new coalition came to power promising several new policy measures, 2018 is set to be less momentous in terms of policy announcements. However, the continuing development of offshore wind will be interesting to watch, along with the likely emergence of further details on previously announced policies.

The government is set to declare the winner of the 700MW Hollandse Kurst Zuid I and II offshore wind tender in the first part of the year. In December 2017 it was announced that the project would be built without a subsidy after several companies made zero-subsidy bids.

Another offshore wind tender for 700MW of capacity is due to take place at the end of 2018. Given the result of the recent tender, it seems inevitable that this will also be a subsidy-free tender.

Outside of the offshore wind tenders, the country is due to hold two rounds of the SDE+ renewable subsidy scheme in the spring and autumn. Each round will have a budget of €6bn and will be open to producers of wind, solar, biomass co-generation, hydropower and geothermal energy.

The country will continue to expand its renewable capacity in 2018 as projects awarded subsidies in previous rounds of the SDE+ scheme come online.

While no major new policy announcements are expected, the government is likely to provide more details on its plans to phase out coal-fired capacity by 2030 and introduce a carbon price floor for the electricity sector from 2020.

GERMANY

The coming year should bring more clarity about the future of coal-fired generation in Germany, with implications

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Germany is set to miss its 2020 emission reduction target unless additional measures are taken. A new government, which has yet to be formed following elections in September, should decide how to handle this issue.

The conservative CDU and social-democratic SPD parties are currently in coalition talks. This comes after the CDU's attempt to form a government with smaller parties failed and the SPD gave up its plan to not continue in a government with the conservatives.

It is expected that Germany will take additional measures to reduce coal-fired generation and achieve its 2020 target. However, a leaked document in January indicated that the CDU and SPD plan to abandon the target and focus on stimulating renewables expansion rather than reducing coal capacity over the next few years.

The two parties started formal coalition talks on 22 January, but a final deal will have to be voted on by the SPD. If it does not succeed in forming a government, Germany will likely face a snap election.

Recent strength on the coal market is expected to continue in 2018 due to strong demand from Asia. This could support power prices and further improve profitability prospects for gas-fired plants.

Germany's capacity reserve, which is expected to be introduced in October, could be an alternative source of revenue for conventional plants that are unprofitable on the wholesale market.

The European Commission is still conducting an investigation to determine whether this supply-security measure complies with EU state aid rules. It is unclear when Germany will hold the first capacity reserve auction, which had previously been expected in mid-2017.

Germany's renewables growth is set to slow down in 2018. The country is likely to add around 3.5GW of new onshore wind turbines this year, down from 5.3GW in 2017, according to wind energy associations. Offshore wind expansion is also expected to slow.

At Germany's first onshore wind tenders, which were held last year, nearly all subsidies were awarded to citizen energy projects which did not need an environmental permit in advance. This has created a risk that many successful projects will not be realised.

The German parliament decided in June that citizen energy projects need to have obtained an environmental permit



ahead of the 2018 tenders. This is likely to result in higher awards compared to 2017.

Germany's solar capacity grew by between 1.7GW and 1.8GW last year, according to an estimate by solar association BSW. Growth may remain sluggish in 2018, even though the country has a target to expand both onshore wind and solar capacity by 2.5GW annually.

The German-Austrian bidding zone is due to split in October. Extensive preparations have been made for the split, although the European Court of Justice hass yet to rule on a complaint by the Austrian regulator against the decision that requested it.

German traders face several changes stemming from the integration of European energy markets.

The European XBID intra-day platform is scheduled to launch in June while Nord Pool is due to start offering German Day-ahead exchange trading alongside EPEX SPOT as a part of the multiple-NEMO setup underpinned by EU regulation.

However, the European Federation of Energy traders (EFET) recently called for an urgent redesign of the XBID platform, saying the current model risks undermining the efficiency of existing markets and the success of a single cross-border market.

EFET asked the European Commission to consider implementing a number of technical measures before the XBID platform goes live.

The XBID project, which is being organised by a consortium of 19 transmission system operators (TSOs) and a number of power exchanges, aims to increase the efficiency and liquidity of trading on the single cross-zonal intra-day market across Europe.

When XBID is launched, one unified system will allocate cross-border capacity, and is expected to significantly increase the efficiency and harmonisation of cross-border allocation using the liquidity at power exchanges.

TRANCE

A significant risk premium was slashed across the near curve of the French power market at the start of 2018, after nuclear plant availability approached a symbolic threshold of 90% in the first week of the year.

But the risk from extended nuclear outages has not disappeared entirely and the second half of the year could still see nuclear supply drive prices on the prompt and forward curve.



Plant operator EDF is required to view the nuclear components of the entire fleet of 58 reactors before the end of the year. This was due to the discovery of manufacturing flaws as well as the falsification of manufacturing tracking documentation at the Creusot Forge foundry.

A dozen nuclear units had been cleared by the nuclear safety authority ASN by the end of 2017, but the files for the outstanding units are scheduled to undergo scrutiny this year.

According to EDF's forecasts, nuclear plant availability in France is set to peak at 95%, or 60GW, between 13 January and 2 February and drop as low as 74.2%, or 46.9GW, at the start of July.

Although growing fuels prices supported the far curve throughout 2017, it is likely that some risk remains embedded in the nuclear component review.

Temperature-led power consumption remains the most essential driver for shorter-dated French contracts as well as for near curve prices.

The market responded quickly to temperature changes over the past year, even during the summer, when successive periods of hot weather and muted nuclear availability caused spot prices to climb.

The dry conditions seen during 2017 should impact the country's hydro stocks in the first months of the year, as water levels were almost 9% lower year on year and close to 20% lower compared to 2016.

Hydroelectric capacity acts as an important source of power during peakload hours in France, so relatively low



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hydro stocks may have to be compensated for by gas-fired plants.

A rainy 2018 could start to improve the supply situation, while continued dry weather could create concern for the rest of the year.

More onshore wind and solar capacity is expected to be added to the grid in 2018. While the market impact from renewables is limited compared to neighbouring Germany, traders have said that they may have to take into account increasing intermittent renewables in France compared to previous years.

Previously, there were hopes that EDF's 1.65GW flagship Flamanville 3 nuclear reactor could be commissioned at the end of 2018. But the reactor – which has seen its start-up date revised several times since construction work began in 2007 – is now due to be commissioned in 2019.

BELGIUM

Belgian power prices should soften this year as the pressure on the French power market eases. However, the market is braced for sustained concern stemming from the country's nuclear fleet, which is likely to put delivery prices above Belgium's neighbours in the flow-based market coupled region.

ENGIE Electrabel's 1GW Doel 3 nuclear unit is subject to scrutiny from Belgium's federal agency for nuclear control (FANC) after concerns about the lack of maintenance for the concrete of a bunker. The unit is closed until 15 April,

according to the plant operator.

O ITALY

In 2018, the set-up of the Italian wholesale electricity market could be redefined for years to come.

Italian authorities are working on two changes that have been open to controversy and subject to close scrutiny from EU regulatory bodies, but might finally take off in the months to come.

The first change is the much-delayed start of the capacity market.

The government has long been hailing the capacity market as key to ensuring security of supply after a swathe of plant closures and aborted projects dramatically reduced Italy's non-renewable supply margins.

A final go-ahead from the European Commission is expected in early 2018, the ministry of economic development said in December. Italy submitted the plan to the commission for compliance checks in August.

An EU approval in the first quarter could pave the way for the first round of auctions for the new scheme in the second half of the year.

By forcing capacity to come online when day-ahead, intraday or balancing prices hit a strike price of up to €250.00/ MWh, the scheme is expected to have a marginally bearish effect on the market.

A second overarching measure could be adopted in 2018 – shifting to a node-based balancing market from the current zonal set-up.

National energy regulator ARERA, previously known as AEEGSI, has pushed for the adoption of a balancing system based on production nodes as a way to overcome a number of complications in the current system.

These have exposed the ancillary services market to arbitrage opportunities, aggressive market strategies and a multitude of regulatory fixes over the years, causing regulatory instability and often ending up in court.

In July 2017, ARERA asked transmission system operator Terna to submit a proposal on how the new nodal system would be set up by the end of February. At the same time, Terna was required to test the effects of modifying the current bidding-zone system less radically.

A final decision by the regulator on how the 2019 balancing system will be designed is expected by the end of July.



SPAIN

A long-term plan for Spain's energy mix is expected to surface in the first few months of 2018, cutting its use of coal going into the 2020s but not yet phasing this out completely.

This willingness to maintain some dependence on thermal generation is perhaps influenced by more recent events. The country currently has a relatively high reliance on renewables including hydropower. But struggling hydro stocks have exerted a major influence on Spanish power prices in 2017, and unless a recovery is seen, the market could find itself exposed to price spikes in summer 2018.

Spanish power prices in 2018 will be shaped by whether the country's hydro stocks recover, the direction of crossborder flows with France, plus its wind supply and fuel prices.

A recent recovery in Spain's very low hydro stocks can be expected to continue, which will in turn continue to weigh on front-month and -quarter contracts.

Spanish stocks seasonally increase at the start of the year before they are drawn down over the summer.

Hydro was Spain's sixth-largest source of power in 2017, down from third in 2016, underlining the weakness.

As a result, a particularly strong recovery is required to ease pressure on coal- and gas-fired generation, which made up the shortfall last year.

A relatively dry spring would prompt concerns over supply in the summer.

The Spanish government is expected to propose draft legislation in the first quarter of 2018 to lay out its vision of the future make-up of the energy sector.

Spain needs to reduce its dependence on coal-fired generation but has yet to put forward a plan to achieve this unlike most western European countries.

The coalition government, led by the People's Party, has moved to tighten rules preventing companies from closing plants.

The energy minister, Nadal Alvaro, has supported a broad energy mix including coal plants and extending the licenses of Spain's aging nuclear fleet to ensure security of supply.

Nuclear and coal were Spain's largest and third-largest sources of power in 2017, according to REE.

Uncertainty about the availability of the 1.1GW Cofrentes nuclear plant, which makes up 14% of installed nuclear



capacity, has continued into 2018.

No further auctions of renewable capacity are anticipated for 2018 following an auction of 8.5GW of installed capacity in 2017.

THE BALTIC STATES

The coming year should bring more clarity on the future direction of renewable energy subsidy systems in the three Baltic states of Lithuania, Latvia and Estonia.

Estonia is due to adopt a new renewables subsidy system after years of delays. Legislation for the new subsidy system and for facilitating the use of EU cross-border renewables cooperation mechanisms such as statistical transfers, passed a second parliamentary reading in March.

The length of the EU coordination procedure suggests that the legislation might need adjustments, but its principle to shift subsidies to tenders for new projects is set to remain in place.

The third and final parliamentary reading is due following European Commission approval.

In November, the Lithuanian government approved the country's draft energy independence strategy, which predicts meeting all of the country's power demand with domestic generation by 2050, along with a renewable energy share of 80%.

After the strategy's parliamentary approval, the government plans to prepare a new renewables subsidy system.

Changes to the Lithuanian power reserve system might also follow the strategy's adoption.

Latvia will hold parliamentary elections on 6 October. In their election manifestos, parties are likely to outline how Latvia's new renewable energy subsidy system could take shape after the existing moratorium on subsidies for new



plants expires in 2020.

More clarity on how the Baltics will synchronise with the mainland European power grid should emerge by the end of May, when respective technical studies are due to be completed.

The need for a second Lithuania-Poland interconnector is a key question which might determine the project's timeline. Estonia's transmission system operator has said a second interconnector is needed, while its Lithuanian counterpart hopes this will not be the case.

The common Baltic electricity balancing market launched on 1 January. In March, Baltic intra-day power markets are due to become more integrated with their EU counterparts as a result of the launch of the European XBID market coupling platform. More details are likely to emerge soon about the EPEX SPOT exchange's plans to enter the Baltic power markets, where Nord Pool remains the dominant venue, as a part of a multi-NEMO setup enabled by a recently adopted EU regulation.

Plans in the Baltics to restrict power imports from eastern neighbouring markets might take shape this year.



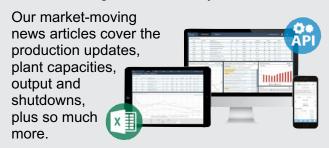
Poland has recently implemented power mechanisms that aim to tackle any supply shortages that the country could face from this year.

Price spikes in Poland's wholesale electricity market are likely to be prevented in times of peak summer and winter

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demand this year, following the introduction of a demandside response at the start of January that aims to keep a lid on consumption.

Polish grid operator PSE invited industrial consumers in Poland to bid in tenders that will require them to guarantee they reduce power consumption at short notice during times of peak demand, in exchange for payments.

Later in the year, in November, the first power capacity auction will be held.

The country has yet to schedule much new capacity after 2019 and the capacity mechanism is a way for the government to protect the country from any potential power shortage. A little over 1.3GW of power capacity is due to be decommissioned in 2018, which means that total capacity will only increase by 637MW this year.

The volume traded on the wholesale market is likely to rise following an increase in the amount of electricity that Poland's largest producers are obliged to sell on exchange TGE.

As of the start of this year, producers must sell 30% of their total annual power output, up from 15% before. However, over-the-counter (OTC) liquidity has been particularly weak in January, suggesting that companies may be moving away from the broker screen permanently.

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CENTRALEAST EUROPE - CZECH REPUBLIC/ SLOVAKIA/HUNGARY

After a volatile year in 2017, the main issues on the agenda in central/east Europe will be supply from the surrounding region, as well as work on the construction of new units, intended to ensure the region's future energy security.

Hydropower in the neighbouring Balkan region is likely to remain a main driver of prices, as this is a major source of electricity imports for Hungary.

There have been signs of improvement in the last few weeks following a very dry year, with Danube flows into Romania substantially above the multi-year averages throughout most of December and all of January.

Another factor that could impact the region is the amount of cross-border capacity available from Germany towards the Czech Republic.

Throughout 2017, phase shifting transformers (PSTs) were installed and began operating on the Czech-German border, in theory increasing cross-border capacity available on a commercial basis.

Previously, grid operators would have set aside some capacity to deal with potential loop flows, a phenomenon



the PSTs are intended to combat.

Another pair of phase shifters in Rohrsdorf, the second of which started operating at the end of last year, is also expected to increase commercial transmission capacity.

This could pressure Czech prices, as German prices are frequently lower due to the higher penetration of renewable energy. It could have a wider impact on the central/east European region as the Czech Republic is usually a net exporter.

The process of constructing new nuclear reactors to replace ageing Czech units should continue during 2018.

The government's standing committee on nuclear energy expects to hold the tender to select the supplier for new units at Dukovany power plant during this quarter.

An investment model for the new blocks has not been decided on yet, which could hold up the tender, although the new government did recently announce its intention to meet the Q1 2018 deadline.

Supply-demand balance in the region could also shift with the commissioning of a new Slovak unit.

Unit 3 of Mochovce nuclear plant is expected to start operating after July 2018, and with a capacity of 470MW could have a significant impact on the supply side.

Another unit of the same size is due to come online a year after that.

ROMANIA

As of 1 January 2018, Romanian electricity household consumers have been free to choose their suppliers, as well as negotiate their price, a step that marked the full liberalisation of the Romanian power market.

However, this is unlikely to attract many new suppliers to the wholesale electricity market, or to boost its liquidity.

This is partly due to a few insolvencies which took place at the beginning of 2017, as a result of which the Romanian power market is still considered risky to invest in.

But 2018 is likely to be a more stable year as availability has improved and prices have stabilised significantly compared to the beginning of 2017.

GREECE

A key priority for the Greek power market in 2018 will be establishing an exchange featuring a forward, an intraday, a day-ahead and a balancing market. The exchange is due to launch this year, but market participants expect it could be delayed until 2019. Greek market participants can currently only submit bids into the mandatory pool price, known as the system marginal price (SMP).

Greece is also set to continue holding auctions under the NOME model through 2018. The system obliges state-owned incumbent supplier PPC to sell electricity to rival producers at a discounted price to the Greek pool price in order to diminish PPC's dominant position on the retail market.

At the beginning of the year, the European Commission approved the new Greek renewable support scheme. The first auctions under a new feed-in premium mechanism are expected in April. The need for a new form of subsidy stems from the considerable adverse impact that the current feed-in tariff system had on the market.

Separately, a reformed support model for flexible Greek power generators could emerge in March. Under that scheme, power producers would receive payments for being available to the system on short notice and for participating in the country's reserves. The last flexibility payments scheme in Greece expired on 30 April 2017.

BULGARIA

Bulgarian electricity market participants are in for a very uncertain 2018 as trading strategies will have to be adjusted to the new market conditions created by recent changes to the energy law, trading rules and balancing market.

The Bulgarian power market started the new year in a state of shock, as on paper, all producers with installed capacity above 5MW will have to start selling all their production on exchange IBEX.

This means that a vast number of market participants will have to register with the exchange first. In addition, if those producers are to sell power on the forward platform operated by IBEX – the CMBC - they will have to sign counterparty agreements designed by the exchange as standard EFET agreements will not be accepted.

Market stakeholders have been in constant disagreement regarding the shape of those counterparty agreements and numerous changes to the IBEX trading rules which came into effect on 9 January.

The European Commission has yet to come out with an official position regarding the most recent changes to the energy law.

Furthermore, the energy ministry and energy regulator EWRC are working on a proposal to give the regulator the power to investigate and sanction potential infringements



on the exchange in line with REMIT rules.

A new support mechanism for renewable as well as some conventional producers is expected to be introduced.

Long-term purchase contracts between state-owned utility NEK and those producers are likely to be replaced by contracts for difference (CfDs). Once this happens a flurry of producers should enter the wholesale market, thus driving liquidity and volatility on IBEX.

The exchange is set to become the main wholesale trading venue in Bulgaria, although bilateral trading involving traders and retail suppliers will still be allowed.

IBEX came under a lot of fire for enforcing new trading rules without giving enough time for participants to have their say. IBEX has assured the market that it was keen to resolve the disagreements and offer solutions to outstanding issues such as a lack of clearing services.

The exchange is also due to launch an intra-day platform by the end of the first quarter of this year.

As of 1 February, the Bulgarian electricity balancing mechanism will be linked to day-ahead prices on IBEX.

The decision was made despite numerous official positions being taken by market participants saying that the new model will not work effectively.

The future of the export tariff may be decided in 2018 as Bulgaria is planning to start preparing for day-ahead market coupling with Romania and/or Serbia by July 2019.

If a firm decision is taken for market coupling to go ahead within the current time line, the export tariff will have to be scrapped for good ahead of the project launch.

TURKEY

2018 might be the year when the Turkish government will have no choice but to allow energy prices to reflect changes in oil values and the exchange rate, and in the process allow liquidity to build up on electricity, gas and LNG markets.

At the end of last year, the government raised electricity tariffs by 8.8% for the first quarter of 2018 and gas tariffs to gas-fired generators were increased by 8.5% to Turkish lire (TL) 763.62/thousand standard cubic metres (kscm) (€16.24/ MWh) and another 4.8% to TL800.00/kscm in January.

Earlier this month, it announced a tariff increase for electricity customers with consumption exceeding 50MWh/ year, which will come into force on 1 April. But energy

companies are still expecting further increases in April. Companies told ICIS they expect an average 7.9% rise in gas tariffs and a 5.45% increase in power tariffs.

As domestic energy markets took a turn for the worse in 2017, with the Turkish lira depreciating to record levels and oil-indexed gas import prices rising, the government had no choice but to raise tariffs to gas-fired generators by 8.5% in December to TL763.62/thousand cubic metre (kcm, \$5.43/ MMBtu) and another 4.8% to TL800.00/kcm in January.

The hike was only partial for gas consumers as tariffs to other eligible consumers remain frozen, while the electricity tariff rise remains well below the levels where it would allow companies to make a profit or at least break even.

With the launch of secondary frequency control auctions at the end of this month and a capacity market in the electricity sector, possibly as early as Q2 '18, price distortions linked to current arrangements could be eliminated, helping companies to optimise their forecasts.

Electricity traders will also be watching basin levels this year as there are indications that the country may experience another dry year.

Hydro-electric production in the first 10 days of January was hovering around 135GWh, compared to an estimated 165GWh over the same period last year.

An ongoing drought might lift delivery and forward electricity prices, and boost gas demand as the fuel will be required to offset any generation shortfalls.

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