SRBE KBVE

Société Royale Belge des Electriciens

Koninklijke Belgische Vereniging der Elektrotechnici

July 2020

Newsletter

EDITORIAL by Frédéric Dunon

Dear Member,

I hope that in these exceptional times this finds you well and you have managed to adapt to the ongoing health crisis.

Although this crisis has disrupted our preparations for upcoming publications and Study Days, it will open up a wealth of opportunities for the Royal Belgian Society for Electricians (SRBE/KBVE) and for the energy sector as a whole. In this context, I quote a recent tweet from Ursula von der Leyen, the current President of the European Commission: "Sooner or later we will find a vaccine for the coronavirus. But there is no vaccine for climate change. Therefore, Europe needs a recovery plan designed for the future." Furthermore, in a press release she says: "The recovery plan turns the immense challenge we face into an opportunity, not only by supporting the recovery but also by investing in our future: the European Green Deal and digitalization will boost jobs and growth, the resilience of our societies and the health of our environment." The Green Deal is a key legislative package, codifying carbon neutrality for everyone and for every sector. The path ahead is clear!

At a time when our political representatives are going to be looking at recovery plans, the energy sector's contribution to the social and energy transition will be at the heart of the discussions.

SRBE/KBVE is preparing for the 'new normal'. How can we step up our contribution to the energy transition by disseminating high-quality information and by encouraging professionals from the sectors involved to exchange ideas? We no longer just talk about 'the' energy sector singular, but about 'the' sectors, plural, that will come together to plot the path to a zero-carbon economy. So in 2019 we are leading the way in this process of change by looking at electric vehicles and energy storage techniques – stay tuned for an update! These will contribute to the upcoming coupling of the electricity and mobility sectors, with heat management and the energy performance of buildings set to follow suit. We will only achieve our aim of being carbon neutral by 2050 if there is greater coordination between the gas and electricity sectors, backed up by hydrogen in activities that cannot easily be electrified. Last but not least, against the backdrop of the energy transition, digitalisation will play a key role in enabling system optimisation driven by end customers.

The plans of SRBE/KBVE and the energy sector in general were disrupted somewhat in the first half of 2020. This newsletter therefore takes stock of the key legislative packages being discussed at European level, describes life in two companies that continued running during this health crisis, and provides a taster of our plans for the next few quarters. Working from home has made us think about what we normally do, and so SRBE/KBVE is currently developing alternative, IT-based solutions to make it easier to organise webinars.

The schedule for the next few months will therefore include a new Revue-E – E Tijdschrift about the impact of solar flares on the electricity system, scheduled for last quarter of 2020. The 'Medium- and high-voltage substations: State of the art and progress made' and 'Power grid digitalisation' Study Days scheduled for 21 April 2020 and 11 June 2020 respectively have been postponed until the COVID-19 restrictions will be eased. The 'Power to Molecule (P2M)' Study Day scheduled for October 2020 will be held in 2021 instead.

While we await the return of face-to-face Study Days, webinars on the European Green Deal and other forthcoming Study Days will be organised after the summer break. This will be a chance for us to find new ways of communicating with our members. SRBE/KBVE will share the practical arrangements for these events with you very soon.

I look forward to discussing these matters with you.

In the meantime, take care.

Best regards,

Frédéric Dunon

Chairman of SRBE/KBVE

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The European Green Deal by Jelle Reynaert – EU Public Affairs, Elia

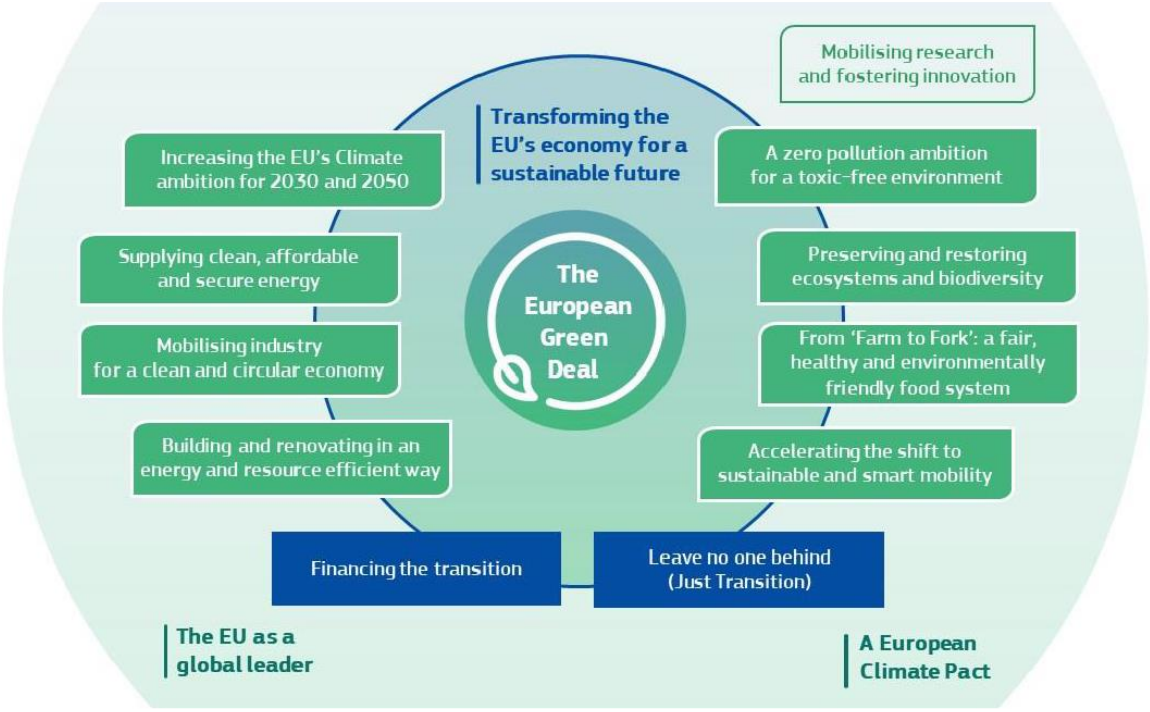
In December 2019, the European Commission presented its 'European Green Deal', an ambitious package of measures aiming to make the EU the world's first climate-neutral continent. But then, just when the Commission was starting to make real headway in translating its Green Deal from a roadmap with possible policy options to make Europe climate neutral by 2050 into tangible policy proposals, the COVID-19 crisis hit Europe. With all political attention focusing on Europe's economic recovery, the crisis has led the European Commission to rethink its legislative priorities. However, there have been no changes to the timetable for those aspects of the Green Deal most relevant for the electricity sector (energy sector integration strategy, offshore strategy, review of the TEN-E Regulation (see below for more details)). However, the question remains: how will the legislative process evolve with the German EU Council Presidency (which will start on 1 July and will head all negotiations), which is already being turned into a 'coronavirus presidency'?

Meanwhile, Commission President von der Leyen released her proposals for an economic recovery plan for Europe in early May in the footsteps of France and Germany, which had already set out a number of joint climate policy efforts as part of a broader effort to coordinate positions on the recovery from the pandemic and to support the European Green Deal. Indeed, while some are advocating that the Green Deal be put on ice, most stakeholders (whether Member States, businesses, etc.) agree that the Green Deal should be the driving force behind the economic recovery. However, what form this should take, especially from a financial and budgetary point of view, is still much debated.

The image below shows the overall scope of the Green Deal, highlighting those key pillars most relevant to the electricity sector.

Climate neutrality by 2050 and increased targets for 2030

In March 2020, in an attempt to clearly set the parameters for an effective and just transition, provide certainty for investors and ensure that this transition cannot be reversed, the **Commission produced a proposal for the first European 'Climate Law'.** This will enshrine the 2050 climate neutrality objective in legislation. The Climate Law should also ensure that all EU policies contribute to this objective and that all sectors play their part. The draft law will now be negotiated with Member States and the European Parliament, with the scope limited to mainly expressing a political will and focusing on the 'what' (not yet on the 'how'). The Commission also wants to leave enough leeway for innovation and any 'game changers' in the run-up to 2050.



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Around summer 2020, the Commission will present an impact-assessed plan **to increase the EU's greenhouse gas emission reductions target for 2030 to a decrease of at least 50%, and moving towards 55%, vis-à-vis 1990 levels**. To ensure that emissions are indeed reduced further, by June 2021 the Commission will review and propose revising all relevant climate- and energy-related policy instruments. **This will involve updating the European targets of 32% renewables in the energy mix and of a 32.5% increase in energy efficiency**, the Emissions Trading System (including a possible extension of European emissions trading to new sectors), Member State targets to reduce emissions in sectors outside the Emissions Trading System, and the Land Use, Land Use Change and Forestry (LULUCF) Regulation. At that time the Commission could also suggest amending the Climate Law to align it with the above changes.

Increased EU targets will have an impact on the national energy and climate plans (NECPs) that Member States have submitted to the Commission for review. These plans should set out national contributions to achieving the EU-wide targets. After the summer 2020 break, the Commission will assess the ambition of the plans and whether additional measures are needed if the plans do not prove sufficiently ambitious. Consequently, this will feed into the process of increasing the climate targets for 2030, as described above, to include more ambitious objectives for the reduction of greenhouse gas emissions and the integration of renewable energy. When Member States start updating their NECPs in 2023, these should reflect the new climate objectives.

Another upcoming Commission initiative involves aligning taxation with the climate objectives. In order to ensure that different pricing mechanisms complement one other, the Commission will suggest **revising the Energy Taxation Directive with a focus on environmental issues**.

To conclude, the Commission will also propose **'a carbon border adjustment mechanism'** by 2021. The underlying idea is to accelerate a 'just' transition toward a zero-carbon economy in a way which does not disadvantage any particular country, industry or group of individuals. Fairness would be guaranteed in two ways: within the Union, by extending the current Emissions Trading System to cover new sectors (e.g. the maritime industry); in the wider world, by introducing a European Carbon Border Tax to guarantee a level playing field for European businesses vis-à-vis foreign competitors, who face fewer environmental requirements.

Supplying clean, affordable and secure energy: a clear focus on infrastructure

Of course, the further decarbonisation of the energy system is vital to achieving the 2030 and 2050 climate objectives. The generation and use of energy across economic sectors account for more than 75% of the EU's greenhouse gas emissions. Energy efficiency will therefore be prioritised. However, for the Commission it is also essential to ensure that the European energy market is fully integrated, interconnected and digitalised, while ensuring technological neutrality.

The smart integration of renewables, energy efficiency and other sustainable solutions across sectors should help achieve decarbonisation at minimal cost. The rapid drop in the cost of renewables, combined with the improved design of support policies, has already reduced the impact of the use of renewables on households' energy bills. **Over the course of summer 2020, the Commission will publish measures to help achieve smart sector integration**. This strategy will look into sector coupling and into linking up sectors that are currently not decarbonised, such as transport, heating and digital. It is clear that hydrogen will be a vital part of that strategy, but its key role and its wider scope warrant a specific approach. The Commission will therefore also present a specific strategy on hydrogen (individual Member States have already adopted such strategies). In parallel, the decarbonisation of the gas sector will be facilitated, including via enhanced support for the development of decarbonised gases, via a forward-looking design for a competitive decarbonised gas market, and by addressing the issue of energy-related methane emissions.

The Commission will also present an offshore strategy in the second half of 2020. In 2019, a record 3.6 GW of new offshore wind capacity was added across Europe, but the pace of deployment is still too slow to achieve Europe's ambitious climate targets. Ten new offshore wind farms came online last year, bringing total capacity to 22 GW, according to figures published by WindEurope. According to this organisation, the UK accounted for nearly half of the newly-installed capacity, with 1.7 GW, followed by Germany (1.1 GW), Denmark (374 MW) and Belgium (370 MW).

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Portugal was next, with 8 MW of newly-installed floating offshore wind power. According to the European Commission, Europe needs between 230 and 450 GW of offshore wind power capacity by 2050 to decarbonise the energy system and deliver on the objectives of the Green Deal. This requires building 7 GW of new offshore wind power capacity a year by 2030, with this ramping up to 18 GW a year by 2050. The Commission's offshore strategy is set to address some of the main obstacles to the deployment of wind energy, mainly relating to lengthy permit procedures and resistance from local residents.

The third key pillar of the energy component of the European Green Deal is the revision of the Trans-European Energy Networks (TEN-E) Regulation (energy infrastructure) to ensure consistency with the objective of climate neutrality. This Regulation is an EU law intended to help national governments and companies better interconnect electricity and gas infrastructure across national borders. The transition to climate neutrality requires smart infrastructure, and greater cross-border and regional cooperation should help achieving the benefits of the clean energy transition at affordable prices. In the revision, the Commission will encourage the use of innovative technologies and infrastructure, such as smart grids, hydrogen networks or carbon capture, storage and utilisation, and energy storage, which will also foster sector integration. Some existing infrastructure and assets will require upgrading to remain fit for purpose and ensure climate resilience.

Pursuing green finance and investment and ensuring a just transition

The objectives of the European Green Deal require significant investment. The Commission has estimated that achieving the current 2030 climate and energy targets will require €260 billion of additional annual investment, equal to around 1.5% of 2018 GDP. The magnitude of the investment challenge requires the involvement of both the public and private sectors. Long-term incentives are needed to direct financial and capital flows to green investment and to avoid stranded assets. In Q3 2020, **the Commission will present a renewed sustainable finance strategy** aimed at mobilising investment worth €1 trillion over 10 years (using public and private funds). To bankroll the sort of extensive changes needed in several Member States, the Commission has also proposed a Just Transition Mechanism which would make available €100 billion a year. In order to seed investments into clean technologies, **the Commission will also revise the State aid guidelines by 2021**. The general idea is to support a cost-effective transition to climate neutrality by 2050 and the phasing out of fossil fuels, particularly those that are most polluting, ensuring a level playing field in the internal market. These revisions should also be an opportunity to address market barriers to the deployment of clean products.

Accelerating the shift to sustainable and smart mobility

Transport accounts for a quarter of the EU's greenhouse gas emissions, and this figure is still rising. To achieve climate neutrality, transport emissions need to be cut by 90% by 2050. Road, rail, aviation and waterborne transport will all have to contribute here. Achieving sustainable transport means putting users first and providing them with more affordable, accessible, healthier and cleaner alternatives to their current mobility habits. To address all this, **the Commission will adopt a strategy for sustainable and smart mobility in 2020**.

One of the goals of the Green Deal strategy is **to build the 1 million public recharging and refuelling stations that will be needed for the 13 million zero- and low-emission vehicles expected on European roads** (these numbers are already disputed) by 2025. The Commission will support the use of public recharging and refuelling points where persistent gaps exist, in particular for long-distance travel and in less densely populated areas, and will launch a new call for funding to support this. These steps will complement the measures taken at national level. The Commission will also consider legislative options to boost the production and uptake of sustainable alternative fuels for the various modes of transport, such as the **review of the Alternative Fuels Infrastructure Directive (AFID)** and the TEN-T Regulation (transport infrastructure regulation – similar to the TEN-E for energy, mentioned above). Both pieces of legislation were adopted at a time when the alternative fuel vehicles market was still emerging. The revisions could include minimum targets for each Member State in terms of public charging infrastructure, new metrics and methodologies to assess the right geographical

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coverage of infrastructure to meet the demand of those driving electric vehicles, smart charging rules, harmonisation of payment solutions, open and shared data, data interoperability, and so on.

The Commission will also suggest revising legislation on CO_2 emission performance standards for cars and vans by June 2021 to pave the way for zero-emission mobility from 2025 onwards. In parallel, it will consider applying European emissions trading to road transport, in addition to existing and future CO_2 emission performance standards for vehicles. It will take action in relation to maritime transport, including the regulation of access of the most polluting ships to EU ports and requiring docked ships to use shore-side electricity. Similarly, air quality should be improved near airports by tackling the emissions of pollutants by aeroplanes and airport operations.

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OPERATIONAL MANAGEMENT @ENGIE DURING THE COVID-19 PANDEMIC

Which measures were taken during the COVID-19 crisis to cope with the unprecedented risks facing the critical operations of ENGIE Global Energy Markets?

Due to the COVID-19 epidemic, ENGIE (Global Energy Markets Unit) activated its Business Continuity Plan (BCP) to preserve the normal level of its centralised critical operations related to spot/ID markets and balancing activities for Belgium, France, the Netherlands and Germany. Our main aim was to protect our employees while ensuring business continuity.

More specifically, taking into account the guidelines and instructions of government officials and health experts, we enacted the following measures:

- a crisis unit was set up at ENGIE/GEM level to monitor developments in the COVID-19 crisis in the various countries where we operate and to adjust measures accordingly;
- all our employees and staff in Europe managing non-critical activities were instructed to work from home;
- for our critical physical operations listed below, our BCP was divided into various phases depending on developments in the COVID-19 crisis.

    - ✓ Day-ahead (DA) optimisation
    - ✓ DA spot market bidding
    - ✓ Intraday (ID) power trading
    - ✓ Power Dispatch real-time balancing
    - ✓ Hydro production management

- **Phase 1: Business as usual with extra measures to protect our employees and comply with authorities' recommendations and instructions**

    - Critical operations were split between two physical ENGIE sites in Belgium: our main offices in Brussels and our backup site in Linkebeek.
    - Operations were carried out by two teams (A & B). Team members did not mix to minimise the risk of COVID-19 infections.
    - The full scope of all operations was handled.
    - More safety measures were enacted for the 24/7 operations. For example: A strict 'no-go' zone was set up in the operations room. All IT interventions had to be performed remotely, without the presence of anyone carrying out critical activities. Desks were sanitised and disinfected multiple times during the day.

- **Phase 2: Restricted mode, focused on purely essential tasks of short-term power activities**
    - We were not forced to take these measures, which included 12-hour shifts and adjusted on-site logistics to allow critical operators to remain and reside in their designated locations.

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How did ENGIE Global Energy Markets deal with the unprecedented balancing challenges posed by the COVID-19 crisis?

As part of our diversified portfolio, the pump/turbine storage assets at Coo and Pfreimd have been of great value during lockdown.

Lockdown has triggered a sharp decline in load, resulting in the shutdown of nearly all flexible thermal assets (typically CCGTs). Secondly, the load forecasting models were unable to deal with the significant impact we have witnessed.

Due to the prioritisation of renewables (especially wind production), the limited modulation possibilities of residential capacity and the lack of implicit flexibility from large gas-fired power plants that could be coordinated, we have been facing a very challenging period in terms of balancing our perimeter. Combined with all the items mentioned previously, this situation has led to unprecedented price volatility on the balancing markets. The incompressibility caused by very high levels of renewables production has also limited cross-border capacities, resulting in the decoupling of the CWE markets.

Therefore, from both an economic point of view and a physical balancing perspective, the capacities and flexibility of pump/turbine plants like Coo and Pfreimd have been of the utmost importance in safeguarding our obligations relating to balancing the load and our renewables portfolio. We were also able to contribute to the limited flexibility available on the intraday markets. In a regularly decoupled market scheme, facing significant load reforecasts and relatively high renewable reforecasts, this source of continuously optimised and monitored flexibility proved critical.

We would therefore like to highlight the importance of optimising highly flexible large-scale pump/turbine hydro storage assets, as these played a key role in getting us through this challenging period.

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Keeping the lights on @Elia

By Patricia Haemers (Head of Operations & Data), Jeroen François (Head of Security) and Bart De Jong (Head of Network Operations)

The list of unsung heroes has grown a lot longer since mid-March, coming to include care and medical staff as well as those working in the logistics and food distribution sectors – in short, people who conscientiously did their job under difficult circumstances.

When the government announced a 'semi'-lockdown on 13 March, it was all hands on deck at Elia to ensure that one of our core tasks, namely supplying Belgium with electricity, was not jeopardised. A few weeks earlier, Elia had set up a multifunctional taskforce to deal with this potential (and unprecedented) crisis. We strive to improve our ability to deal with possible crises (local blackouts, violent storms, etc.) year on year. This crisis infrastructure has been put to the test by the rapid spread and wide-ranging impact of COVID-19 and above all an unprecedented range of unknown factors such as its infectiousness, means of transmission and incubation time.

Like many things we simply take for granted, electricity from a power socket isn't actually as straightforward as it seems. Day in, day out, there are a lot of people working behind the scenes to ensure that the transmission and distribution of energy runs as smoothly as possible. Operators at the regional and national control centres monitor the grid 24/7. Supply and demand must be perfectly aligned, voltage levels must remain within operational limits, equipment must be maintained and replaced, and in the event of an incident or overload, action must be taken to restore the power supply as quickly as possible.

At the onset of the COVID-19 crisis, our top priority was to ensure the safety of our employees and the continuity of these services. Together with the emergency teams on the ground, measures were enacted immediately to allow staff to safely continue working in the interest of society.

Given the major impact that COVID-19 has had on almost all day-to-day activities – from the moment you leave home until you return – we tried to come up with comprehensive measures covering everything from compliance with health and safety and hygiene measures in the

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control centres, transport to and from work, contact with other colleagues/external parties to childcare certificates. When choosing solutions, there has always been a trade-off between impact, workability and, sometimes, less rational aspects, as these employees need to be physically present in our control rooms, away from the safety of their homes. Measures were continually adjusted in light of new facets of the virus being discovered and following media coverage. Lastly, the availability of staff was also closely monitored to guarantee continuity, should an employee be infected and so have to self-isolate.

Easter every day

We are seeing special phenomena on the grid in the wake of the COVID-19 crisis.

Given the uncertainty surrounding the length of the lockdown, we made efforts from the outset to restore power to all grid components that were out of service for works (known as 'switching'). In the first few weeks, Elia primarily focused on fixing faults. In view of the importance of our work in ensuring security of supply and changes in the energy landscape, we immediately looked into how we could safely resume these activities.

Regardless of the temperature, the amount of wind and solar energy, whether or not conventional power plants are up and running, for instance, we are seeing a (significant?) drop of around 20% in total load and volumes.

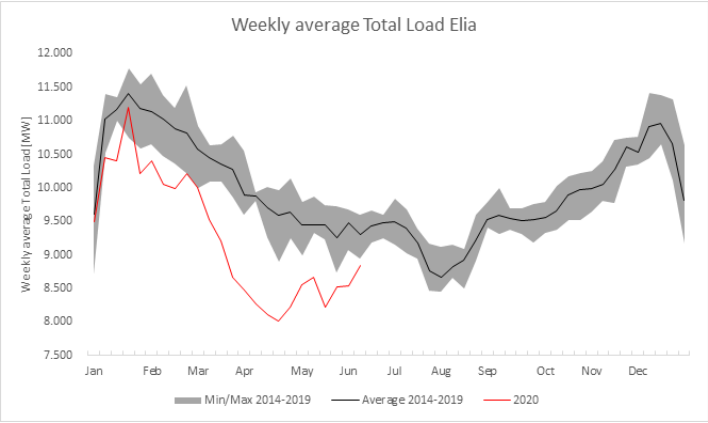

Figure 1: Average load

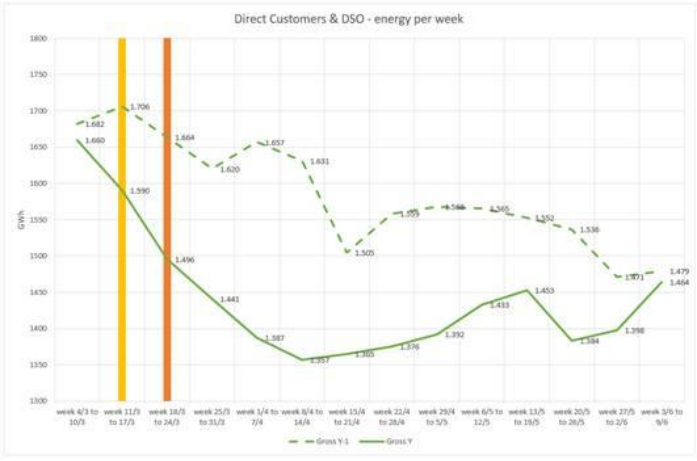

Figure 2: Average volumes

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The COVID-19 crisis also had a clear impact on the markets. Due to both lower offtake and a sunny, windy spring, market prices were considerably lower than they had been in previous years.

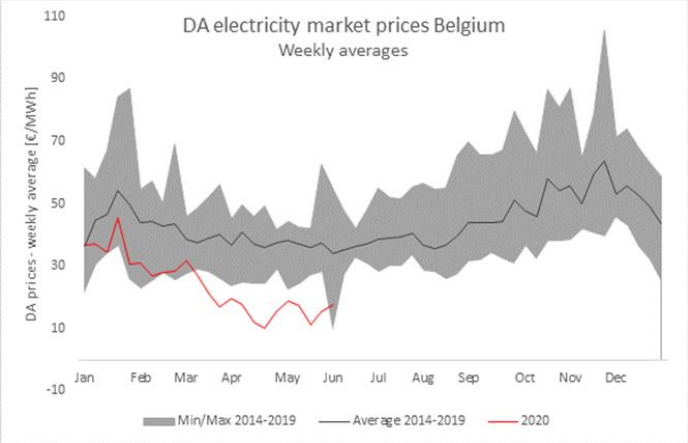

Figure 3: Average market price on the day-ahead market

The special grid conditions witnessed in this period correspond to a situation that, statistically speaking, we normally only see a few days a year, more specifically during the Easter weekend. A low load, a full grid and a lot of wind and sun make it difficult for operators to regulate voltage/MVAr and keep voltages below the maximum permissible limits. For the time being, the level of power electronics on the Belgian grid does not pose additional concerns about inertia (or the lack of it), but Elia will monitor the situation closely in view of the changes in the energy mix. We continue to work 24/7 to ensure security of supply, even if it seems like Easter every day.

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Activities of the Scientific and Technical Committee (CST/WTC)

During Q1 2020, the Committee teamed up with a number of working groups to conceive the programmes for Study Days, with four such events spread throughout the year:

1. Medium- and high-voltage substations: State of the art and progress
2. Power grid digitalisation and its impact on protection, automation and control
3. Power to Molecule (P2M): Power, gas, H_2, chemicals
4. New concepts for electricity pricing

The programme for the first two days has been finalised and invitations to the first Study Day, covering substation innovation, have been sent to all our members and contacts. This event was scheduled to take place on 21 April 2020, and registrations were starting to come in when the COVID-19 measures were announced on 16 March.

The Committee has adapted to the new health situation by postponing its planned activities and looking into other ways to disseminate technical and scientific information and maintain contact with/among our members.

Firstly, it is worth remembering that the Committee remains operational. It will receive all your technical and scientific questions and its answers will be based on the knowledge of our members, who are all specialists in their field.

The Committee still hopes to be able to organise by the end of the year the Study Day on electrical substations, pending due to the Corona crises. The other Study Days will be planned in 2021 as soon as the working groups can get up and running again.

More details about the next Study Day will be given in the next newsletter (scheduled for end September)

WEBINARS

Against the backdrop of these turbulent times, after the summer holidays SRBE/KBVE, as part of our drive to stay in touch with our members, will be organising a series of virtual seminars in the form of webinars. We have not yet chosen the platform for these sessions but access to them will be easy, straightforward and free of charge for all SRBE/KBVE members.

To whet your appetite, here are just a few examples of the topics that will be discussed at these upcoming webinars:

- The European Green Deal: What is it? How will it be implemented? What are the consequences?

- Cybersecurity for communication networks in electrical facilities

- The SRBE/KBVE is full of ideas but our members are of course welcome to suggest specific topics they would like to see addressed!

Lastly, a few minutes of each webinar will be spent introducing upcoming Study Days, providing information such as background, technical focus, venue, keynote speakers, and so on.

Stay tuned!

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Reminder SRBE Research price & SRBE Technology price

Please do not forget to send your works for Research Price and Technology Price by the end of October.

SRBE Research Price

SRBE Technology:

French: https://kbve-srbe.be/fr/module/xipblog/single?page_type=post&id=9&rewrite=srbe-research-and-technology-prices

Dutch: https://kbve-srbe.be/nl/xipblog/post/9_kbve-prijzen-onderzoek-en-technologie.html?page_type=post

Works can be sent to Secretariat of SRBE: **nancy.langsberg@vub.be**

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