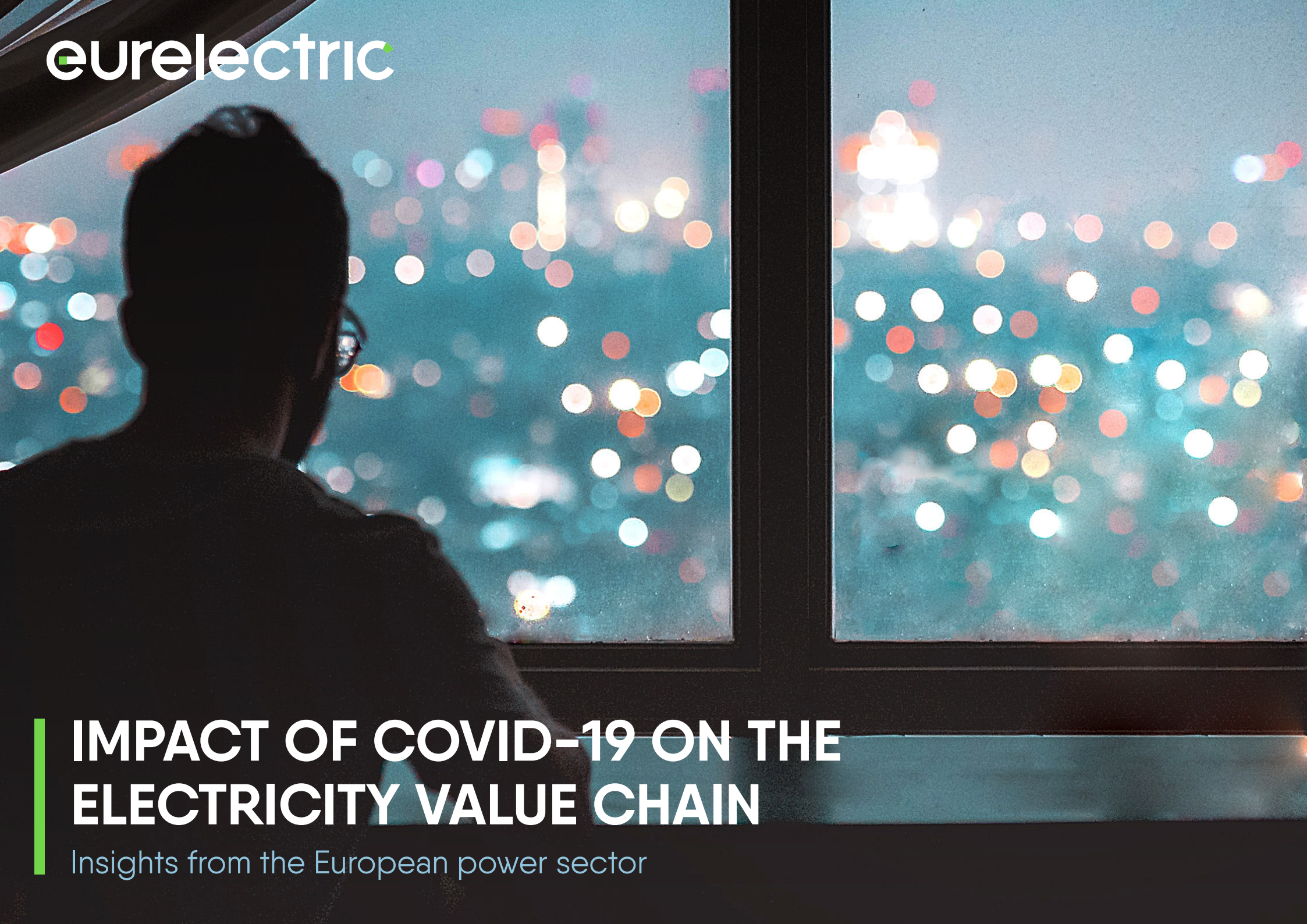
eurelectric



IMPACT OF COVID-19 ON THE ELECTRICITY VALUE CHAIN

Insights from the European power sector

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Key Messages

Electrification & Sustainability

- European utilities have ensured crisis management operations since the very early stages of the crisis; hence there has been no Security of supply risks to date. Essential activities linked to operation and maintenance are ensured and as a result the level of safety is not impacted.
- The e-mobility value chain is observing disruptions, mostly in view of extended delivery times for different manufacturing processes. Utilisation of chargers has also decreased by half across the EU.
- The proposed Renovation Wave has to prioritise the electrification of energy uses in the building stock while realising the potential of digital technologies. This means programmes need to go beyond improving building insulation and tap into the potential for on-site renewable energy generation.

Generation & Environment

- Some Members are reporting delays in the construction and refurbishment of generation sites (supply chain, delivery of equipment or workforce availability). In some countries, Member States have extended planning/permitting procedures or administrative deadlines.
- Regarding investment in RES specifically, there are concerns that the financial impact of the crisis on Member States budgets will compromise auctions schedules.
- There could be impacts on permits compliance for IED sites if delays in refurbishments lead to some sites not being able to comply with emission limit values and associated impact on security of supply.

Markets & Investments

- As a consequence of the low demand (- 5% in Q1 2020 compared to Q1 2019) and high share of RES generation, an acceleration of the downward trend of short-term maturity prices (Q2 2020) and an increasing number of negative price hours can be observed
- In most countries, social distancing measures are impacting the planned maintenance of power plants which are mostly scheduled in summer months. This delayed maintenance of power plants in winter months could have detrimental effects on System Adequacy, especially in countries with already tight margins and if demand returns to normal levels by winter 20-21.
- The lack of visibility has direct impact on power generation at EU level and could lead to delaying/cancelling important projects (potential drop in investments of 10/15% over the next years). The regulatory framework should therefore be more conducive to capital-intensive investments in carbon-neutral generation, in particular include more long-term arrangements.

Distribution & Market Facilitation

- Level of activities in most countries have been reduced to emergency responses, outage management, and connection for essential services such as hospitals. No impact on security of supply and on the sourcing of key equipment have been reported thanks to organisational measures and stocks.
- Maintenance, new connections, construction works and deployments of smart meters have been delayed, putting pressure on the complete value chain (subcontractors, suppliers, manufacturers.) Works are ongoing in some countries on case by case basis, as long as there are no physical contacts with customers.
- On the medium and long term, there could be risks as regards the quality of supply due to bottlenecks in critical and standard equipment supply, shortage of skilled workforce, risks of bankruptcy from subcontractors and persisting logistical issues (in case of closure of borders, no restart of manufacturing).
- The payment deferral of network charges combined with the decrease of consumption led to a decrease of revenues, affecting in some countries the DSOs ability to recover costs, finance and invest further projects in the long term.
- National governments and EU Institutions shall take measures to ensure the solvency of the entire electricity system. Financial strains and regulatory limits put on DSOs should be alleviated to continue to invest, run projects and hereby support the entire value chain (suppliers, manufacturers, subcontractors).

Customers and Retail Services

- In almost all MS, national authorities & electricity companies have taken robust measures to support customers such as payment arrangements and suspension of disconnection
- Governments and EU institutions need to support energy companies tackle the financial pressure resulting from such measures. This could include creating specific funds through state budgets as well as postponing payments due by suppliers for taxes, levies and grid charges until bills have been paid
- Whilst this is part of market risks, EU and national authorities should be aware of the significant impact that lower electricity consumption and power prices will have on the balance sheets of energy retailers and on their long term ability to invest in the energy transition and thus take appropriate measures. In case of default of existing suppliers, the costs for the system should be recovered without endangering other suppliers and generating a systemic risk

Disclaimer: Input from Eurelectric members dates back to end-April 2020

Electrification & Sustainability

Socio-economic impacts on the workforce

Summary

- By and large, from the very early stages of the crisis, all European utilities have implemented crisis management teams and detailed plans to continue operation under COVID-19 conditions. This would refer to reducing the number of workers at given sites and remote operations, except for essential activities linked to operation and maintenance. No risks for security of supply. The level of safety is not impacted.
- European utilities have ensured prevention measures at large (sanitary, hygienic)
- In many cases, webinars are being organised with digital training courses on skills. Improving procedures and HR infrastructure has become a necessity and is being addressed where not adequate.
- Some countries see high uncertainty in terms of GDP and job security, with cases of reduced or frozen wages and expected decline in household consumption as the crisis continues.
- The impact of supply chain disruptions might grow over time if restrictions continue for a longer period, but so far no major issues. Generally, utilities find it too early to determine the true consequences in the long-run.

	On the basis of your assessment, what are the main short and longer term socio-economic impacts of COVID-19 on the workforce of power plants and utilities? (i.e. crisis management teams, unemployed workers, short-time work, reskilling and upskilling needs in case of restructuring)?
AT	The main impacts on the workflow of power plants with the beginning of COVID-19 were the installment of crisis management teams and making the right decisions to continue heat and electricity production and ongoing maintenance work under COVID19- safety instructions. In this regard the main points have been to divide our operators of the control rooms and the production teams in several groups, if possible at different locations, to ensure freedom of movement for our operation and maintenance staff and to install a home office concept for our operational engineers.
CY	No complete and final assessment can yet be done for Cyprus, since the country is still undergoing restrictive measures for COVID-19. Hence at the present stage only a draft preliminary assessment may be made, based on the so far 5-week lockdown implemented in the country so far. The Electricity Authority of Cyprus (EAC), is the only electric utility in Cyprus (excluding areas where the Republic of Cyprus does not exercise effective control). Independent power producers also exist and operate private renewable power plants (mainly PV and wind farms), with an average share of 9.3% on the total electrical energy production over the last couple of years. - As far as employment is concerned, there is not expected that COVID-19 will have any impact on the workforce of EAC. With respect to private power plants, the impact is expected to be very limited, if any, since, the private power plant owners/operators are small companies with limited number of employees.

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	- From the very early stages of the crisis in Cyprus, EAC has appointed a crisis management team which issues guidelines and instructions with respect to, mainly, HR issues. - Restructuring and re-prioritisation of projects will definitely be needed at all utility levels and departments, since projects (e.g. network expansion plans and other market related development projects) have already started to be affected by COVID-19, emanating from in house and consultant/contractor human resource limited availability. The economic impact on these projects is under evaluation and nothing can be said at present - An "aggressive" renewable power expansion plan was put forward in Cyprus by the government before COVID-19, with an additional renewable (installed) capacity share of approximately 20% (357MW) on total existing installed capacity. This expansion plan essentially includes new private PV parks. A number of them has already been connected to the network, however a significant amount of them has been affected by COVID-19 and these projects will be suspended. The government together with involved authorities is considering ways to enable the materialisation of the projects and minimise delays.
ES	Short Term: As an essential service, power and distribution companies have launched crisis management teams and allocated resources to ensure business continuity. Crisis management skills will surely have to be included into core competencies of workers, in a similar process as it has happened with H&S or Environmental Management skills in the past.
FI	Many companies have established crisis management teams and contingency plans have been taken in use widely. Some companies have started reskilling and upskilling of staff to improve resiliency of critical staff.
FR	In the short run, UFE member companies have implemented a Pandemic Plan. The reaction and adaptation are monitored by a crisis management team. Measures for working in smaller teams than usual have been put in place, to make sure that qualified personal is always available even in the event of numerous sick leaves. The level of safety is not impacted. Any employee whose activity is compatible with teleworking must do so.
HU	According to our assessment, the main short term impacts could be the following: - increased demand for home office in case of white collar workers (mainly in the administrative and support staff). - we experience growing demand for: -application of working time bank, - part-time employment, - temporary redirection to another position, - downtime. If companies i) face difficulties in financing these types of employment or ii) incur lost profit, the employment relationship of the employees' is affected as well (in worst case terminated). The terminations can cause possible capacity problems after the pandemic. The following actions could help the companies to keep a sustainable business flow and employees' motivation: - The companies would appoint a special group of employees for the operation of basic infrastructure like nuclear power plant, transmission system (TSO), communication networks or DSOs and special management of those operations. In some cases, new activities/services could be insourced (e.g., call center in DSO business). - If the pandemic escalates, critical blue collar workers and shift leaders as well as other key employees will be placed in 4-day on-site shifts. - Training methodologies must be changed: - conversion of class-room trainings into online-digital solutions,

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	- focus on the indispensable trainings, e.g., development of the crisis team members, stress management, development of remote management skills. - An important task is safeguarding the physical and mental health, well-being of the employees. - In order to make the testing process faster, the companies have to take the responsibility for screening employees working continuously on-site for nCOV-2. On the long run, the forecasted COVID-19-related economic crisis will also have an adverse effect on the business flow. The group has prepared action plans to decrease the impact of the crisis. The lessons learned of the pandemic will be incorporated in to the everyday life of the group companies: e.g., „home office culture", the digitalization and online trainings will play more significant role in the companies. Currently "Crisis teams" were introduced at the major companies (e.g. MVM Group), these teams have wide powers and supervise the activities within the companies. At most important companies specific measures were introduced, like: - TSO (MAVIR) is in reversed quaranteen (staff's permanent presence in the company's premises, including night time); - At the country's only NPP (Paks) „Super critical operator" staff was defined.
IE	Operationally, generators are in a steady state during this 'crisis' – i.e. fundamentally, control room operators are getting to work and keeping the plants running. EAI has flagged with RAs the need to: - Prioritise key staff in terms of travel, testing. - Take on board concerns associated with a possible postponed and congested 'outage season' in the autumn/winter. - Consider the risk that such forced outages could be unavoidably extended because of COVID restrictions (through no fault of the unit operator) with the potential for consequential/additional losses & 'penalties'. The need to carry out this system wide assessment. A pinch-point is the wider supply chain as some manufacturers and suppliers shut down, either due to the apparently non-essential nature of their work or economic pressures and furloughing of staff. The continued availability of a wide range of suppliers remains a requirement for members to operate, including PPE suppliers, equipment, tarmac producers, hotels and accommodation providers, ferries, IT infrastructure, and quarries to name but a few. The impact of supply chain disruption on the industry will grow over time, so interventions may be required to maintain critical elements of the supply chain, if restrictions continue for a long period
IT	As the situation is rapidly evolving, it is difficult at this stage to define a clear forecast of the longer-term socio-economic impact on the workforce of power plants and utilities. Nevertheless, operators are putting in place a suite of measures to ensure continuity and maximisation of operations both for field and office activities. Some examples of measures undertaken by operators are: Information sharing: - Staff were briefed with internal press releases (including to contractors) - Information given on how to deal with COVID-19 symptoms and in case of contact with Coronavirus positive people Organisation: - activation of Agile/Smart Working for employees in all areas, except for essential activities linked to the functioning of power generation and distribution

	On the basis of your assessment, what are the main short and longer term socio-economic impacts of COVID-19 on the workforce of power plants and utilities? (i.e. crisis management teams, unemployed workers, short-time work, reskilling and upskilling needs in case of restructuring)?
	- reduction to the minimum of operating and maintenance personnel - shift modifications to avoid contact between squad and to be able to replace personnel in case of symptoms Prevention - A suite of sanitary and hygienic measures have been activated to combat the spread of the virus - measures to increase the sanitation and hygiene of vehicles. Car sharing is discouraged - measure to increase the sanitation of offices and plant zones - management of Personal Protective Equipment (PPE), in particular regarding the use of suitable face masks - sanitisation systems for workers have been installed, such as distributors of sanitising detergents - personal sanitation PPEs have been distributed for specific use in shift change - travel limitation rules have been set up. With regards to upskilling and training courses, as an example Elettricità Futura is also organising a set of webinars and digital training courses concerning agile/smart working and skills development in the disruptive context the entire society is experiencing. More information can be found on the dedicated COVID-19 area of EF's website.
LV	Latvenergo Group assets comprised of power plants, electric and communication networks are critical infrastructure, the Group continues its operation despite the emergency state due to Covid-19. Guidelines for ensuring business continuity as a result of the spread of Covid-19 in Latvia have been prepared for employees of Latvenergo Group. The company creates a work organization that reduces direct contact, ensures high hygiene requirements and provides regular information on the latest recommendations to reduce the spread of Covid-19. Distant working is implemented in all positions where it is compatible with day-to-day duties. Crisis management teams are established at Latvenergo AS and Sadales tīkls AS. It is difficult to forecast impact on the power sector workforce in long term.
PL	GDP growth for Poland is expected to decline strongly in 2020 with forecasts from financial institutions such as Goldman Sachs and Credit Agricole up to -4.6%. In comparison, the growth rate of GDP for 2019 was equal to ca. +4.0% as stated by Statistics Poland. A negative growth rate for 2020 would mean a first recession since 1990-1991. However there is considerable uncertainty regarding GDP growth related to the development and length of the COVID-19 pandemic. The unemployment rate in the economy is expected to rise strongly. It is forecasted by Bank Pekao to reach 13% at the end of 2020 whereas for February 2020 it was equal to 5.5% according to Statistics Poland. A strong rise in the unemployment rate is caused by job layoffs, especially in the service sector and small companies. On the other hand prospects for job growth are rather bleak as only a small percentage of companies in the economy is expected to increase their number of employees. Due the current situation many companies in the economy are temporary reducing wages and working time of their employees. Many companies are planning to introduce such measures. As a result of high uncertainty, job layoffs, reduced or frozen wages the growth rate of household consumption is expected to decline. According to Statistics Poland it was already declining in 2019 (+3.9%) in comparison to 2018 (+4.3%) and the current situation will only exacerbate this trend. Especially affected by the current situation are those sectors of the economy which rely on international trade (exporters, importers) due to broken supply chains, lower demand etc. Such sectors are car manufacturing, electronics, refining, machine and textile industry.

	On the basis of your assessment, what are the main short and longer term socio-economic impacts of COVID-19 on the workforce of power plants and utilities? (i.e. crisis management teams, unemployed workers, short-time work, reskilling and upskilling needs in case of restructuring)?
PT	The utility sector has already been adopting digitalization to optimize operations, enabling the remote control of several systems. This preparedness has allowed the sector to quickly adapt to this new reality without major disruptions. At EDP, around 70% of the workforce was teleworking within a week, but always ensuring critical activities and essential services (generation, distribution, supply), so that security of supply was not at risk. Remote operations were reinforced, and crisis management teams were activated for each business area and central management. The knowledge of workers on digital tools and preparedness for teleworking was strengthened through online training sessions, but no major reskilling and upskilling were implemented. No employees were fired since the beginning of the crisis
RO	We consider that the socio-economic impacts of COVID-19 crisis on the workforce of power plants and utilities can be summarized in a few key areas: - employees health and well-being (physical and psychological) – short-term, addressed through crisis management measures (e.g. from safety equipment and sanitizers to setting up support groups), longer-term to be addressed through revised policies and procedures in line with the post-COVID-19 world; - talent management and work continuity – on the longer term, need to review the work-from-home terms and conditions, having procedures and adequate infrastructure in place; what has been addressed as a crisis management measure, may become the norm for the entire HR chain, from remote recruiting/interviewing, to knowledge management and training; there is an upside, as there may be potential for accelerating tools readily available, such as VR labs; - staff mobility needs to be reconsidered – while it was minimized during the crisis and replaced by remote collaboration (fast learning in place), procedures for allowing physical meetings and travelling must be revisited;. this is particularly relevant for field workers that may need to travel more extensively for specific works – safety measures must be put in place; - reduced investments and falling energy prices (due to lower demand) may lead to unemployment on the short and medium term (considering a U-shaped recovery scenario); support for the employees, in reskilling and upskilling, may be needed. In Romania, utility companies may not need to lay off employees – if the case, there may be just technical unemployment for a limited number of personnel. The challenge of the companies was to reconfigure the work time of the operational personnel – change the usual shifts, secure the conditions for the employees to be safe while working on the field or in dispatches. Also, preventive isolation was applied for the critical employees. Some of the interventions and investments were postponed until after the COVID crisis, and employees engaged in these works were reassigned partly. The main challenge in Romania is the flexibility of the work time. We need a change in the legislation so that we can apply short-time work or other flexible solutions to use the employees where and when is needed.
SE	The industry is in general facing financial difficulties at the moment, but this is mainly caused by the low electricity price and therefore not directly connected to the ongoing Covid-19 pandemic. In general, Covid-19 pandemic has not so far caused any serious decline in business, especially not concerning the core business at the power plants and utilities in Sweden. However, there are parts of the business which has experienced a decline in business due to the pandemic, such as sales and training departments. To our assessment a larger problem for the industry due to the Covid-19 pandemic is instead to ensure access to the work force to keep critical functions running in case of increased numbers of sick leaves. However, this is not a critical issue at the moment. In summary, it is too early to say what the consequences of this pandemic will be in the long run. However, depending on how the situation develops and how long the pandemic will be ongoing there might be socio-economic consequences affecting the electricity demand and the prices, such as recession with decline in industry and production.

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SI	The electricity distribution company, Elektro Maribor, estimates that there will be no major impacts as far as human resources are concerned. The company will not lay off employees, on the contrary: they plan to additionally hire workers in order to achieve the goals set out in the business plan. They did not put the workers on standby either, as they did not shorten the workday. They decided for the work from home when and where this is possible. In addition, the company encourages everyone to take annual leave in the current phase of the epidemic. To meet the needs of the crisis situation, they have set up a backup location of the control centre, and they also have a scenario prepared for the most urgent work on the electricity distribution network. They have a sufficient capacity of professionally trained staff and there is no need for retraining. In the electricity distribution sector in Slovenia SODO estimates the following socio-economic impacts of COVID-19 on the workforce: • Short-term: from the beginning of COVID-19 epidemic all safety measures habe been taken to make people's working environment safe. SODO educates workers about new virus, and how to behave properly and safely (hand sanitation hygiene, caught prevention, keeping social distance etc.). They encourage all ill workers to stay at home and that the communication is done via electronic communication channels and by telephones. Office employees work mostly from home, while others have been assigned to smaller groups, or are on leave or on standby. They organise the work remotely where possible; when not, they have decided for a standby. They encouraged workers to use a regular annual leave. • Long-term: We will return to normal work slowly, but with some changes. SODO will organise work as safe as possible (maintaining social distance and wearing masks where necessary). For the moment, the encourage electronic communication where possible. Physical meetings will be held only when urgent and with safety measures. They do not plan any dismissal of employees, or any changes in work schedules.
SK	It is very preliminary to assess the short-term nor even the long-term socio-economic impact of COVID-19 on the workforce of power plants and utilities, when the COVID-19 outbreak is still in its full strength currently. On the other side we are more than sure that the current COVID-19 crisis has the direct impact on the electricity markets. The demand is on the decrease in different scale in different countries, the wholesale electricity price was also impacted downwards, there is already a problem with the financial discipline of customers to pay electricity bills etc. These factors are having and will have for future bigger or smaller impact on functioning of electricity companies and their power plants operation and consequently on workforce as well. All of these impacts will be fully materialized and visible once the COVID-19 crisis will be on decrease or disappear completely. What we can confirm as well is that the current COVID-19 crisis will speed-up some restructuring processes within companies which would happen anyway, but at later stage
UA DTEK	DTEK took all preventive measures aimed at fighting the spread of COVID-19 at its enterprises and for minimizing the risks of infection spreading in the cities where the business is present. DTEK created a special task-force to manage the situation at enterprises and to respond quickly in the regions. The company works closely with the governors and their regional headquarters for effective coordination of efforts. All DTEK TPPs are transferred to a special work schedule. Part of TPPs personnel, necessary to ensure continuous production of electricity, operates in strict isolation mode. This ensures the stable operation of strategic enterprises of the country and allows minimizing the spread of infection. The economic crisis resulting from COVID pandemic exacerbated the already existing crisis in the energy sector. As a result, the coal mining enterprises of the company - DTEK Pavlohradcoal and DTEK Dobropolliacoal - were transferred to stand still mode. The staff receives payments according to the collective agreements. At the same time, maintenance of mines and factories continues, which will allow to quickly restore the work of enterprises. Main long term socio- economic impact:

	On the basis of your assessment, what are the main short and longer term socio-economic impacts of COVID-19 on the workforce of power plants and utilities? (i.e. crisis management teams, unemployed workers, short-time work, reskilling and upskilling needs in case of restructuring)?
	- There is a risk of the lack of employees in a long term perspective. Some employees cannot work remotely as their work is physical and therefore they are now on paid holidays. However, if the lock down measures are prolonged, there is a risk that such employees will leave the company to find another fully paid job. At the same time, DSOs do not hire new employees, as skilling and the medical inspection of such employees are needed at the beginning of their work that cannot be provided during the lock down period.
UK	It's probably very difficult to assess the situation at the moment, even in the short term. The first priority will be to ensure that companies feel confident that getting back to work is safe for all of their staff. Depending on the official Government for getting the country out of the lockdown, some sort of social distancing measures might be maintained which in turn could have an impact on all the issues mentioned above

E-mobility value chains

Summary

- Despite COVID, sales of electric vehicles have increased on a year-by-year basis in most major European markets. Yet, COVID is expected to drastically reduce the demand for new vehicles altogether and latest estimates foresee the sale of 11 million passenger cars in the EU-27+UK for 2020 compared to 14-15 million in the previous years.
- However, charging manufacturing is experiencing extended delivery times. There is no shortage of components or equipment.
- Charger installations report delays, and focus on essential charging infrastructure only.
- The utilisation of public chargers has decreased leading to a drop in the income on public chargers. A big share of our members' activity and customers are in the private domain where activity depends on the sector – taxi and delivery services see enough activity, whereas firms and companies largely work remotely, hence no charging at the offices.

	Car manufacturers are experiencing unprecedented losses. From what you see, is COVID-19 having specific spill-over effects on the e-mobility value chain (in terms of deployment of charging infrastructure, availability of materials, shortage of specialised personnel, delays in shifting manufacturing solutions to EVs, difficulties meeting new EU sale thresholds, etc.)?
AT	We think, there will be some spill-over-effects on the e-mobility value chain in the form of delay for the rollout schedule. On the one hand, the customers will hesitate to buy EV's in 2020 / 2021, on the other hand, the automotive industry will get troubles with the availability of materials, etc. We expect, that the automotive manufacturers will continue their shifting processes as soon as possible. Perhaps the EU-thresholds will be extended for one or two years. After this short time, the e-mobility business will start again. The deployment of charging infrastructure will also go on with a short delay.
CY	The e-mobility sector in Cyprus is at an early deployment stage. A few charging stations exist, with plans for implementation of more charging stations. COVID-19 is expected to affect, on an average level, the implementation of these plans, however consequences are rather insignificant since the sector is at a very early stage and a lot yet needs be done regarding the regulatory framework.
DE	In general, there are currently no significant foreseeable effects on long-term projects. However, there are spill-over effects on the charging infrastructure, in particular the following: 1. A decrease in demand on the charging points as a result of the current reduction of mobility in general. 2. Delays in installation and commissioning works of charging points due to the existing travel and contact restrictions. 3. Delays in certification of technical devices for charging points.
ES	On a short-term analysis, first impact is associated with deployment of new charging points. Although contractors may be able to maintain activity at reduced level, many of the commercial locations where these points are installed have been forced to close and consequently they have either decided to stop the deployment of new infrastructure or postpone the investment decision. In addition, electrical installations inspections by the governing body have been suspended. Also, there is an evident and significant impact in the utilization of existing charging stations due to mobility restrictions and overall traffic reduction, putting additional pressure in a challenging business case. Suppliers are delivering new charge points with minor delays.

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	In the medium-term, projection for EV sales will surely be negatively impacted although variations in the EV penetration as a % of new sales are yet to be observed. Target sales for private charging (home&work) are estimated to have a negative impact. Car makers will probably get a delay in the application of new Regulations about CO2 standards which would reduce the interest of car makers in promoting e-mobility. There may be a need of individual means of transport to avoid the use of collective transportation. This can be an opportunity for individual or shared e-bikes or e-motorcycles (shared if appropriate cleaning is provided) but it would face difficulties if local governments are not properly aligned.
FI	Finland has quite small amount of electric vehicle manufacturing. No known issues there. Regarding infrastructure, COVID-19 has slowed down the decision-making of housing cooperatives, which in turn has slowed down the construction of charging infrastructure. To my knowledge, there is no shortage of specialized personnel or materials regarding e-mobility value chain.
FR	<u>Regarding deployment of charging infrastructure:</u> Civil works have been stopped in France since mid-March, including for electric vehicle charging infrastructure. The crisis has put a brutal stop to both the deployment of charging infrastructure and use and will affect the sector's financing capacities. Partners are already warning against potential delays in the next months, most of them being focused on their core business and living in a survival mode. Also, the delays in local elections in France have postponed the decisions of public authorities related to call for tenders. Therefore, no new public projects are expected to start this year. There is today no shortage of components or equipment. <u>Regarding the electromobility market:</u> Despite a collapse in the automotive market in March (-72%), electromobility increased by 19% compared to 2019 to represent 12% of total sales. In the short and medium terms, it will be essential that measures are undertaken to revive the demand for clean vehicles. To revive the demand for clean vehicles, the EU should accelerate the roll-out of charging infrastructure.
HU	From the perspective of Charge Point Operator (CPO) and e-Mobilitiy Service Provider (eMSP) our experience is the following: Charger Manufacturing: - In case of e-charger orders manufacturing and delivery time is extended and sometimes date of delivery is uncertain. - Some of the charger manufacturers have changed the routine of post-paid invoicing and (at least partially) require pre-payment to mitigate their financial risk. E-charger installations: - Many potential customers reported delays and installation projects have been delayed or even cancelled Public charging: - The utilization of charger has decreased: the number of charging sessions and energy consumption is ca. 50-70% less than before COVID-19. - Roaming at public chargers, especially international roaming is almost dropped to 0. - Income on public chargers is dropped by 60-70%. - Other challenge: - FX risk is emerged in the non-euro zone countries.
IE	N/A to Ireland

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LV	At the moment we do not have any ongoing e-mobility infrastructure deployment projects or equipment procurement procedures in the phase where we could experience the mentioned spill-over effects. In March, we have noticed a slight drop in the use of our charging infrastructure; this trend is expected to continue in April. Also, the remote work regime has had a slowing effect on our testing of new charging equipment.
PL	We assume that some projects may be delayed due to the extended procurement proceedings, reported problems with workforce availability and predicted disturbances within supply chains
PT	On a short-term analysis, the first impact is associated with deployment of new charging points. Although contractors may be able to maintain activity at reduced level, many of the commercial locations where these points are installed have been forced to close and consequently they have either decided to stop the deployment of new infrastructure or postpone the investment decision. In addition, electrical installation inspections by the governing body have been suspended. Also, there is an evident and significant impact in the utilization of existing charging stations due to mobility restrictions and overall traffic reduction, putting additional pressure in a challenging business case. Suppliers are delivering new charge points with minor delays. In the medium-term, projection for EV sales will surely be negatively impacted although variations in the EV penetration as a % of new sales are yet to be observed. Target sales for private charging (home&work) are estimated to suffer a negative impact. There may be a need of individual means of transport to avoid the use of collective transportation. This can be an opportunity for individual or shared e-bikes or e-motorcycles (shared if appropriate cleaning is provided) but it would face difficulties if local governments are not properly aligned.
RO	- Limitation of the emphasis on environment topics without government support - Delays in deployment of (non-essential) EV charging infrastructure - Reduced availability of EV parts considering production shortages in China. 53% decline in Tesla's shares from 19 February to 20 March 2020, due to fear of demand decline and disruption in the supply chain due to shut down in China - Reduced demand for EV, as part of the lower demand for cars in general. 2.5% expected slump in Global Auto sales in 2020, due to COVID crisis. European automotive production facilities are temporarily shutdown & demand is expected to drop by 20% in 2020. In February 2020, the automobile industry sales plunged 79% in China due to the coronavirus outbreak. - Delays in deliveries considering production cease around the globe. Tesla, Ford, General Motors & Fiat have shut down of all their production to end the virus spread - The falling prices for crude would trigger relevant reduction of production based on high cost technology (e.g. shale oil), high cost oil fields final closure hence further reducing the supply capabilities. This expected development together with worldwide oil demand reduction would point towards an increased expectation for E-mobility for medium and long term. In turn, that would also raise the expectations for an EV-ready infrastructure sooner rather than later.
SE	Indications of decreased volumes of public charging due to COVID-19 has been seen in several countries according to the members represented at WG Electromobility. Through dialogue with charging infrastructure manufacturers we have received indications that activity has decreased due to COVID-19. In the realm of more medium-term negative effects is postponed education of staff due to company travel restrictions. To my knowledge, there´s been no shortage of specialized staff for installations of more advanced charging sites so far, but it is likely to happen as the pandemic spreads and is thus a risk in the e-mobility value chain.

	Car manufacturers are experiencing unprecedented losses. From what you see, is COVID-19 having specific spill-over effects on the e-mobility value chain (in terms of deployment of charging infrastructure, availability of materials, shortage of specialised personnel, delays in shifting manufacturing solutions to EVs, difficulties meeting new EU sale thresholds, etc.)?
	From our perspective, COVID-19 will likely decrease the demand for new cars in general as the world´s economy slows down, but it is not apparent that it will de crease the demand for EV:s in particular and would hence likely not impact the possibility to meet the thresholds for EU sale shares
SK	Activity in the e-mobility sector has been impacted during the COVID-19 crisis, on account of the economic lockdown and curtailment of individual mobility (e.g. lower electricity demand, slower deployment of charging infrastructure)
UA DTEK	YASNO operates a network of fast-charging stations. We do not manufacture stations, our business is in providing a charging service. Our main customers are corporate segment (including taxi services) and private EV owners. Regarding corporate segment: we see enough activity among taxi and delivery services. Yet, other companies are not charging due to the lockdown and remote work set up. Regarding private owners: we see a decline in travel between cities, and only small part of charging sessions within cities. In general, the decline in the number of charging stations is by 2.5-3 times.
UK	The UK Government issued guidance to chargepoint installers on 25 March that relaxed criteria for access to grants, extending deadlines for eligibility if impacted by COVID-19 and removing the requirement to sign in person. Government urged installers to follow all health and safety guidance and to go further if they felt necessary. Home and workplace chargers: Most, if not all, installers have halted the installation of home and workplace chargers apart some exemptions for key workers or for homes / businesses that only have a battery electric vehicle. As such the installation of chargepoints has all but ground to a halt. Public chargers: Public chargepoints remain operational and chargepoint operators continue to maintain and operate their public networks, while sticking to Government advice on social distancing, hygiene etc. The vast majority of new installations / construction work has been paused. - There are concerns within industry as leisure, retail and hospitality venues have closed, meaning the public chargers that are on site are no longer accessible. It is not thought that a large proportion of public chargers are affected by this however. - Another concern is the ability for maintenance workers to get around to maintain the public network. These staff are not currently classified as key workers. Industry is currently in discussion with Government on how to minimise disruption for the public network however Government is concerned of the message this could send to EV drivers

Generation & Environment

Hydropower

Summary

- In general procedures in place for minimization of staff onsite/safety rules.
- No to minor disturbance for maintenance operations for now. In PT they have been stopped.
- Refurbishments have been either stopped (major ones postponed to next dry season in PT) or faced delays (AT, SE) and reorganization due to safety measures for employees (AT, LV). In PL refurbishment is continuing but procurement of construction/renovation has been stopped by local governments. For SE unclear if these delays could become critical.
- PT signals problems on equipment suppliers' side including layoffs.

	Are there any specific impacts on hydropower generation (supply chain, access to sites for maintenance and inspection work, etc.) or on new hydropower sites or infrastructure under refurbishment (e.g. supply chain, access to site, financial robustness of equipment suppliers, forced standstill of construction sites)?
AT	The specific impacts on hydropower generation based on experiences in Austria and Germany (Bavaria) can be outlined as follows: - No problems with supply chain for operation. Except procurement of equipment for personal protection of employees (e.g. masks,...) some difficulties emerged - Access to sites was always possible (also in border regions), but coordination with governmental authorities was necessary to provide our staff with supporting documents - It was necessary to separate teams in the power plants in order to avoid direct contact; administrative staff works from home office - Generally, critical infrastructure status was very helpful for the coordination with the authorities - Regarding refurbishment projects were some problems with partly standstill (1 to 3 weeks) due to unclear governmental regulation, but currently (15.4.) nearly 100% of our projects are running under strong safety measurements - due to closed borders supply from some regions outside Austria / Germany was delayed (e.g. Italy for specific parts for refurbishment projects)
CY	No hydropower plants exist in Cyprus. There are no plans for new hydropower plants.
DE	No short-term impacts on the availability of hydropower have been reported to us. In the long term, due to problems with the procurement of spare parts (deliveries from abroad), there may be a backlog of investments in planned maintenance and repair work.
FI	We haven't faced any hydropower specific impacts and we don't foresee such impacts even in the future.
FR	A small part of existing hydropower facilities are running under feed-in-tariff or feed-in premium systems but the vast majority - 90% of production - is suffering from current very low electricity prices on the market. The downward and upward flexibility offered by hydropower assets is even more used than usual but energy markets today do not adequately remunerate these services.
HU	Hydropower generators may experience limited access to maintenance experts, although this shouldn't be a major concern on the short run. There is only marginal hydropower generation in Hungary, these may not cause any significant concern.

	Are there any specific impacts on hydropower generation (supply chain, access to sites for maintenance and inspection work, etc.) or on new hydropower sites or infrastructure under refurbishment (e.g. supply chain, access to site, financial robustness of equipment suppliers, forced standstill of construction sites)?
IE	None Identified
LV	At the moment Latvenergo AS is implementing reconstruction of hydroelectric units in its Daugava HPPs (large hydro) and construction of new hydro units in Aiviekste HPP (small hydro). There are some limitations in access of sites for contractors and maintenance personal to power plants, but these limitations are not critical and could not disturb implementation of mentioned projects substantially. To ensure business continuity, personnel in critical infrastructure is trained on a long-term basis. Special zones have been established and marked at the generation facilities, which will be closed in case such a decision is made. Only operational staff who must ensure the continuity of the generation process may be present in the demarcated areas. Currently, the areas are marked with demarcation tapes and warning signs
PL	Due to epidemic regime in Poland there are only some minor disturbances in a maintenance process of hydro power stations (the need to separate operation team form the maintenance team). Currently we do not experience any problems with the supply of spare parts. The market of services for hydro also works without major disturbances. In the area of refurbishment we are not experiencing disturbances (there is no need of direct contact between the operation and construction teams). Due to suspension of the constriction/renovation works procured by the local governments, we can observe the increase in the number offers made by construction companies in our purchase procedures
PT	From the generation point of view, our hydro fleet has register a decrease of nearly 15% on the generated energy, only due to the demand decrease. Regarding maintenance and refurbishment projects, all works that were ongoing or ready to start have been suspended, and the major refurbishments foreseen for the dry season (spring to fall) were postponed for the next year. The operation of the power plants is totally unmanned made and access to the power plants are restricted to troubleshooting or critical urgent repairs. The remote operation from the National hydro control center has been split in 3 separate centers. From the side of the suppliers the activity is also very restricted, some have entered in partial or total lay-off and, even for those that have continued their activity, their response capability is very limited at operational level, due to the operational restrictions (travelling, safety concerns), but also at the commercial level, due to the lack of response from sub-suppliers.
SE	Certain renovations and improvements of stations have been delayed due to the concerns with the delivery of supplies and/or access to foreign expertise. We do not have a clear picture if these are critical concerns or established shortages at the moment. However, the Swedish TSO and the Swedish Civil Contingencies Agency's reports do not show any impacts on the energy production
SK	Currently, we have no new hydropower plant under construction, so there is no COVID-19 impact within this area. Hydropower plants which are operated are affected by COVID-19 mainly in the following areas: - Minimization of operational staff at HPP: only the necessary number of staff is working to ensure the operation of HPP (50% at work, 50% at home on a weekly basis without personal contact), maintenance of fault conditions and completing ongoing outages - Extension of ongoing HPP outages: due to slowdowns, interruptions and postponements from the contractors side, availability and transport possibilities of material - Minimization of planned outages of HPP: re-evaluation of outages only for the performance of necessary repair activities - In relation to projects requiring cooperation with the distribution companies, the necessary postponement of our projects due to the suspension of work on the projects of distribution companies
UK	Potential delays in issuing revised environmental permits to Large Combustion Plants to reflect the updated LCP BREF 2017 (target June 2020 for all plant, but particularly those emerging from the Transitional National Plan (TNP)) caused by unavailability of Regulator staff.

	Are there any specific impacts on hydropower generation (supply chain, access to sites for maintenance and inspection work, etc.) or on new hydropower sites or infrastructure under refurbishment (e.g. supply chain, access to site, financial robustness of equipment suppliers, forced standstill of construction sites)?
	- Environment Agency (EA) remains on track to issue permits by June. Installations in the TNP are being prioritised and draft permits should be sent out by the end of April. - Natural Resources Wales (NRW) has issued all draft permits and is offering operators flexibility if they need more time to comment. Final versions should be issued in May. - Scottish Environment Protection Agency (SEPA) will review its permitting timetable in the week commencing 20 April. TNP installations will be prioritised. Operators will be contacted during the following week about the timetable for issuing draft permits. - Northern Ireland Environment Agency (NIEA) is likely to run over the June target overall, but TNP installations will be addressed in May. Regulators are in close contact with the companies involved

IED compliance

Summary

- Very limited impact so far but potential impact on monitoring/reporting/auditing if situation lasts (UK and IE regulators aware of the potential issues) and possibly on operation if maintenance not done on certain units (PT).
- Lower demand may result in less activity for low efficiency

	Are there any compliance issues in relation to the implementation of the IED (increased running time and impact on emission limits, lack of access to sites for emissions testing, audit, inspection, access to products e.g. chemicals, etc.)?
BE	At the present stage there is no lack of access to sites for emissions testing. The emission levels from conventional power plants might be affected due to COVID-19, however this cannot yet be assessed completely. The total yearly electrical energy demand will be affected (demand decreased by about 20% at present) by the crisis, and hence emissions will also be affected.
DE	There could be a delay in power plant revisions, expert examinations, environmental and energy auditing, technical and professional training of staff as well as IED inspections and compliance monitoring, which could lead to a further delay after the crisis, due to limited availability of qualified personnel and administrative resources. As of now, there are specific problems at cross-border activities of revision teams, due to various quarantine restrictions of the individual countries. In addition, external technical and professional trainings including technical conferences, workshops and other regular training programs were generally cancelled in March and April and/or postponed to autumn and winter.
FI	There haven't been any problems with the implementation of the IED so far.
FR	No
HU	There is one problem area reported, where the adverse effect of the epidemic occurred and where the proper operation from 2021 in accordance with IED is affected: the development and partial replacement of the lignite fired Mátra Power Plant (MVM Group) desulfurization equipment's rubber

	Are there any compliance issues in relation to the implementation of the IED (increased running time and impact on emission limits, lack of access to sites for emissions testing, audit, inspection, access to products e.g. chemicals, etc.)?
	seal. The reconstruction is essential to meet the increased dosage required to comply with stricter ELVs regarding to Sulphur Dioxide. For now it appears that the reconstruction is to be postponed to the next year, due to the pandemic situation. The postponed action carries the risk that there will be a period when the equipment will not be able to keep the ELVs.
IE	EAI has flagged these issues with the RA. RAs have indicated that they will deal with individual companies as they arise
LV	The gas fuelled CHPPs of Latvenergo AS are operated in compliance with IED requirements, included the BAT associated requirements. Currently there are no any ongoing IED implementation activities at Latvenergo AS power plants and Covid-19 impact cannot be identified. Regarding impact to other issues, such as lack of access to sites for emission's laboratory testing, inspections and maintenance of continuous emission monitoring systems, the impact of Covid-19 restrictions could become more serious in a longer term. If the restrictions associated with Covid-19 will last more than 3-4 months, some problems would arise to fulfil the requirements of integrated permits related to emission data processing, inspecting, as well as repair and maintenance of continuous monitoring systems due to access restrictions to power units and some area around for staff and persons who are not operational personnel.
PL	We have not observed any increase in the running time of the units dedicated to the limited-time derogations under IED. On the contrary, the overall drop in energy demand could possibly result in the lower workload of the old low-efficient units. In several cases units dedicated to the limited life time derogation have already exhausted their operating limits or are supposed to exhaust it near future. Those units won't be adjusted to the BAT for LCP and will be permanently decommissioned or replaced by the new units
PT	During this period, the coal generation has been stand-still and CCGT generation has been reduced, therefore there is no increase in running time and emission limits have not been exceeded. No emission tests and audits were planned for this period as well. In what concerns products, there are no problems so far, as EDP have enough spare parts and consumables in our stores and also succeed on storing adequate quantities of chemicals, as well as managed to guarantee their supply and transportation to the sites on time. However, restrictions can happen in the future if suppliers face manufacturing or transportation difficulties. Regarding the maintenance inspections planned for two of our CCGT units, it has been possible to postpone them and they are now planned to be carried out during the upcoming months of May and June, as already agreed with the suppliers. Their staff travelling from European countries to the sites is not allowed at the moment and there is still a possibility of further postponement but, so far, the risk of having to stop generation units, due to lack of maintenance, is mitigated. However, if travelling restrictions prevail beyond the month of June, the unavailability of two generating units may eventually occur
SK	No issues
UA DTEK	The IED is to be fully implemented into the Ukrainian legislation within the couple of forthcoming years. Though some IED provisions have already been transposed into the national regulations, specifically the emission limit values for SOx, NOx and dust. So far, there was no compliance issues identified by the TPPs. The flue gas treatment operates as usual and monitoring continues in full compliance with the national legislation. However, some negative impact may occur in case the lockdown continues after the end of 2020 Q2 and the power plants continue applying the capsule procedures when no access is granted to the external contractors (e.g. laboratories)
UK	Potential disruption to emissions monitoring and reporting caused by either the unavailability of key staff (contractors' or operators' staff) or lack of access to sites for reasons of health protection. - All Regulators intend to take a proportionate approach to non-compliance under the current circumstances, but emphasise that operators should alert their site inspector to any potential problems at the earliest opportunity.

	Are there any compliance issues in relation to the implementation of the IED (increased running time and impact on emission limits, lack of access to sites for emissions testing, audit, inspection, access to products e.g. chemicals, etc.)?
	- EA published a Regulatory Position Statement (RPS) on monitoring on 16 April. On 21 April, it issued two more RPSs on environmental reporting and on the regulation of emissions to air when operating during black start events. All RPSs issued are available to view at: https://www.gov.uk/government/collections/covid-19-regulatory-position-statements - NRW has a COVID-19 regulation group which meets at least weekly to consider site-specific issues. It has issued a proforma for operators to complete if they are running into problems. Updates are available at: https://naturalresources.wales/about-us/news-and-events/statements/our-response-to-the-coronavirus-pandemic/?lang=en - SEPA has issued over-arching guidance on regulation during COVID-19: https://coronavirus.sepa.org.uk/media/1045/sepa-over-arching-guidance-on-regulation-during-covid-19.pdf - NIEA has published an RPS on monitoring at: https://www.daera-ni.gov.uk/landing-pages/daeras-and-nieas-regulatory-response-covid-19

IED Construction refurbishment

Summary

- Delays in delivery of equipment or availability of workers (LV, PT)
- Delays in refurbishment (HU, PL) could lead to compliance issues with legislation.
- District Heating refurbishment to be done by 2023 (IED exemption) but delays could impact compliance and security of supply in winter 2022-2023 (PL).
- Planning/Permitting procedures extended (UK, PT) or on hold (Ukraine).

	What are you experiencing as the main impacts on construction of new plants or upgrade of existing one e.g. to implement BAT conclusions under IED (e.g. access to supply chain/site for contractants, financial robustness of equipment suppliers, impact of longer interruption of operation, permit)?
AT	Currently no specific answer is possible on this question. In optimum, investments into RES could be part of a strategy lowering the negative economic impacts of the crisis. Apart from that, there is also the possibility of economic restrictions for promotion of RES due to lack of funds.
CY	At the present stage there are no new conventional plants under construction.
DE	In the last weeks, substantial delays in permitting procedures could occasionally be observed. In this context, projects concerning power generation, district heat generation, grid extensions and new build of storage may be equally affected. In particular, competent authorities cancelled or delayed public hearings and consultation procedures for both new greenfield plants as well as for the renewal of permits at existing installations. Digital processes for layout of documents and public consultations are not wide-spread available or used by all competent authorities, yet, and regular uncertainties remain regarding the exclusive focus on digital processes. Regular uncertainties may also arise from delayed court proceedings and lawsuits pursued by stakeholders concerning newly issued or existing operational permits.

	What are you experiencing as the main impacts on construction of new plants or upgrade of existing one e.g. to implement BAT conclusions under IED (e.g. access to supply chain/site for contractants, financial robustness of equipment suppliers, impact of longer interruption of operation, permit)?
	Regarding construction of new plants and retrofitting of existing plants, we are not aware of substantial specific delays and most projects appear to be on time. But over the course of the next months, it cannot be ruled out that the current uncertain situation may impact plant upgrading and new built projects underway that usually follow strict timelines. The most pressing issue is the deadline for BREF implementation for existing plants (August 17 2021). If engineering staff from abroad cannot travel to the plants or technical equipment cannot be supplied in time, the deadline could be difficult to comply with in some cases. In principle, the possibility of applying for an Article 15 (4) derogation exists, but this is usually a complex and lengthy process and needs a lot of administrative effort and in some cases even permitting procedures with public participation. A potential solution to this could be to ask the EU Commission for some specific guidance on how to apply for Article 15 (4) derogations only aiming at extending the BREF implementation deadline due to COVID-19 delays, but not asking for material leverages regarding the BREF requirements.
FR	Nothing to signal in particular
HU	There is one occasion reported (MVM Group) where the backlog of a reconstruction work due to the pandemic situation postpones the restart of a CCGT plant: the Miskolc Heating Plant, where the CCGT plant needs a structural reconstruction to meet NOx ELVs, but the work cannot be start because of the COVID-19 epidemic. The delay is also associated with capacity and business outages. In general especially at gas turbine plants the travel bans for the experts from the manufacturers may cause difficulties. The Regulator (HEUO) offered support for such cases (one positive case was reported). At the Paks Nuclear PP, most of the development works are currently stopped. Conversions (modernization, modification) are not carried out on operating blocks, and those ones that would have been done during an in-service maintenance are postponed or rescheduled (e.g., the implementing of the work planned for the overhaul of Unit 4 is currently being assessed, waiting for vendor's feedback). In the case of the nuclear power plant (e.g., for the maintenance of certain equipment of the nuclear power plant, such as safety diesel generator), for now, these maintenance activities have been rescheduled to H2 2020. The upcoming overhaul of Block 4 does not require foreign labour, therefore high-level permits for the entry of foreign experts into Hungary is not required.
IE	Reported delays in preparing tenders due to availability and access to staff/contractors. This may impact timelines for renewables auctions and/or delivery timelines; Reported delays in consenting and planning, which may lead to project delays
LV	The main impact of Covid-19 on the construction of new power plants or the modernization of existing ones is mainly the access of foreign contractors to the site due to travel restrictions, which require everyone to have 14 days of self-isolation when entering from abroad. At present, in Latvia, only Lithuanian and Estonian nationals have been granted a simplified procedure. There are also delays in the delivery of equipment, i.e. delays in the production of equipment, for example from Italy and France, where stricter restrictions were imposed and factories were partially closed, delays in deliveries due to border crossing restrictions, and quarantine measures imposed by individual companies on shipments
PL	The IED sets a strict timeline to obtain a relevant permit and to finalise modernisation investments. However, due to the COVID-19 outbreak nearly all ongoing investments may be delayed due to the extended procurement proceedings and reported problems with workforce availability. A number of contractors has invoked a force majeure clause to suspend their obligations following from the contracts to modernise specific units. It is also foreseen that imported equipment would not be delivered on time, which may cause additional delays. In investments where General Contractors use the potential of foreign experts, due to the currently applied restrictions, only their remote participation in projects is possible. Consequently, in case of start-up and installation acceptance procedures, where the presence of manufacturer's representatives is often required, it makes impossible or significantly hinders the implementation of the process and may cause

	What are you experiencing as the main impacts on construction of new plants or upgrade of existing one e.g. to implement BAT conclusions under IED (e.g. access to supply chain/site for contractants, financial robustness of equipment suppliers, impact of longer interruption of operation, permit)?
	delays in projects. In obtaining the necessary administrative decisions, there is a high risk of delays regarding planned schedules. Restrictions on the access to public administration's offices result in longer than previously planned obtaining necessary approvals and administrative permits, which also affect the projects implementation schedule. There is no doubt that the current situation resulting from the state of the pandemic in Poland will influence the delay of modernization and investments in power plants. In most of Polish power plants, modernizations are at an advanced stage, however, due to the restrictions resulting from the pandemic status there were the cases that the contractors suspended the modernization works to ensure the safety of the their personnel working in the power plants. Currently, it is difficult to predict how long the downtime in implemented projects will last and how they will ultimately affect the final date of adaptation. Considering the potential of modernization companies in the event of a few months delay, it will not be possible to adapt to the BAT conclusions requirements of all generating units, as it was planned. When it comes to the adaptation deadline to the BAT Conclusions for Large Combustion Plants in the mid-August 2021, we should distinguish between the legal standing of the installations already complying with IED-based emission standards and those units, which are exempted from IED on the basis of the available derogations such as district heating plants. Combustion plants already adjusted to the IED standards could apply for the limited-time derogation on the basis of the Article 15(4) of the IED directive, provided that the prolongation of the adjustment period would be supported by evidence of the delays caused by reasons connected with COVID-19. Operators applying for derogations are still obliged to conduct the CBA in line with the national guidebook dedicated to the derogations from BAT Conclusions. No specific fast-track procedure has been developed yet. All administrative proceedings, including integrated permitting may be delayed due to the practical difficulties caused by the general restrictions. On the basis of the especial COVID-19 legislation, respective administrative deadlines are postponed, which could possibly make it more difficult to obtain a relevant permits with temporary derogation from BAT-AELs before the mid-August 2021. However, on the basis of the Article 35 of the Directive 2010/75/EU several district heating plants are exempted from compliance with emission standards set out in this directive until 31 December 2022. Most of them would not be adjusted to the new BAT-AELs for LCP and would be permanently decommissioned. However, the construction process of the new district heating plants replacing the old ones can be expected to be delayed due to the COVID-19 outbreak. Therefore, there is a risk that several cities and urban areas would not be fully supplied with heat in the Winter 2022/2023. Due to the extraordinary circumstances, it is necessary to extend the district heating derogation for approximately one year, which requires an amendment to the IED.
PT	EDP is not carrying out any construction of new plants or any substantial upgrade in the existing plants, therefore there are no impacts to be reported
RO	RES producers in Romania are facing, like the traditional producers, an important decrease of the prices due to sharp decrease of demand starting with the second half of March. This is a factor for delaying new investments and M&A.
SK	We can expect prolongation of permitting process, extended response time of suppliers, uncertainty in business environment
UA DTEK	The power plants are obliged to implement a number of environmental protection measures required by the environmental permits. These measures are often based upon the IED provisions. Since the TPPs have been operated in accordance with the capsule procedures when no access is granted to the external contractors, the implementation of the permit conditions may be delayed until the lockdown is over. The Ministry has not

	What are you experiencing as the main impacts on construction of new plants or upgrade of existing one e.g. to implement BAT conclusions under IED (e.g. access to supply chain/site for contractants, financial robustness of equipment suppliers, impact of longer interruption of operation, permit)?
	provided any clarification with regard to these measures and offers no possible options to TPP operators in order to reschedule the measures. Also, the permitting procedures have been put on hold, which means that the power plants are operating now in the conditions of high uncertainties.
UK	Energy UK has identified the three following implications for various stages in the planning process of the COVID-19 outbreak: 1. In the pre-application stage COVID-19 restrictions prevent developers conducting any formal or informal public consultation in person as well as the ability to access their site to conduct seasonal ecological surveys. These surveys are time-sensitive and therefore delays at this stage can result in significant delays to the wider project timeline. CIEEM and Natural England have both released guidance on undertaking field surveys in light of the current COVID-19 restrictions. 2. Further concerns are present where a developer approaches the expiration of its local planning permission, consents under Section 36 of the Electricity Act or Development Consent Order (DCO). If this condition were to lapse, it could result in the project being reverted to the start of the consenting process, therefore developers need decisions to be reached as expediently as possible. 3. Some developers are also experiencing delays to the DCO examination process due to the inability to hold public meetings in light of the current public health situation surrounding COVID-19. In Scotland, may of these issues have been addressed through the introduction of the Coronavirus (Scotland) Bill which implements an automatic 12-month extension to consents due to expire within 6 months of the 1 April and requires the same approach in planning authorities, rather than requiring each developer to submit a non-material amendment/variation of condition application to amend the implementation time of relevant requirements.[1] The Bill also introduces further provisions to address the emergency situation arising from the COVID-19 pandemic, including: the options available to local authorities to ensure discussions and decisions can continue is widened, with an inability to admit the public to meetings not a reason to suspend business; the need for public access to information in hard copy be suspended Energy UK has communicated these concerns to the Business Energy and Industrial Strategy (BEIS) Energy Infrastructure Planning Team and are awaiting a statement to indicate how they intend to take this forward; whether that be on an individual case-by-case basis or by implementing a blanket extensions similar to Scottish Government's Coronavirus Bill.

Construction RES sites

Summary

- Delays because of supply chain or workforce (CY, FR, SK, IE, IT, UK)
- Work to connect to the distribution grid has stopped in UK (non-essential work) and developers risk losing their time bound connection quote risking the whole project.
- No impact for now (HU, LV)
- Extension of deadlines by 6 months to commission projects without penalties (FR). A number of administrative deadlines also extended in Italy. Risk developers may miss deadline under CfD (UK)

	Specifically for (non-hydro) RES projects, what are the main impacts on new sites/under construction (e.g. supply chain, access to site for contractants, financial robustness of equipment suppliers)?
CY	Suspension in materialisation of new RES projects (including projects under construction) will be unavoidable. The supply chain is affected – delays in network infrastructure that is to be constructed by the utility (EAC), delays also in the construction of the power plant itself. All equipment suppliers- manufacturers (e.g. PV panels, inverters, network equipment) are all non-local companies, and depending on their financial robustness they might be affected by the crisis. As far as network equipment is concerned, EAC's suppliers are mostly financially robust companies. Due to low energy prices, projects not under construction, at present, might be suspended or even cancelled.
ES	Some manufacturers (PV, WIND) are significantly below their usual activity level. The importance of this will be evident in some months as for now the demand has been mainly covered by existing stocks. Also, there are some problems regarding logistics and customs, that are delaying the delivery of materials. In some countries, the construction of renewable assets is not considered an essential activity and has been forbidden for some weeks. If in the plans for economical reactivation after COVID, as expected, renewables deployment is accelerated, a very well coordination along the value chain is needed so as to attend the demand.
FR	RES projects are experiencing delays in supply of components and materials especially from China – for example delays in delivery of solar panels since January 2020. The current building activities are delayed due to disruptions in supply chains worldwide and at European level. There is no linearity in delays as for example 3 months of interruption of activity may turn into 6 months due to environmental restrictions for some specific construction stages. In France, RES producers managed to get an extension of deadlines to commission their projects without penalties: the extension period will be fixed for each technology (onshore, offshore wind, solar, hydro…).
HU	Currently there is no major impact of pandemic on new investments as new projects are still ongoing according to the schedules, without any major problem, yet. However, should the pandemic provisions be to last for further months, supply chain discrepancies may arise. Construction of renewables (solar) power plants is currently smooth. There were maintenance difficulties with the Sopronkövesd wind farm (MVM Group), as they are carried out by an Austrian company, but this has been resolved, and the employees of Vestas were able to enter the country.
IE	Ensuring there is clear guidance from Governments on construction activities and additional issues, such as surveys. As is the case across the energy industry, access to testing will be important to ensure critical workers are able to continue to carry out their roles. Supply chain impacts also need to be worked through comprehensively in order for companies to understand where there may be issues which impact project timelines.
LV	At the moment Latvenergo AS does not have non-hydro RES projects under construction. The new site for an on-shore wind power park is under development. Wind measurement are about to start in the mentioned project. Some minor limitations and delays with the access to site to install wind measurement equipment were observed. There were also some delays with receiving necessary permits for the Project. Nevertheless mentioned limitations and delays are not critical and could not substantially impact Time Schedule of the Project (at least now)
PL	RES projects under construction: - The COVID pandemic situation have an impact on the supply chain of PV and wind farm components. We presume that significant delays might occur in the near future. During and for a considerable time after the pandemic, there may not be sufficient resources and incentives for investments in renewable energy sources. - Since the beginning of the outbreak of the epidemic, the European supply chain of components for the development of renewable energy sources, mainly from Asia, has been disturbed. This will affect the financial situation of the construction companies and suppliers as well as investments schedules. Due to restrictions on the transport of goods and the movement of people, factories are unable to carry out production

	Specifically for (non-hydro) RES projects, what are the main impacts on new sites/under construction (e.g. supply chain, access to site for contractants, financial robustness of equipment suppliers)?
	process. It is supposed that renewable energy projects as well as conventional and modernization projects would experience very similar problems. Additionally delays in all ongoing administration procedures (such as obtaining generation licence) are expected (approx. 1 month). - Financing the projects in new technologies, where risk-sharing practices has been not well established, is not attractive for investors. Current situation is unprecedented and difficult to predict. We intend to continue the transformation towards increasing the share of renewable energy sources in its generation mix, however, financial situation of the company will be crucial. - Therefore, in order to continue the energy transition it is necessary to provide subsidies and/or other financial instruments supporting investment decisions. Due to the negative impact on the financial situation, some of the investments will be postponed or cancelled. - Before the pandemic the RES capacity in Poland has been growing due to small installations - this trend is now expected to stop. Large PV and wind projects have had problems before the pandemic - mainly due to very limited incentives for such investments. The current situation is supposed to increase the problem of inadequate subsidies. As a result, the growth of RES in Poland is expected to slow down. Without the financial support of large RES projects, the energy transition will be difficult or even impossible to implement.
SK	The impact of the COVID-19 on sites under construction can be seen mainly within the supply chain where the "domino effect" of plant/factories closures and supply shortages across the extended supply network can quickly lead to significant supply chain disruption. In the short term, influence lies mainly in supply chain obstructions and difficulty in recovering production due to the delayed return of workforces, lack of personnel mobility, and traffic restrictions. This can result in postponed commercial operation date. Taking into account financial impact of the COVID-19, we assume higher costs related to protective equipment (respirators, gloves, protective suit, disinfectants etc.)
UA DTEK	DTEK Renewables has successfully completed the first phase of its construction program in autumn 2019 and has currently 1 GW of RES projects in operation. The second phase development pipeline of more than 1 GW is currently on hold due to the uncertainties in Ukrainian regulatory environment. DTEK Renewables has currently no ongoing construction activities. There is no clarity about possible changes of new green projects support and auction quotas. The lack of information makes it impossible to take investment decisions now

Impacts on RES generation

Summary

- Impact of reduced demand/wholesale price on future plans and projects whose construction has not started yet. Attractiveness of investment, financial support for large projects (PL).
- Expect further delays related to supply chain, financial situations of equipment suppliers, and worker availability as well as permitting/planning/public consultations (with fixed periods).
- RES auction cancelled in SK. In short-term CfD maintained in UK. Legislative schedule under review in IE.

	What are you experiencing as the main impacts of COVID-19 on renewables generation (e.g. protected by long-term tariffs), RES auction delivery, impact on future projects (from a business/financial perspective)?
CY	Future RES projects will be delayed (see previous answers). Few projects are expected also to be suspended. - Renewables protected by long-term tariffs, are not expected to be affected significantly. However, limited curtailment on all RES is expected due to decrease in total electricity demand. - Investors are very sceptical at present to invest in future projects, due to severe drop in oil prices and the subsequent drop in conventional electricity prices.
DE	Concerning RES projects, current restrictions caused by the crisis negatively impact the realisation of those projects in several ways. First of all, heavily restricted movement not only cross border in between countries but also domestically limit the accessibility of sites for respective personnel. In cases where accessibility to a site is still granted, currently rather limited accommodation options pose another difficulty on travelling personnel. In addition to that, difficulties are imposed on the conduct of approval procedures in due form and time. Documents cannot be made available for inspection in townhalls or other public authority's buildings. Therefore, equitable conditions for inspection can currently not be granted. Further, public hearings cannot be held either. Delays not only in planning and approval procedures but also on realisation of RES projects caused by the crisis can, in the worst case, result in penalisation due to the failure of meeting the set deadlines when being granted supplements from tender processes. Therefore, project developer of RES projects fear financial punishment due to the failure to meet deadlines for reasons beyond their control. As a whole, the negative impacts of the current crisis can lead to a significant delay or even a cancellation of current and future RES projects thus substantially damaging project developers financially.
ES	On energy markets: COVID-19 situation has caused a plunge in energy demand, with a subsequent drop in electricity prices, where final assessment will depend on "State of alarm" final duration. This effect leads to a higher uncertainty on new and existing RES facilities, where mechanisms based on stable income paths are needed to ensure RES generation in the long-term
FI	We haven't seen any impacts so far. Of course, there is a risk that decreased availability of foreign experts due to mobility restrictions, could slow down e.g. wind power investments in the future.
FR	RES: Future projects could be penalised due to authorisation procedures and public enquiries have fixed durations. Future auction periods for new RES project have been delayed. Hydropower: A small part of existing hydropower facilities are running under feed-in-tariff or feed-in premium systems but the vast majority - 90% of production - is suffering from current very low electricity prices on the market. The downward and upward flexibility offered by hydropower assets is even more used than usual but energy markets today do not adequately remunerate these services.
HU	No major effects have been observed so far. Safety measures ensure the proper circumstances for the ongoing projects currently. - At present, neither the nuclear power plant, nor renewables operation require government intervention. - As in the case of Vestas (mentioned previously), the entry of foreign workers into the country needed an increased number of administrative measures and security precautions are required. One of the first economic measures of the Government was to suspend any amortization payment of any loan, debt, leasing fee, etc until the end of the year. It provides together with a special "coronavirus" tax on banks a burden, and may cause reduced appetite for new projects. We do not expect any termination of existing subsidies. There is no decision about a new RES auction, the previous was just closed (results announced) in March.

	What are you experiencing as the main impacts of COVID-19 on renewables generation (e.g. protected by long-term tariffs), RES auction delivery, impact on future projects (from a business/financial perspective)?
IE	Current restrictions mean that construction has ceased. It is not clear when or how such restrictions will be adjusted in the future and what impact this will have on construction times or indeed on construction commencement dates. At the moment the RAs are indicating that they are starting to review the impact of COVID 19 on their work programmes and legislative timetables. We will know more in the weeks ahead.
IT	Challenges are observed for power plants that are under construction, for instance due to the stop/ limitations of material and goods supply on the field and of activities on the construction site. Some force majeure notices from suppliers that had proof of logistics disruption on components made in China. Event though, evidence from the field is showing that production in OEM's Chinese factories has now resumed to almost normal volumes. Impacts of delivery delays are managed through several measures in place, such as back-up supply plans, global delivery and shipping optimization. At an operational level, some external suppliers of the O&M service are facing problems due to limitations on travelling. With regards to Renewables production, during the days after the introduction of stringent social distancing and closure of several commercial and industrial activities (22nd March to 20th April 2020), renewable generation has increased by 4.5% compared to a similar period in 2019, mainly thanks to hydro and solar photovoltaics (PV) GSE, the entity managing renewable incentives and support schemes, had extended a number of deadlines (communication on the 24th of March 2020), in particular those to: - submit requests for High Efficiency Co-generation requests, White Certificates for High Efficiency Co-generation and Fuel mix disclosure (to the 22nd of May 2020); - submit documents and end-of-work paperwork with respect to the Renewables support schemes of 2012, 2016 and 2019 (the latest one known as DM FER 1) as well as Conto Termico and Biomethane. More information can be found on the dedicated COVID-19 area of EF's website
LV	Latvenergo Group subsidiary Enerģijas publiskais tirgotājs AS carries out administration of electricity mandatory procurement of electricity from renewable energy sources and cogeneration. Enerģijas publiskais tirgotājs AS continues to fulfil its duties during the Covid-19 emergency state. So there should not be delays in payments for electricity procured from RES and cogeneration. Recession and recovery after Covid-19 can impact implementation of RES projects in future. Proposed measures shall be evaluated with cost-benefit analysis, taking into account the consequences of the current economic slowdown
PL	Impact on future RES projects: - We observe significant impact on future projects / new business development leading to longer development of new projects; - COVID legislation enabled public administration to standstill administration procedures; - Meeting with contractors / business trips / technical dialogue / plant visits – COVID is disrupting the business relations leading to project delays. We have to consider other impacts of COVID 19 like: - longer period to get all permits more difficult access to supply chain for contractors - less financial robustness of equipment suppliers - difficult access to construction sites All circumstances mentioned above have impact on the longer period of preparation investment, extended construction period and higher capital expenditures. It means, that the currently financial perspective for RES technology will be worse than assumed. LCOE will be higher, it means that the

	What are you experiencing as the main impacts of COVID-19 on renewables generation (e.g. protected by long-term tariffs), RES auction delivery, impact on future projects (from a business/financial perspective)?
	CfD for these technologies will be more expensive. As a result a budget for RES technology will be increased and the final price of electricity for households will be higher in such scenario. To sum up, the extension of the period of preparation and construction RES projects will have the negative impact on energy companies financial perspective, because the costs of projects will be higher than we expect and we the revenues gain later.
SK	The main impact of COVID-19 on renewables is related to the cancellation of RES auction by the Ministry of Economy. All relevant measures currently under development of Ministry of Economy SR
UA DTEK	The energy sector of Ukraine experiences a system of multi-billion debts between the market participants. The reason is the systemic crisis in the industry that developed in the previous 9 months, and which was exacerbated by the spread of the pandemic COVID-19. The Ukrainian RES sector is in the same situation as other energy enterprises. Thus, the debt of the Guaranteed Buyer to the renewable energy generators amounts nearly UAH 1.5 bln. Another issue is RES curtailments. In the end of 2019 against the background of electricity imports from Russia, the RES generators were curtailed for the first time. Due to the decrease in electricity demand because of the pandemic, since the beginning of 2020, curtailments are being applied more often. According to the Law on the Electricity Market, the curtailments of RES should be carried out proportionally among the green energy producers and only after applying all possible procedures to reduce the supply of other types of generation. In addition, according to the legislation, losses of enterprises following the results of curtailments must be compensated. The mechanism for the implementation of such compensation has not yet been adopted. As for new projects, their development and construction will be possible only after certainty in the legislation is reached about future possible changes of RES system support
UK	Currently no impact on Contracts for Difference auction delivery. Industry is pushing government to maintain the existing timeline to run CfD Allocation Round 4 in 2021 Construction of projects that hold contracts from previous allocation rounds are suffering delays due to disruption of domestic and international supply chains and availability of workforce. These delays introduce the risk that developers may miss deadlines within the contracts that they hold with the Low Carbon Contracts Company (LCCC) – the government backed counterparty. LCCC is working with developers to ensure that flexibility is granted where delays are clearly attributed to Covid-19 At the small-scale level, renewable developers are experiencing similar issues relating to supply chains and workforce but also suffer from instances whereby distribution network operators have stopped all non-essential work including connecting new projects to the grid. Developers that are not able to connect to the grid risk losing their time bound connection quotes therefore risking the whole project

Markets & Investments

Power generation activities

Summary

- A medium-term situation to be closely monitored
  - In the majority of countries, no clear impact can be observed at this stage, as continuity plans in essential functions (trading, dispatch…) allow for a smooth functioning of the market and of assets
  - Further impact could be felt at medium term and impact the installation/maintenance of new generation assets

	How do you accommodate power generation activities and imports to the drop of electricity demand and other effects of European lockdowns? Can you describe any emergency or safety measures already taken as well as additional one that could be adopted?
BE	The electricity market is well suited to deal with short- and longer term variations in electricity demand, even in extreme cases as currently experienced. So while the market outcomes for the moment may differ from a normal situation, the market itself remains functioning correctly. Given the critical nature of the electricity system, market parties have business continuity plans in place. Among other things, these aim to make sure that critical functions such as trading and dispatch can continue in as safe an environment as possible. Measures taken include the physical isolation of these teams from other business units and the avoidance of overlaps between different shifts of teams.
CY	The are no imports/ power exchanges in Cyprus since it is an isolated, non-interconnected island. Power generation activities have been dropped down due to decrease in demand and the majority share of this decrease accounts for the conventional generation. In addition for system stability reasons, due to low seasonal demand, RES generation has been already curtailed for a few days (mostly weekends) for 1-2 hours per day
DE	As a result of the lockdown a decrease in electricity demand can be observed. While the decrease was fairly moderate in the beginning of March, it enlarged up to 7.1 percent in Germany at the end of March. Power plant operators react to this development and therefore decrease their power generation activities and imports. This reaction shows that the market is well functioning and that an intervention of any kind is not necessary. Market participants have taken preventive measures and have quickly switched to working remotely. In doing so they have enlarged the possibilities for employees to work from home, including “out of office trading” in order to keep business critical staff able to function. Furthermore, some market participants have organised their workforce over different locations in order to prevent a potential outbreak from affecting the rest of the firm. Emergency and safety measures have been taken by the government with moratoria on electricity bills and measures to ensure financial stability. All energy suppliers have been preparing themselves for expected challenges such as decreasing demand, payment defaults and for the maintenance of their services.
ES	The Iberian market is running in the same way as pre COVID situation and under the same rules. There is nothing remarkable or different to comment
FI	Until now warm winter weather and depression of business cycle dependent industry with some additional strikes have had much more impact on electricity demand than COVID-19. We don’t foresee any emergency or safety measures in a short to medium term.

	How do you accommodate power generation activities and imports to the drop of electricity demand and other effects of European lockdowns? Can you describe any emergency or safety measures already taken as well as additional one that could be adopted?
FR	As electricity consumption is lower, generation capacities are less solicited in Europe in general. This reduction is however not the same in all sectors. In Europe, it mainly concerns coal, fuel oil and gas-fired power plants (because they have the highest variable production costs), and to a lesser extent nuclear reactor (during the weekend). French demand is currently reduced by about 20%. The precise impact on the whole year 2020 cannot be assessed yet. The main effect of the reduction in economic activity on production could be felt in the medium term and over several months, with an influence on the rate of installation of renewable energies. Indeed, the slowdown of the economic activity has led to the shutdown of many production facilities projects under construction. This is likely to delay the commissioning of new renewable installations (wind turbines, solar panels) planned for this year, or even projects that are important for the security of supply in the coming years. The slowdown of the economic activity will lead to the repositioning of maintenance work on nuclear reactors, or even to the extension of the duration of such work for those currently shut down, to an extent that is not yet known. EDF has already reduced its nuclear output target in France to the order of magnitude of 300 TWh in 2020 and in the 330-360 TWh range for 2021 and 2022, instead of the 375-390 formerly envisaged in 2020. The maintenance programme is being modified so as to adapt to the new situation (see also first question).
HU	So far we have not experienced any serious effects on the generation/supply side due to COVID-19. Power plants in Hungary have introduced strict internal policy measures to avoid infection and protect the key employees in order to keep generation on the normal level (that is, on a level driven by the market).
IE	No issues identified
IT	The total electricity demand in Italy has also dropped in March 2020 to 23,7 TWh (-10.2% compared with March 2019) and after the closure of several commercial and industrial activities starting from the 22nd of April the demand has dropped to 19,1 TWh in the period going from 23rd March to 20th April 2020 (-20,7% with respect to the equivalent period in 2019) [EF elaborations based on Terna's data, the Italian TSO, updated to 20th April 2020]. In March 2020, the effects of the COVID-19 emergency have become even more evident on the Italian electricity market. The Day-ahead baseload market price has reached an historic low at 32.0 €/MWh, equal to the lowest value ever which was registered in April 2016. This represented -18.6% with respect to February 2020 and -39.5% over March 2019. It is however very early stages to quantify the exact impact at power sector level, due to the rapidly evolving dynamics of the situation.
PL	The outburst of COVID19 pandemic has already had significant effects on the Polish economy. New GDP forecasts for 2020 prepared for Poland by financial institutions such as Goldman Sachs and Credit Agricole show drops of up to 4,6%, which means a decline of the level of GDP to the level for 2018 or even 2012. This downturn is also echoing in energy market. Electricity demand has already significantly decreased in Poland. In March 2020 electricity demand was 3% below the monthly average of March 2019 and 13% lower in April 2020 (as on April 17th) than the monthly average of April 2019. The drastic drop of electricity demand in April of 2020 captures the consequences of a lock-down introduced and exacerbated through March 2020. At this stage it is difficult to assess a long term consequences for electricity providers. The magnitude of the challenge will be strongly correlated with activity limitation in industry and services and the time span of a downturn in services sector. The overall households consumption would probably increase, but this cannot itself compensate energy demand decrease in other sectors. Decreasing electricity demand is going to be very challenging for Polish generating units and the measures must be introduced to carry them through the tough times for them to be ready to ensure electricity supply when the economy will rebound again. The main impacts of the drop of electricity demand on power generation results in reduction of the power plant's load.

	How do you accommodate power generation activities and imports to the drop of electricity demand and other effects of European lockdowns? Can you describe any emergency or safety measures already taken as well as additional one that could be adopted?
PT	The available hedging instruments help mitigate the impact from the decline in power consumption/demand, and respective impact on pool prices. As such, no material financial impact was felt so far. Our generations units are considered as essential services in the Portuguese Electricity System and have been available and functional as expected. As for non-dispatchable renewable sources such as wind, unless curtailment occurs, the decline in consumption has no impact so far. EDP has business continuity plans to ensure the operational resilience, and create the adequate conditions and procedures to respond for any adverse scenarios, namely either from the technologic, human or natural hazards point of view, aiming at guaranteeing the continuous operationality of all generation assets. EDP aims to minimize virus spreading risk by prioritizing health and safety measures among its employees, i.e. home working for all staff and functions for which this is possible (~71%). EDP took actions to ensure the continuity of all critical assets/ functions such as separating technical, maintenance and dispatch teams and reinforcing back-up capacity when possible, prioritizing work schedule around resolution of major breakdowns and safety protection: - Non-critical maintenance activities were suspended / postponed - Planned maintenance and without impact on continuity business, were postponed - Corrective maintenance that arise and that present direct involvement in energy production, are carried out immediately, giving priority to them being performed by internal teams and complying with the operational guidelines developed for that purpose. There were minor delays in some maintenance due to lack of availability of field service teams (eg. wind turbine maintenance), but with no relevant impact. Additionally, the following measures and initiatives are part of and were defined according to the Contingency Plan for Pandemics: People - A general policy of working from home was enforced, for all staff and functions for which this is possible (as of March, ~71% of total staff, from all regions is working from home, close to 100% for non-industrial, field services) - All non-critical facilities were partially or completely closed - Non-critical visits to the generation assets have been postponed and / or cancelled - Travel restrictions/quarantine were enforced, as well as internal policies to prevent contagion and spreading of the COVID-19 virus - Protective equipment and safety material has been distributed to people - Frequent and thorough cleaning of offices, open spaces, meeting rooms and common/circulation areas, has been reinforced - A medical assistance hotline was set up to ensure evaluation/testing for COVID-19, and the referencing of confirmed cases to the National Health Services - Specific COVID-19 related orientations, procedures and awareness was made available to all employees. Essential services - Each area or department identified their essential services and associated critical functions and resources; - All critical and essential services have been mapped and the related specialized technicians have been identified, to guarantee the full operationality of the generation assets continuously. - All core areas were identified as well as the minimum services to provide so full operationality of the power generation services is ensured. - Additional measures were then designed and implemented, to address particularities within these services, namely: Ensuring backups/mirroring for the most critical functions; Geographically isolating/physically separating technical, maintenance and dispatch and control teams;

	How do you accommodate power generation activities and imports to the drop of electricity demand and other effects of European lockdowns? Can you describe any emergency or safety measures already taken as well as additional one that could be adopted?
	EDP have deeply identified its critical business areas - generation assets but also command and dispatch rooms - and have set up a policy oriented to ensure continuity of service. Critical infrastructures/resources - Being closely associated with essential services, critical infrastructures and resources were accounted for, and their operation guaranteed by the above-mentioned measures; - A daily evaluation and report are ensured to identify any arising issues Supply chain Several measures and controls were put in place to assess and pinpoint potentially problematic areas, as well as address them, namely: - An identification of critical suppliers was carried out and is periodically reassessed and updated; these suppliers were contacted and asked to share their strategy and any concerns regarding the COVID-19 pandemic impact on their operation; - Alternative suppliers were already identified and are standing by; - Stocks for critical equipment, material and parts were reinforced; - Contract managers are in close contact with suppliers to identify constraints and preventive actions. All the actions mentioned above aim at enforcing the business continuity-occupational safety, particularly, to limit the potential deleterious effect derived from the COVID-19 widespread infection. In summary, EDP is firmly committed to ensure: - containment of the virus propagation aligned with the national authorities recommendations; - power generation continuity and operational resilience; - personal safety.
SE	As a trade organization, we can only access statistics at an aggregated level and have no insights in the details. Furthermore, we are now in the period of the year where there is a natural reduction in the demand for electricity with higher temperatures and more daylight, which makes it difficult to separate the effects of the corona virus. Up to last week the aggregated statistics did not show any significant impact
UK	Electricity imports to the GB system seem generally unaffected at present. Also, the depressed wholesale price is not conducive to the viable running of certain firm generators. These generators are seemingly being brought on through trades and actions performed by the Electricity System Operator for balancing purposes. The GB electricity market is observing a particularly smaller margin of footroom in the fuel mix currently. This is due to the low electricity demand, and high proportion of renewable generation output. There could be a need for inflexible electricity infeeds to be curtailed, in order to allow for more flexible generation to be brought on to the system to allow the ESO to manage system needs (voltage, frequency, inertia, stability etc.). To provide this footroom, the ESO has recently announced that intends to procure the negative reserve product 'Super Stable Export Limit (SEL)'. Super SEL will reward generators to reduce its SEL availability (as reported to the ESO) so that smaller, incremental exports can be brought onto the system. People who stop going to work in the control room or station causing issues. So need to make sure staff remain available, spreading teams thinner over more locations to avoid contaminations. Some dispatch staff have lived in the office to avoid contact with others

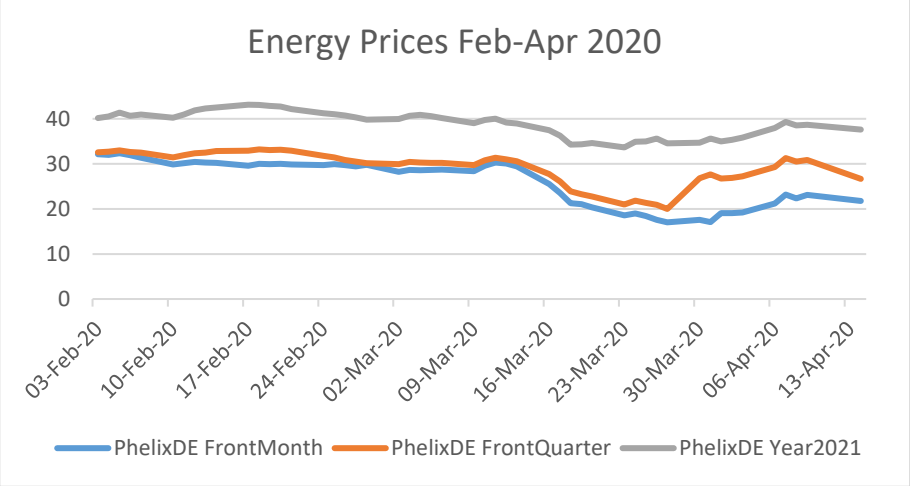
Wholesale Market

Summary

- Wholesale prices : The Covid-crisis has accelerated the lowering trend of power prices appeared at the beginning of the year
- As a consequence of the low demand and high share of RES generation, an acceleration of the downward trend of short-term maturity prices (Q2 2020) and an increasing number of negative price hours can be observed

- In most countries, social distancing measures are impacting the planned maintenance of power plants which are mostly scheduled in summer months. This delayed maintenance of power plants in winter months could have detrimental effects on System Adequacy, especially in countries with already tight margins and if demand returns to normal levels by winter 20-21.

	Can you describe expected impacts – ongoing or future – on the Wholesale Electricity Market (e.g. prices, spots products, forward contracts, PPAs, exports…) due to the fall of commodity prices and energy demand? What measures at company, national and European levels can be undertaken to reduce the negative effects?
BE	Various lock-down measures have resulted in sharp declines in power consumption, putting further pressure on European power prices which were already on a downward trend since the beginning of the year. On the forward markets, short-term maturities (coming months) have also dropped sharply as the impact of lock-down measures is expected to keep demand significantly depressed. On longer-term maturities in the forward markets, the effects are less pronounced and vary more between countries. On the supply-side, social-distancing measures enacted in most countries are impacting the planned maintenance of power plants which are mostly scheduled during summer months. As such maintenance can only be delayed for a limited time, impacted power plants may have to go into maintenance during winter months. This could have detrimental effects on System Adequacy, especially in countries with already tight margins and if demand returns to normal levels by winter 20-21. Given a potential downward pressure on EUAs resulting from the current, artificially depressed load levels, one mitigating measure would be to provide already visibility on key EU ETS parameters: a draft of what (1) MSR revised parameters (thresholds, uptake rate once 24% expires) and (2) EU ETS yearly volume parameters (Linear reduction factor in line with new 50% target or 55% target) would look like if the EU would go for a 50% or 55% total emission reduction in 2030. This could support the EUA price and avoid a prolonged, artificially depressed price level.
CY	In Cyprus there is no operative market yet.
DE	The following figure shows the price development of future products (source: EEX):

	Can you describe expected impacts – ongoing or future – on the Wholesale Electricity Market (e.g. prices, spots products, forward contracts, PPAs, exports…) due to the fall of commodity prices and energy demand? What measures at company, national and European levels can be undertaken to reduce the negative effects?
	 Statements concerning future price trends should not be made. As explained in the question beforehand the market reacts to the development in the energy demand immediately. Therefore, no regulatory or political measures should be taken, neither on the national, nor on the European level.
ES	As in any other situation (or market), a drop in the demand results in lower marginal prices. The products negotiated are the same and both markets (OMIE (Spanish operator) and OMIP (Portuguese operator)) are running normally, without liquidity or settlement problems
FI	The energy market is functioning normally. Prices have fallen and supply is plentiful, which has a supportive effect on security of energy supply.
FR	Demand is clearly going to be significantly lower for a few years and as a consequence so will be the wholesale prices. Actually, electricity prices have already reached a particularly low level since the beginning of the quarantine. This movement is primarily observed on the futures market, which prices fell during the first week of quarantine, especially on the closest maturities (April and second quarter). This fall is concomitant with the one observed on other energy commodities and CO2 emission permits and is explained by the prospects of a sharp decline in economic activity and the fall in electricity consumption. On 26 March, futures prices for April 2020 maturity on the French market were at their lowest level since 2002. Forward prices for 2021 are also already low. The future of carbon prices is less clear. First analyses show diverging assessments by experts. It appears very likely however that if parameters of the ETS and MSR are not significantly modified the level of prices should be low and would not necessary trigger a sound merit order. A rapid and strong stimulus package at both European and national level is necessary in order to limit recession and as a consequence the dramatic decrease in energy demand. The expected reform of ETS and MSR must guarantee future resilience to unpredicted shocks and prevent a situation where coal-fired plants would be again at a competitive advantage against gas-fired ones. The regulatory framework should be more conducive to capital-intensive investments in carbon-neutral generation, in particular include more long-term arrangements. If not, there is a risk of lock-in related to fossil fuels and the carbon neutrality goal in 2050 would become more problematic.

	Can you describe expected impacts – ongoing or future – on the Wholesale Electricity Market (e.g. prices, spots products, forward contracts, PPAs, exports…) due to the fall of commodity prices and energy demand? What measures at company, national and European levels can be undertaken to reduce the negative effects?
HU	Referring to the previous question, if the power plants manage to keep up the production and are not forced to decrease it or even shut down the operation (due to the lack of key employees, delayed maintenance etc.), the market is expected to be demand driven in the coming months. Therefor the retail market is going to give appropriate signs to the wholesale market. A decreased demand could result a greater competition on the wholesale market, cutting more expensive suppliers out of the market. Should these players be power plants, the production could be decreased or even stopped eventually. It would be of utmost importance to be able to protect the domestic electricity production, since this emergency situation will not last forever. Domestic capacities will be needed in the long run. In wholesale agreements take-or-pay and force majeure provisions might be reconsidered so that the risks could be shared more evenly due to this special situation. However, this should be decided by the market players, not by the state or the EU.
IE	EAI has flagged with RAs on the need to monitor trading patterns but to understand the real level of bad debt risk in the market they need to monitor the retail side of things to understand how suppliers are being practically impacted. They have indicated that they are monitoring changing behaviours and/or patterns in the wholesale market. Stats for April payments will become clearer over the coming weeks and will help provide a clearer picture on how the risk is evolving over the course of the pandemic. RAs acknowledge that non-payments may be a useful early warning system for bad debts/liquidity leaking into the SEM. Decline in demand in the short term. There is a question as to how this flows into the medium and longer term plans and future capacity requirements given a potential future longer term downturn
PL	The COVID-19 pandemic is an unexpected phenomenon whose impact on the electricity market only strengthens the effects associated with economic slowdown observed at the end of 2019. Electricity consumption in Poland in 2019 fell already by approx. 0.9% annually, which was caused by a noted economic slowdown and this was enhanced by warm winter. The COVID-19 outbreak in Poland has led the Government to introduce a number of restrictions, which result i.a. in decrease in electricity consumption by industrial and services sectors. The decrease in electricity consumption, currently estimated at a few percentage points this year, will have a direct impact on the fall of wholesale electricity prices. We expect that the pandemic will continue till the end of 2020 and this will have an impact on the behaviour of electricity market participants in the next 2-3 years. Linking electricity prices with CO2 prices causes growing uncertainty on the electricity market. The global crisis on the oil market also has an impact on the CO2 prices, which generates additional market uncertainty that is compounded by a transitional period regarding proceedings and shaping of the European Green Deal. Expected impacts on the wholesale electricity market in Poland caused by the COVID19 outburst is linked strongly with activity limitations in industry and services. Thus the magnitude of the impact is hard to assess as is going to depend on the time span of the downturn in those sectors. What has been observed so far is that the significant drop in electricity prices in both spot and future products market, which respectively fell 30% and 15% from the beginning to the end of March 2020. These drops are accompanied with falling CO2 prices. If this downward path will remain there is a chance for positive influence on renewables' installed capacity in Poland
PT	With COVID-19, in addition to the prices and demand crunch, volatility, ancillary services costs and credit risk increased considerably. In this context, it is more difficult to hedge forward positions, to make long term commitments and to forecast future market conditions. These is testing business models and trading practices. Non-integrated and highly automated utilities will be most impacted.

	Can you describe expected impacts – ongoing or future – on the Wholesale Electricity Market (e.g. prices, spots products, forward contracts, PPAs, exports…) due to the fall of commodity prices and energy demand? What measures at company, national and European levels can be undertaken to reduce the negative effects?
	To face these issues companies may need to revaluate and delay investments, question automated trade (p. ex: algorithmic trade), and review its long-term obligations
RO	Weather corrected power demand has decreased significantly in Romania (and in general in Eastern Europe) even compared to larger markets in Western Europe, leading to a significant decrease of wholesale market power prices. The prices decrease is much sharper for spot than for forward products. The main current challenge of this market is the very high uncertainty of future evolution of the power market main drivers (regional and national power demand, gas prices, CO2 emissions prices), generating on its turn a high uncertainty regarding the wholesale power prices evolution on short and medium term (remaining months of 2020 and year 2021). Possible future measure at national level could include legal/regulatory measures in order to make the wholesale power contracts more flexible by eliminating some of the current restrictions (e.g. quantities and prices cannot be adjusted by an addendum to the initial contract; for most of the contract types cancellation is not allowed; etc.). On the other hand, electricity suppliers in Romania are facing renegotiations with clients since the prices on the spot market are dropping and the existing long term contracts have much higher prices - putting suppliers under pressure. Possible future measure at EC level could allow temporary control/regulation of CO2 emissions allowances prices in order to ensure a minimum predictability of short/mid-term evolutions.
SE	Due to a hydrological surplus, absence of winter temperatures and increased capacity of wind power, the electricity prices on the Nordic market is very low and it is difficult to see any significant impacts of the corona virus on the prices.
DTEK	Due to the lock down, electricity consumption in Ukraine decreased by 10% from the level it would have been in regular circumstances. The average daily consumption amounted to 353 mln kWh. In addition to decline of consumption, lock down has caused a wave of non-payments. Payment discipline for electricity and utilities has fallen below 50%. This low payment discipline may lead to rotating outages and additional accidents as companies will not be able to properly finance investment and repair programs. Lock down measures complicate the current crisis in the energy sector of Ukraine, which exists for several months already. A range of factors is causing systematic crisis in the energy sector. Among these are: administrative barriers that do not allow full functioning of the electricity market (as envisaged by the adopted market reform), abnormally warm winter, excessive stocks of domestic coal that is not used due to electricity imports from Russia and Belarus, regular interference into the market by the state authorities. To overcome the crisis the following measures should be taken: To revise the Power Sector Annual Forecast both for power and coal production by TSO/Ministry for 2020 in order to ensure continuous operation of TPPs and coal mines in 2020; To cancel regulatory restrictions imposed on Guaranteed Buyer power sales on the DAM which effectively lead to the default of the Guaranteed Buyer under the PSOs; To cancel the price caps for the DAM for the night hours trading sessions which currently are below the cost of production; To determine parameters for reducing the RES tariff and introduce a moratorium on completion of PV farms construction by the end of a year; To revise the financial plans of state-owned companies Energoatom, Ukrhydroenergo, Ukrenergo, Centrenergo in order to minimize operating costs and capital investments; To revise the tariff structure of NEC Ukrenergo, taking into account outstanding obligations on RES; To bring tariffs for end consumers to economically justified levels.

	Can you describe expected impacts – ongoing or future – on the Wholesale Electricity Market (e.g. prices, spots products, forward contracts, PPAs, exports…) due to the fall of commodity prices and energy demand? What measures at company, national and European levels can be undertaken to reduce the negative effects?
UK	As observed, in the GB market, Brent Crude and UK Gas NBP can be indicators of the upcoming electricity wholesale costs. The cost of the electricity wholesale is likely to continue to stay low, or even decline, judging by the cost of the aforementioned commodity benchmarks. Further, renewables continue to have low short-run marginal costs, with forecast output continuing to be high. With demand low, these factors could continue to depress the wholesale electricity cost, pricing certain generators out of the merit order. To counter these concerns, in wider wholesale markets in the GB system (ie. the balancing market) costs would likely be impacted, as the ESO takes actions to bring generators onto the system in order to manage technical constraints. The above could have a direct impact on Balancing Services Use of System (BSUoS) costs. The fall in demand, will also mean that BSUoS will increase, as it is socialised over less MWh. This cost will be factored in to the marginal cost of a generators trading position. Some businesses are in difficulties and may invoke reopeners (such as unexpected market conditions) in supply contracts. Some who are in financial difficulties may become insolvent and reopen Supplier of Last Resort procedures. Some counterparties could also default on transactions.

Trading

Summary

The impact of the current crisis on the trading market seems to be under control with the swift injection of liquidity by various governments:

- The impact on the trading market seems to be under control with the swift injection of liquidity by various governments. While the markets have seen a lot of volatility, no technical or other issues have been observed so far.
- Regarding the application of REMIT regulation, the publication requirement of all updates and compliance documents should be postponed by ACER.

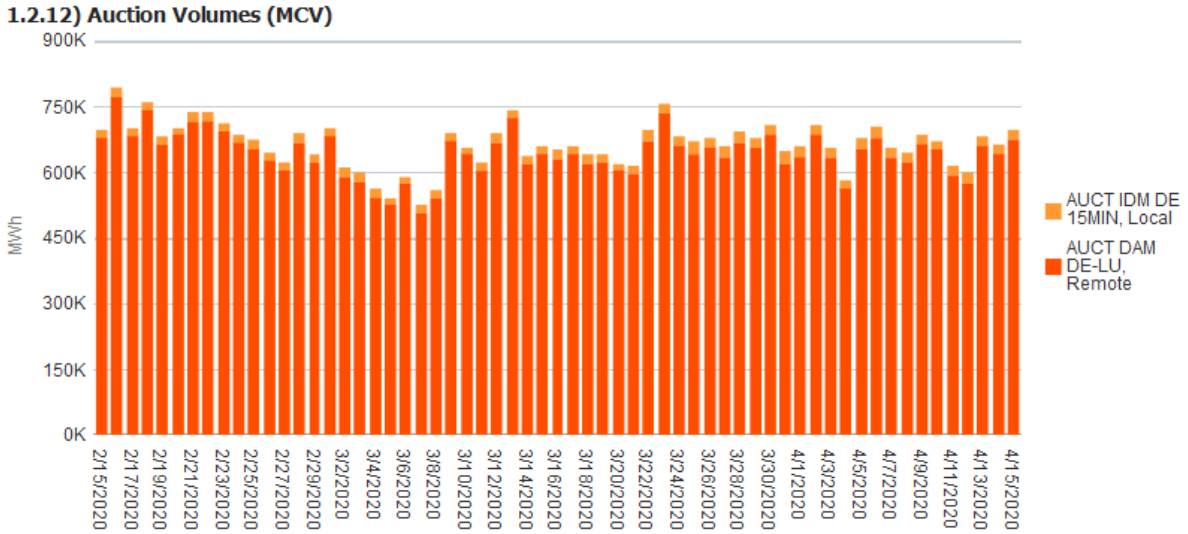
	What are the impacts of COVID-19 on Trading (on exchanges, bilateral trade, OTC via broker…) and the implementation of the EU Regulation on Wholesale Energy Market Integrity and Transparency (REMIT)?
BE	The impact of the current crisis on the trading market seems to be under control with the swift injection of liquidity by various governments. While the markets have seen a lot of volatility, no technical or other issues have been observed so far. Regarding the impact on REMIT, we can refer to the joint Eurelectric-EFET letter to ACER to delay some deadlines such as the obligation to report insider info on IIPs and implementation of validation rules on gas and electricity transportation data.
CY	In Cyprus there is no operative market yet. In addition, Cyprus is an isolated network and there are no power exchanges.
DE	All trading platforms are operated in an unchanged manner. Any disruption of trading could not be seen. Trading platforms have come up with contingency plans to ensure a smooth operation of trading processes. However, at the moment there is no evidence that trading platforms face any problems. The impacts of COVID-19 come with a high risk for the whole economy. A potential increase on credit risks has to be observed. A lower overall credit worthiness could lead to stricter margin requirements.

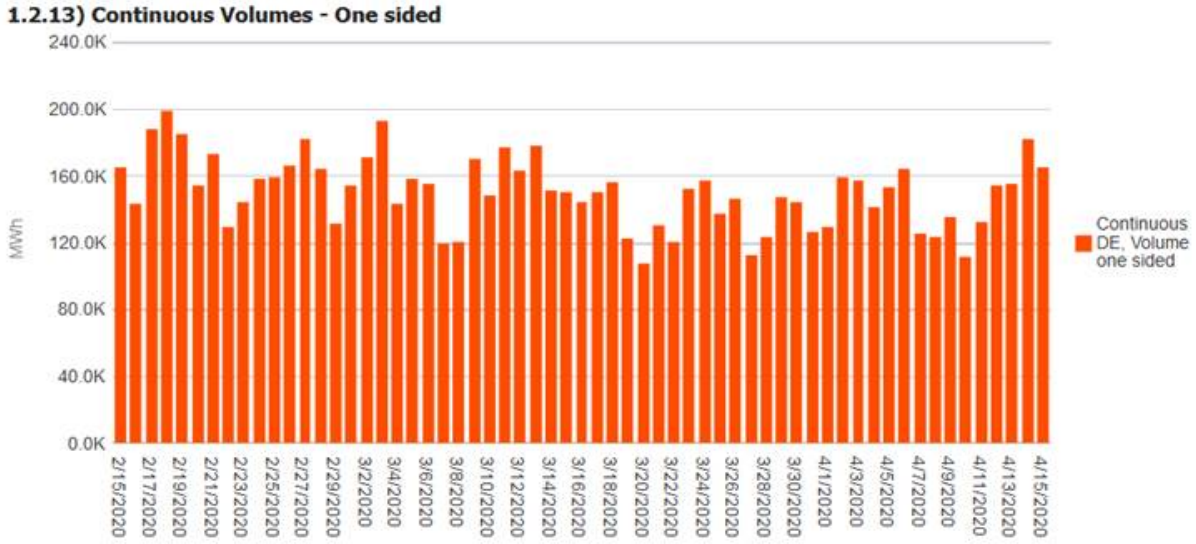
What are the impacts of COVID-19 on Trading (on exchanges, bilateral trade, OTC via broker...) and the implementation of the EU Regulation on Wholesale Energy Market Integrity and Transparency (REMIT)?

The current situation makes it difficult to implement new regulatory requirements, as all employees work from home and a lot of internal resources are tied up to ensure a smooth operation of all processes. Nevertheless, even with the current circumstances, all corporates comply with the rules of market integrity such as REMIT.

Electricity is usually procured in large quantities in advance and only adapted in the Day Ahead and Intraday-Market. Therefore, traders react to the major change in demand in the Day Ahead and Intraday-Market, which show a consistently high liquidity.

The following figures show trading volumes for the German Day-Ahead and Intraday-Market (source EPEX SPOT):



	What are the impacts of COVID-19 on Trading (on exchanges, bilateral trade, OTC via broker…) and the implementation of the EU Regulation on Wholesale Energy Market Integrity and Transparency (REMIT)?
	 Comparably low commodity prices, due to the drop in demand can be observed. However, the high feed-in of renewable energy systems, due to high wind levels and lots of sunshine must be taken into account, when considering comparably low prices in the spot market.
ES	Since all of the compliance and IT resources of firms are focused on mitigating the risks triggered by the coronavirus situation, it will be very difficult for companies to implement the new requirements for the inside information platforms and back-up solutions before the deadline in July. The publication of the updated version of the Transaction Reporting User Manual (TRUM) would add additional burden on market participants at a time of resource constraints and, again, it may not be implemented in time
FI	We haven't noticed any impacts so far.
FR	RTE, the French TSO, in collaboration with the public authorities and Power Exchanges active on the French market, has defined an action plan to preserve the normal level of operation of the market mechanisms necessary for the proper functioning of the power system. But at this time, stock exchanges have worked normally so far (day ahead and intraday).
HU	So far we have no experiences about the decrease of liquidity on the trading platforms or exchanges.
IE	No issues highlighted with EAI
LV	Unified answer is provided on all three questions: Currently wholesale markets in Nordic and Baltic countries are operating in the usual regime. The reduction of Latvia's electricity consumption due to the Covid-19 factor is not very significant (could be estimated at 3-5%). Operations are organized remotely where possible, as well as precautionary measures are introduced at workplaces.
PL	The highest priority for NEMOs and TSOs seems to be to safeguard the health of their staff while ensuring the continuity of all their regular operations. At the same time, until now they were involved in numerous long-term projects such as Single Day Ahead Coupling (SDAC) and Single Intraday Coupling (SIDC). The COVID-19 outbreak situation changes from day to day and there may be some impact on the pace of work in fields such us introducing measures for market coupling, including reaching 70% availability of interconnections or multi NEMO arrangements. NEMOs and TSOs have not yet

	What are the impacts of COVID-19 on Trading (on exchanges, bilateral trade, OTC via broker…) and the implementation of the EU Regulation on Wholesale Energy Market Integrity and Transparency (REMIT)?
	informed officially that they expect any material impact on their ability to operate the relevant coupled Day-Ahead or Intraday markets under the current circumstances. However, the situation should be thoroughly monitored and the implementation timeline for market coupling should be adjusted to observations
PT	Until now the biggest fear of a reduced liquidity in energy markets does not seem to have materialized. It seems that most of market participants have found alternative ways of trading without major impacts on liquidity specifically in intraday electricity markets where this risk seems to be higher. Concerning the implementation of the EU Regulation namely REMIT, EFET has prepared a letter to ACER as following: to temporarily suspend any publication of REMIT documentation updates and new compliance requirements; to delay the new requirements for the Inside Information Platforms (IIP); to delay validation rules on gas and electricity transportation data; to delay the updated version of the Transaction Reporting User Manual. ACER's feedback to this letter was positive as it confirmed that there will be delays in REMIT implementation. The updated version of the Transaction Reporting User Manual is likely to still go ahead.
RO	We cannot see a direct impact on REMIT implementation, however due to the general environment restrictions and market evolution an indirect impact can be foreseen
SE	No impacts noted
SK	REMIT – so far no impacts on implementation of REMIT within our company
UK	The market continues to work, but is seemingly less liquid. Generally, analysts are in agreement that the churn rate is lower. However, it has been observed that the intraday and day-ahead markets have been widely short, this could be due to unprecedented export on interconnectors, and also over-correction in the future markets from hedged positions further out. Trading ability may be impacted due to working from home, and less available personnel due to illness or isolation

Power investment plans

Summary

The lack of visibility has direct impact on power generation investments at EU level and could lead to delaying/cancelling important projects:

- Clear impact in some countries
- Delay on power plants maintenance in several countries / Potential delay on nuclear projects in France
- While certain countries observed no clear impact at this stage, an drop in investments of 10/15% over the next years could be observed

	Has your company already suspended or even cancelled investment plans (whether CAPEX or OPEX investments) for specific project(s)?
CY	Re-prioritisation of projects is under assessment. There is no decision yet to suspend any project but this is most likely to be happened soon.

	Has your company already suspended or even cancelled investment plans (whether CAPEX or OPEX investments) for specific project(s)?
DE	No investment plans were already suspended or even cancelled. The focus now lies on operational excellence, project plans are only subject to change when it comes to revision processes in power plants. Thereby operators struggle with the restricted availability of the required technical resources and staff.
ES	No, in general, there is no suspension or cancelled investment plans
FI	There is no indication of postponing investments.
FR	EDF has announced some delays in its main new nuclear projects. No communication on other projects so far.
HU	MVM Group's portfolio of some 800 projects with an anticipated investment cost of HUF 200 billion (approx. EUR 571 million) for 2020 is currently under revision regarding any possibilities of suspending or cancelling investments. As an outcome of this investigation, the following sets have been identified: - Some ~200 projects (with an investment cost of more than EUR 200 million in 2020) are 'of critical importance', i.e. they either aim to meet legal requirements or inevitable to achieve our revenue targets or strategic goals. - Some ~500 projects have been defined as 'of average importance'. We do not foresee any risks endangering these projects. - Some ~100 projects (planned cost: approx. EUR 20 million) have been identified as 'might be delayed'. Suspending or cancelling these projects would not endanger any of our current business. Another aim of our investigation was to find out whether there are any risks jeopardizing our projects. We concluded that 90+ projects with a total investment value of more than EUR 100 million can be identified as 'at high risk'. Based on these results, our management may decide on suspending or cancelling investments in the coming weeks. Cancelling any projects is unlikely, however – in case of scarcity of resources – several projects might be delayed to 2021. The investment value of these projects can be over EUR 150 million.
IE	Certain projects may be threatened by COVID-19 due to its impact on the planning system, equipment manufacturer supply chains and the restrictions on contractors' access to sites as part of the tendering process
LV	No investment plants have been suspended or cancelled
PL	PKEE members being proactive in terms of measures undertaken to optimize company's project portfolio in times of COVID19 pandemics. Given a negative impact of COVID19 epidemic on the economic situation in Poland and in the world, with particular emphasis on electricity consumption, our members decided to review its investment portfolio and resign from the non-core business activities. The economic crisis means for the energy companies, that the profit margin will be worse than assumed. It requires to redefine which projects are of utmost importance for the company and select only the core business projects which must be done. The pandemic could have a significant impact on the financial situation of our members. Therefore, there might be a case that some other investments will be postponed, delayed or cancelled. Nevertheless, each investment will be considered and evaluated separately. The current pandemic situation affects the economic slowdown and reduction of electricity consumption in countries all over the world, which have a negative impact on the financial results of companies in the energy sector. However, it is difficult to assess the effect of pandemic in the coming months, because the situation on the energy market is very dynamic. In matters related to supplies of components for the construction and work of domestic subcontractors, so far we have not noticed significant problems in this area. However, in case of extra delays in flagship projects, the consequences may occur for the schedule of investments. The future distortions on global markets could also affect planned investments,

	Has your company already suspended or even cancelled investment plans (whether CAPEX or OPEX investments) for specific project(s)?
	particularly large-scale investments in renewable energy sources. An extensive financial support for large investments in renewable energy sources, should significantly enhance the RES technologies deployment in Poland.
PT	EDP has not cancelled any material CAPEX or OPEX investment related with COVID-19 impact exposure. However, it is expected that some delay both at CAPEX and OPEX plans may occur within the year 2020 or even from 2020 to 2021, due to COVID impacts (restrictions on mobility in and outside the country, supply chain, procurement processes, etc). Other possible risk situation is that suppliers may not be able to deliver new generation sites (eg. wind farms), which will be duly evaluated if it occurs. Contracts have legal clauses for force majeure events and the regulation itself is adapting or being discussed to allow for the extension of deadlines to beginning of operation of new sites
RO	No, and not planning to, as much as possible. Mainly reprioritization of works was considered, in order to minimize planned power outages and to avoid direct interactions with the end customers. However, there are some delays in execution, which are currently estimated to be mostly recoverable until the end of the year (but depending also on the calendar of lockdown restrictions removal).
SE	As a trade organization we have no relevant investment plans
SK	Company continues with fulfilling of mandatory CAPEX/OPEX plans in order to maintain safe and reliable operation of generation fleet and at the same time took a number of new measures in the field of health and safety. There is reshuffling of some projects in place, however currently there aren't any specific projects that were suspended or even cancelled
DTEK	DTEK Energy has cut all of the investments in mines and TPPs, funds are directed solely to pay salaries and finance critical purchases. DTEK Renewables has put construction of additional 1 GW of solar and wind energy on hold. DTEK Oil&Gas and DTEK Grids continue working with their approved budgets, but continuing crisis in the energy sphere and in particular, increasing non-payments, can lead to cutting of investment programs in the nearest future
UK	Energy UK has no views on this question

Distribution & Market Facilitation

Cyber attacks

Summary

- No increased frequency of cyberattacks or software vulnerabilities have been reported so far by a majority of countries (9).
- Increased e-mail malware dissemination or phishing emails have been reported in several countries (PL, SE, SP, SI, PT) using the pandemic theme and the branding of trusted organizations.
- One European power company has been recently hardly hit by a massive cyber-attack. The European Computer Emergency Response Team - CERT has been activated in FR, PT and closely cooperate with the targeted company and to assess the potential risks and vulnerabilities.
- Measures: Companies are addressing this situation through awareness raising campaigns and training for their employees.

	Increased cyber-attacks or any other software vulnerabilities
AT	No increased problems due to Covid 19 measures in this context
CY	No
DE	No, so far we have not seen any changes compared to pre-corona times.
ES	A slight increase in cyber-attacks have been experienced, mainly in IT field, but not risks / consequences in OT field. In particular, phishing has increased, which may turn into OT risks. Among other actions, companies are addressing this situation through awareness raising campaigns and training for their employees
FI	We have not identified cyber-attacks of other software vulnerabilities.
FR	Cyber-attacks often increase during crisis periods. To ensure a high-level of security, DSOs have prohibited the use of certain software internally, depending on the level of criticality of the information shared.
HU	We have not noticed increased frequency of cyber-attacks or experienced any other software vulnerabilities during the Covid-19 situation so far.
LV	No cyber-attacks or any other software vulnerabilities have been detected that would hinder the provision of services
PL	No increased number of cyber-attacks was reported, however, attempts have been made to use the coronavirus pandemic theme in phishing campaigns, attempts to use malicious code files to present, e.g. maps of coronavirus spread - i.e. the coronavirus motif was used in the previously known methods of cyber-attacks
PT	EDP is fully aware that the current situation caused by the COVID-19 pandemics, namely the social isolation and subsequent teleworking circumstances, has widely expanded the range of opportunities for malicious campaigns and cybercrime. Globally, since January 2020, a tremendous growth of cyberattacks has been registered, reaching the highest volume ever recorded. Most are using COVID19 as a claim and this is also accompanied by an increase in coronavirus-related domains, from which a significant percentage is malicious or suspicious.

	Increased cyber-attacks or any other software vulnerabilities
	In particular, there has been a global increase on phishing campaigns, often using the branding of trusted organizations (especially the World Health Organization) to build credibility and get people to open attachments or click on links. Also, several malicious apps under the pretext of tracking the disease have been broadcasted and text messages are being sent with false charity donations and malicious forms to obtain personal data. In the face of this situation, EDP has, first and foremost, reinforced the communication with its employees, through awareness campaigns regarding the additional risks the organization and themselves are currently facing, the appropriate channels that should be used to report cybersecurity incidents and furthermore stressing the importance of being vigilant, since their role is crucial to the organization's cyber security. As so, employees have been reporting phishing emails and fraudulent SMS, and actions are continuously being taken in order to block the malicious domains and sources.
RO	Although the amount of cyber-attacks has risen recently, we were not affected. Nevertheless, the trend is worrisome and the need for increased investments in cyber-security is expected. Including these needs among the electric grid functionality requirements would help funding these investments.
SE	Information on vulnerabilities and cyberattacks should be obtained through CERT-EU, the European Computer Emergency Response Team
SI	Elektro Maribor takes all necessary measures to ensure the security of the electricity network and data within the company, regardless of the events related to the COIVD-19 epidemic. The safety mechanisms already in place are working. There is no need for further measures in the field of ICT, and they do not expect them to be implemented in the future. They have not detected any increase in information threats or cyber attacks despite their increased attention regarding the volumes and types of cyber traffic. An increased number of email attacks were noticed, but there was no damage due to appropriate security measures. A greater traffic on the communication network was also detected. SODO regularly monitors the volume and types of cyber traffic and published cyber threats from cyber security organizations. The Slovenian National Cyber Security Incident Response Centre (SI-CERT) published a note of an increased e-mail malware dissemination on behalf of COVID-19 epidemic. There has been no reporting of any other increased cyberattacks in this period.
UA DTEK	No
UK	DNO's continue to work with government experts and the National Cyber-Security Centre to ensure awareness of increased and changing cyber-attack risks. It is understood that there have not been any losses of supply caused by a cyber-attack.

Personnel

Summary

- The availability of O&M personnel is manageable in FN, AT, CY, FR mainly due to the fact that level of activities have been reduced drastically to essential services: emergency responses, outage management, and critical first connection.
- Works requiring contacts with customers have been postponed as well as maintenance works.
- Organizational measures have been put in place to ensure the availability of O&M personnel, reduce size of teams, new shifts to respect social distances, personal protection devices for staff at critical points such as the distribution centers.

- In the long term, the availability of O&M personnel in fieldwork will depend on the limitations imposed by lockdowns and the closure of borders for foreign workers.

	Availability of O&M personnel
AT	Business as usual for company intern operations-personal, as far as the work can be done by one person and except O&M works that require contact with customers. These works are postponed.
CY	There have been some problems, but the situation in O&M personnel is controllable.
DE	Grid operators take great efforts to ensure the availability of personnel which is necessary for grid operation. Up to now, there are no critical situations. One DSO reports a spike of prophylactic quarantine measures with about 50 simultaneous cases in the beginning of the crisis. The number of cases strongly declined since then, now down below 5 corona-related absences (as of 2020-04-15).
ES	Problems on availability of external O&M personnel have been experienced, but crisis management plans have been activated to ensure the availability of O&M personnel, in order to avoid issues with O&M operations. Measures include the use of personal protection devices, reorganization of shifts to ensure personnel availability, distancing and other sanitary measures, where activities have been focused on essential activities. Nevertheless, the availability of O&M personnel in fieldwork will depend on the limitations imposed by the state of alert.
FI	The availability of O&M resources is still normal through an extensive contractor network.
FR	Since the beginning of the lockdown, DSOs have reduced drastically their level of activity to maintain only essential services: emergency response and critical first connection. This helped prevent to encountering any problem with the availability of operation and maintenance personnel.
HU	Currently we do not face any issues regarding the availability of O&M personnel. In case of higher COVID-19 prevalence rates. changes might be expected, but the companies have prepared themselves for such scenarios.
IT	In order to reduce the risk of contagion for the employees, O&M site personnel were reorganized into smaller teams and shifts were redesigned to increase special and temporal distance among people. Ad hoc safety instructions were issued and PPE availability was increased. Backup teams have been set-up to be able to be employed quickly in the Operating Centers, in case of emergency. With such working measures in place, essential services such as outage management, remediation to unsafe situations of the network and urgent connections are ensured
LV	There have been no problems with availability of O&M personnel. We have performed several Covid-19 tests to the O&M personnel, but up to this moment we have no cases of Covid-19 confirmed within Sadales tīkls AS
PL	There are no problems with staff availability. Organizational measures were introduced to reduce employee grouping in one place and time
PT	No restriction is expected
RO	No, through crisis management we have managed to ensure critical personnel stayed safe. Resilience plans were implemented from the very beginning for ensuring the continuity of the essential activities. Thus, the personnel was divided into separate teams, equipped with protective equipment and further they have avoided interactions with consumers, as much as possible, both for their own protection and for reducing the possibility of transforming them into a virus transmission vector. Furthermore, where there was any risk of contamination, additional measures have been taken (back-up personnel, back-up facilities, disinfection services availability etc.)
SE	Due to stricter restrictions for employees to stay home if experiencing symptoms of covid-19, some DSOs are facing minor to moderate problems with staffing at their facilities. However, Swedenergy's members does not express any concerns regarding security of supply

	Availability of O&M personnel
SI	Due to the importance of electricity distribution infrastructure / critical infrastructure for the economy and the population, the electricity distribution companies in the Republic of Slovenia (five companies) ensure the smooth operation of the system also during the coronavirus epidemic. In addition to the measures for the work safety, a daily review of the available staff in all companies has been set up for the crisis relief assistance among the electricity distribution companies. The key operations and intervention processes are ensured. Back-up locations of distribution centres have been established, while a special management and protection of staff at these centres have been ensured. The distribution network is operating normally. SODO did not notice network outages due to the COVID-19 epidemic. The O&M personnel is divided into smaller groups which are working in different shifts. There is an agreement among the electricity distribution companies on a daily checking (monitoring) of available staff in key processes. In case of emergency and a lack of O&M staff in any company, the staff from other companies will be borrowed. Some of the distribution companies are reporting problems in relation to the maintenance work of foreign contractors because of the mandatory quarantine of foreign workers. These activities are postponed or put on hold at the moment.
UA DTEK	The DSOs do have enough O&M personnel. There might be a problem with the availability of the personnel in some DSO due to the transportation problem as public transport is not available. Even though the company organizes its own transportation for the employees, there is a problem of the transportation of the workers that leave in rural areas (far away from the DSOs) from their home to work and vice versa.
UK	The availability of front-line O&M has returned to normal levels following initial periods of precautionary self-isolation by staff. DNO's have implemented risk assessments, management systems and safe systems of work and guidance to assure the safety of all staff and customers during the Covid crisis. There has been a greater immediate employment impact on supply chain partners with non-critical operational staff being furloughed where required. To clarify – it is the supply chain partners who have furloughed non critical staff, not the DNOs.

Maintenance works

Summary

- No delays have been reported in maintenance works due to materials shortage (PL, PT, LV, DE, CY, FI, SI, FR,RO) most companies have purchased materials ahead. Some delays were reported linked to the lack of spare parts and protective equipment's such as masks, helmets and gloves (AT), were reported due to logistic issues and personal availabilities.
- Network operators are targeting high priority works necessary for short to medium term security of supply, and/or for the protection and safety of consumers and utility workers (UK, SI). Deployment of smart metering or customer- involved works have been suspended (HU).

	Delay in maintenance activities (in particular due to lack of spare parts, raw materials , increased strain on telecom infrastructures)
AT	No problem occurred with the telecom infrastructure, some delays due to the lack of spare parts and materials especially protective equipment (masks, helmets, gloves…)
CY	Not at the present stage.
DE	No. There is no risk of missing spare parts because they are available in redundancy.

	Delay in maintenance activities (in particular due to lack of spare parts, raw materials , increased strain on telecom infrastructures)
ES	There have been delays due to some logistics problems in the delivery of materials and punctual unavailability of external O&M personnel. In addition, there is a decrease in permitting
FI	There are no delays in network maintenance activities until now.
FR	No delay reported due to lack of spare parts or raw material.
HU	Our O&M activities on the network have not been hindered by material, equipment or supply shortages. However, some cases of operational activities which need power cut cannot be performed to avoid interfering with the country wide home office and digital education activities at residential homes. These postponed activities are planned to be implemented after the pandemic period. Depending on the length of the pandemic period, these works may even be postponed to next year. Due to pandemic risk the metering and other customer involved works have been suspended and rescheduled – according the instructions of Hungarian Energy and Public Utility Regulatory Authority.
LV	There have been no unexpected or significant problems and delays in maintenance due to the Covid-19 crisis
PL	There are no reported delays
PT	No delay in maintenance activities is expected
RO	No – the recurring planned maintenance was performed almost in line with the schedule, the stock of materials still sufficient for works addressing power outages, and there were no issues for telecommunications. However, this was the right time to prove the telecommunication redundancy is a principle one should not give up upon; together with the cybersecurity costs, the telecom costs must become organic part of distribution grid functionality investments.
SE	Some members are expressing concerns regarding access to spare parts if the Corona crisis continues
SI	Elektro Maribor's maintenance work has been rearranged. For the time being, they do not detect a lack of spare parts (because the company has begun in due time to purchase large quantities of material, which is absolutely necessary for smooth operation) and they are estimating that they will complete all planned maintenance work by the end of the year. In the field of telecommunications, they did not register any delays due to a lack of spare parts, nor did they feel a greater burden of the ICK infrastructure. Also, there were no operational delays due to the lack of any spare parts, etc. There have been some minor delays in O&M activities because of the safety reasons, because some personnel has been put on standby or on annual leave, and because the priority right now is only an urgent maintenance. The priority in maintenance are urgent intervention and other prevention tasks such as check-ups, revisions, elimination of defects. There is no lack of spare parts or raw materials. In the DSO area they did not notice any problems due to increased strain on telecom infrastructures.
UA DTEK	No. As for today, we do not see delay in maintenance activities. The only risk is a currency risk related to the costs of materials.
UK	Spring to summer is the key period for outages (for inspections, maintenance and testing). Due to supply chain concerns, and personnel availability, network operators may be looking to delay or defer planned outages and maintenance work based on a risk assessment approach. There may be plans to reduce the scope of such outages to what is only required by regulations and obligations. As a result, network operators are targeting high priority works necessary for short to medium term security of supply, and/or for the protection and safety of consumers and utility workers. These include safety critical work that impacts on the integrity of the electricity network, the safety of the general public or presents a significant environmental risk and planned works necessary for the short to medium term security of supply and ensuring network resilience. The required operational authorisations and training schedules for these activities are being maintained.

	Delay in maintenance activities (in particular due to lack of spare parts, raw materials , increased strain on telecom infrastructures)
	Works that do not fall into this category, will be risk assessed on a case-by-case basis by DNOs, taking account the risk of infection to employees, customers and the general public, and may be carried out in accordance with a safe method of work and the latest government, PHE and HSE guidance. DNO's are not currently reporting any delays in responding to network maintenance requirements through lack of materials, plant or spare parts and are monitoring stocks and reserves to ensure low stock levels are highlighted in a timely manner to the supply chain.

Connection works

Summary

- The slowdown of the permitting process has led to delays (DE) or to the postponing of connection works (ES). Connection work is ongoing in some countries as long as there are no contacts with customers (PL, HU). In some countries (PT,FR, ES, UA, UK,) connection works have been limited to essential facilities needed for the emergency (health centers, care homes, food shops security services) as defined by the national frameworks.
- Works that do not fall into this category, will be risk assessed on a case-by-case basis, taking account the risk of infection to employees, customers and the public.
    - Works requiring physical contacts with customers are stopped in a majority of countries such as smart meters deployment, as well as large construction works such as substation and transformers (AT, CY).
    - Deployment of E-charging infrastructures (public chargers, chargers in parking facilities) is maintained if no contacts are foreseen (HU).
- DSOs are working on their recovery plan, starting with gradual lifting of the lockdown and mixing with backlog and new treatment.

	Delays in connection works (for instance but not limited to : essential buildings, generators, E-charging infrastructures etc…)
AT	All connection works, which require physical contact with customers are shut down, as well as large construction works with contractors (substations, transformer stations…). Construction sites are opening step by step since Easter
CY	There are delays relating to the programming of network construction and maintenance work. The workforce has been divided into two groups and only one group is at work at a time. That is the capacity is 50%
DE	Grid operators report that some service companies reduce their personnel. The same applies to building companies (subcontractors), therefore some construction works cannot be realised. Besides, the installation and commissioning works of new plants can be delayed. With regard to grid investment projects which need official approvals, slowed down approval processes by public administration occur in some cases.
ES	Activity has been focused on essential aspects, where a 100% of activity is granted. This include new facilities needed for facing the emergency (field hospitals, morgues, etc.) Nevertheless, as non-essential activity has been dramatically reduced - among other reasons, because of a

	Delays in connection works (for instance but not limited to : essential buildings, generators, E-charging infrastructures etc…)
	decrease in permitting -, no relevant number of new connections have been requested, and open processes have been individually assessed and postponed after the lockdown situation is over. Furthermore, Spanish Government has launched Royal-Decree Law 11/2020 on April'20, that regulated that certain changes in connection activities (suspension of contracts and contracted power changes) are to be activated within 5 days. If the customer facility is reachable (mainly via remote smart meter), it is activated
FI	There are no substantial delays in connection works until now.
FR	Following instructions from the French Government, connection work has been limited to essential activities and emergency connections. Solutions for restarting are defined jointly with the administration and representatives of the industry.
HU	Precautionary measures are applied for such activities. The connection works take place according to (original) schedules, where i) the works in question can be carried out outdoors without personnel contact, ii) the works has to be carried out indoors, but the dwelling is not occupied, iii) in case of prepaid meters. E-charger related works can be carried out if client contact can be avoided (e.g. public chargers, chargers in parking facilities)
LV	As regards the connection works, since the beginning of the crisis there has been a request to prolong the completion date of the building contracts made by five subcontractors
PL	Delays do not occur. The only limitation is the lack of activities at the customers flat/house. Outside works are carried out
PT	There are some delays/suspension of connection works which require the simultaneous presence of several people in confined spaces. We are able to do all connection works for all priority loads according with the Quality Service Regulation (priority clients, hospitals, security services, …) and for all important connection works to support the national pandemic contingency plan, also accordin with recently legislation published within the context of the COVID-19 pandemics
RO	No – there is a certain slowdown in terms of the request for the new connections only; the company ensured the process continuity by providing alternative channels for transmitting the connection requests and the related documentation and the urgent / critical ones were approved through remote meetings.
SE	No information available
SI	On 12 March 2020 Slovenia declared an epidemic (in accordance with Article 7 of the Contagious Diseases Act) which entered into force at 6 p.m. At the same time, the national emergency response plan for COVID-19 was activated. In accordance with the proposed measures of the Republic of Slovenia for the protection of people against coronavirus disease, Elektro Maribor decided for a reallocation of working hours or an annual leave for the employees in the field of services. As of 14 April they restarted work on electricity facilities. By the end of the year the investment plan should be carried out as planned in the annual work plan with the help of the reallocation of working hours and a minimum use of a regular annual leave. In the initial period of the outbreak, the connection works have been limited. With the release of health and security measures, work could be carried on.
DTEK	DTEK Grids continues its connection works where there is no contact with the customer. At the same time, Regulator allows prolongation of the term of all connections. In some DSOs we have some delays with big connections as projects need to be agreed and adopted by the local municipalities that work remotely so the adoption of such projects takes more time.
UK	DNOs are targeting essential connections work as part of the response to the COVID-19 outbreak e.g. for care homes, telecoms providers, hospitals, health centres or any such sites assisting in medical care, food shops, distribution centres, water utilities, customers in vulnerable situations, sites of critical national infrastructure & defence and any other such sites in line with the latest government advice.

	Delays in connection works (for instance but not limited to : essential buildings, generators, E-charging infrastructures etc…)
	Works that do not fall into this category, will be risk assessed on a case-by-case basis by DNOs, taking account the risk of infection to employees, customers and the general public, and may be carried out in accordance with a safe method of work and the latest government, PHE and HSE guidance.

Grid investments

Summary

- Smart meter deployment is postponed to minimize physical contacts in many countries (AT, FR, DE, HU, SI, UA) or deployed at the sites located outside resident premises (LV). They are expected to resume after the lockdown, if situation normalizes. Deescalating process will impact the investment planning together with the availability of external contractors and workers.
- ICT and telecoms investments have been frozen in PL,SI as well as projects that require the simultaneous presence of several people in confined spaces (PT)
- Investigations are ongoing to defer investment due to cash flow reductions due to corona-related down turn in most countries.

	Deferred grid investments or projects (such as smart meters deployment)
AT	Smart meter roll-out is postponed after summer.
CY	To be assessed.
DE	Smart meter roll out has been stopped to minimize physical contacts. Overall investigation to defer investments to mitigate cash flow reductions caused by corona-related revenue downturn.
ES	Some projects have been deferred. We are analysing the percentage of investment planned for 2020 that may be delayed to subsequent years. The final conditions of lockdown and deescalating process will impact on the final assessment together with the availability of external contractors to cope with an increase in projects. We consider that a key issue in this question is the Regulatory Limit for investments (that sets annual limits for commissioned investments) in force under current regulation in Spain. Flexibility measures in order to not penalize Distribution companies for excess investments in following years are needed
FI	We have not delayed any network investments, and we do not have any plans to do so. Our capex program proceeds as planned.
FR	Investments have been drastically reduced since companies have stopped their regular activities except for outage management and emergency connections. As a matter of fact, smart meters roll-out has been suspended. Roll-out of smart metering will resume from 11th May with a cautious customer approach.
HU	Based on the resolution of the Regulator, the replacement of meters is not required in occupied dwellings. Therefor meter replacement works are mainly suspended, including smart meters.

	Deferred grid investments or projects (such as smart meters deployment)
LV	Due to the Covid-19 crises 13 capital investment object planning contracts and 10 capital investment building projects have been prolonged. Smart meters are being deployed in the sites where the meters are located outside clients' premises
PL	In the ICT area, it is planned to freeze some investment projects, also in the maintenance area
PT	There are some delays/suspension of the projects which require deployment of contractors' teams to regions far from the place of residence, as well as the suspension of projects that require the simultaneous presence of several people in confined spaces
RO	There have been certain delays in a number of procurement procedures and the field activities requiring the interaction with the consumers have been postponed, but the recovery of the accumulated delays is expected in the coming months (however depending on the recovery calendar)
SE	No information available
SI	Network Management System: Due to the current epidemic situation the work in the company in relation to the project of smart meters deployment (advanced Network Management System) could be shortened, ceased or disabled. They have planned the fieldwork from June onwards. They hope that in the coming months the situation in the country will stabilise to such an extent that safe and smooth fieldwork will be possible. Demand Response: Elektro Maribor has stopped activities. After the stabilisation of the situation, they will prepare a new timetable and continue with the planned activities. In the field of telecommunications, due to the security measures adopted, they do not perform certain physical replacements of ICT equipment in order not to interrupt the work processes necessary for the provision of essential services and the operation of critical infrastructure. There are no delays in implementation of operation investments. In general, the investments were postponed. In certain parts, adequate physical distances between employees cannot be easily ensured and we do not want to increase the infection risks because during these times our first priority is to maintain the working capacity to ensure the functioning of the electricity distribution system. Smart meters deployment is reduced at the moment, postponed or sometimes even not possible due to safety measures for employees. It is planned to continue with smart meters' rollout in summer months if the situation normalises. Some physical replacements of telecommunication equipment have been postponed as well.
UA DTEK	DTEK Grids stopped roll out of smart meters where there is risk of the connection with the consumers, but we do continue to roll out of smart meters at substations.

Security of supply

Summary

- There are have been no impacts reported on the network quality indicators and the security of supply.
- Necessary measures were taken to equip operational teams (Scada system, IT) and were separated in small groups and placed in separated locations (DE,FR,AT)
- However, in the long term, risks might increase in some countries due to following factors :
    - Delays of refurbishment works might have quality implication in the future (HU).
    - Deficiencies from subcontractors, with potential risk on the supply of raw materials, components, absence of employees (PL, LV)

	General impact on security of supply from grid operator perspective
AT	Perspectively, there is no impact on security of supply. All necessary measures were taken to guarantee grid operation (e.g. the operational teams for Scada-System and IT were separated in two or three groups on different locations and with no contact to each other.
CY	There is an increased renewable energy production due to favorable weather conditions. In conjunction with decrease in demand, there are times when the network cannot absorb all renewable generation and therefore renewable curtailment takes place.
DE	Currently security of supply is stable. Precautious measures taken have limited the number of infections of employees. If needed, precaution measures also comprise on-site quarantine for personnel necessary for the grid operation (e.g. control room personnel).
ES	There has been so far no impact on security of supply
FI	COVID-19 has not yet had any impact on the security of supply.
FR	There is no general impact on security of supply.
HU	The pandemic situation has no impact on network quality indicators yet. Nevertheless, due to the long term delays in O&M and refurbishment work, MVM will likely face service quality implications in the future. Measurements based on inaccurate readings (estimated or dictated) may result inaccurate billing, which can have a negative financial impact on the DSO in the short term.
LV	There is a risk of deliveries regarding some materials, taking into consideration the possibility of the delay on the borders during the delivery process as well as the overall situation within other countries caused by Covid-19 crisis
PL	Some contractors signal risk of potential inability to provide services, due to problems with the supply of raw materials or components and possible absence of employees due to a pandemic. This fact poses a high risk of supplies uncertainty. Due to restrictions there is also the issue of delay in organizing new tender procedures and the postponement of ongoing proceedings. Another risk is the noticeable increase in prices in purchasing proceedings caused, among others, by an increase in component prices on the market and an increase in transport costs
PT	The security of energy supply was never compromised
RO	No – since the beginning of the state of emergency there were no major events attributable to the crisis generated by the COVID-19 pandemic and there were no major network outages situations that would have endangered the field workers. In any case, the company had taken measures to equip the employees with protective equipment and specific working instructions have been developed in time
SE	The TSO does weekly questionnaires with grid operators and the results so far is that members express that they are minorly to moderately affected by the Corona crisis. But the assessment is that security of supply is unaffected
UK	ENA is unaware of any immediate concerns to the security of supply in the short term despite the low demand forecasts. The ESO is managing the low demand via its Optional Downward Flexibility Service and learnings from this will be inputted to ENA's Open Networks project. However, the long-term security needs to be managed by prioritizing essential maintenance and construction works.

Sourcing of Equipment

Summary

- In the short term, no supply problems are expected for equipment and facilities (hardware, cables). Most DSOs constituted stocks of critical equipment and are currently using them to maintain security of supply.
- Delays in the supply and deliveries of some equipments (small size distribution transformers) have been reported (FI) because of the closing of factories located in countries under severe lockdown and due to longer waiting times at borders (SI, LV).
- In the medium term, **significant problems in material supply** are expected if the manufacturing production doesn't restart and if logistical issues and the closure of Member States borders continue :
    - Bottlenecks in the supply chain because all DSOs will purchase at the same time. Bottlenecks encompass standard equipment, raw materials, critical equipments that may affect the quality of supply in some countries (HU).
    - Economic situation of some suppliers is fragile and would reduce market offering in case of bankruptcy.
    - Critical timing before shortage of equipment varies along from two weeks to months.

	Sourcing of equipment (hardware, cables etc…) on an immediate and medium term basis
AT	Up to now, no bigger problems, sometimes delivery delays
CY	To be assessed. So far it is under control.
DE	No limitations at this point in time and no signs of negative development in medium term.
ES	No on an immediate term, but maybe on medium term, for example, in HV equipment
FI	Until now we have not suffered from severe problems in network component and material supply but there have been some delivery problems regarding small-size distribution transformers (mainly 50 kVA and 100 kVA) and compensation transformers from countries which have suffered from extensive COVID-19 lockdowns and temporarily closed their transformer factories. Until now we have been able to mitigate these delivery problems. We anticipate more problems with component and material supply if the COVID-19 lockdowns last for several months.
FR	No problems envisaged in the short and medium term. It might be problematic in the long term when all DSOs will return to their normal activity level. All Europeans DSOs will continue to purchase equipment, and this could lead to bottlenecks in the supply chain. This must be anticipated to avoid any negative impact.
HU	No supply problems are expected in the short run in connection with the procurement of equipment and facilities (hardware, cables, other network products) (Suppliers / Manufacturers are prepared to the best of their ability and consignment stock is also used to maintain the short term security of supply). The lead time for purchasing hardware products has increased, but it is still manageable. In case of standard network equipment, lead times are expected to rise in mid run, but this is not expected to result in significant supply problems. However, an extraordinary deterioration could lead to significant supply barriers (meaning a manufacturer or production stops for a longer period). In the mid-term, a significant risk will be if several EU Member States decide to close their borders for a longer period (more than 2 weeks). 10-15% of purchases come from European Union member states and are produced in vain by a foreign producer if the supplies or maintenance personnel cannot cross the border. For non-standard network products (e.g., special cable, distribution cabinet) and hardware, we have to calculate with significantly longer lead times, which may even lead to supply problems.

	Sourcing of equipment (hardware, cables etc…) on an immediate and medium term basis
IE	Operational Planning and Contingency: From an Irish DSO perspective (ESB Networks), they are comfortable that they are good to respond to network outages affecting generators. They are covered in terms of the definition of essential workers and have enough workers available across the country with the appropriate competence to respond to the broad range of issues that can affect network security for generator connections. There have been some deferral of outages for planned maintenance on the transmission system. They are working with the TSO (EirGrid) to re-plan for the delivery of this work when it is safe to do so. Essential and safety critical maintenance is being prioritised and is taking place broadly in line with the original Transmission Outage Plan
LV	As regards Sadales tikls AS we have received information from several providers of the equipment, that there is a possibility to encounter some delays, but by now it has not involved strategic materials. The deliveries of strategically important materials at the moment are being performed according to the scheduled plan, with just a few minor delays, that are caused by longer waiting time on the borders. In general we have not encountered serious problems regarding the delivery of materials
PL	In the ICT area, there are delays of several weeks in the supply of equipment - e.g. computer supplies, which is mainly caused by logistical difficulties at present. There are no delays in the delivery of grid materials and equipment. There is some risk of supplies delays in medium term
PT	Regarding the sourcing of equipment, no major impact is expected on an immediate and short-term basis. EDP have put in place it's contingency plan implementing specific measures, such as reducing the number of people in the storehouse, creating a backup team, ensuring operations continuity and defining priorities. In the medium-term, no significant problems are expected due to the anticipation of stock level in critic equipment. However, there are significant risks in terms of procurement of raw materials and product handling logistics, which can lead to delays, as well as liquidity difficulties of some suppliers motivated by declining turnover and difficult access to credit. EDP will keep monitoring consumption and deliveries so that any changes trigger immediate action and prevent any potential constraints to the operation.
RO	No significant categories so far; there were some delays in power meters delivery at the beginning of the year when external providers reduced their production.
SE	No information available
SI	Elektro Maribor has in due time sourced the large quantities of material indispensable for the smooth operation. There were no major delays in ordering and delivery. There were no important delays in sourcing of equipment and they are not expected in the future. Materials coming from abroad have a delay of about 14 days, which does not affect the project deadlines.
UA DTEK	As it was mentioned above on an immediate basis we do have enough sourcing of equipment. On a medium basis, there is currency risk that might impede the procurement of the equipment for the DSO's projects in the future.
UK	Network operators are not seeing any significant issues in the supply chain at the moment. This may change depending on the length of the crisis.

Economic impacts on the value chain

Summary

- **The longer the lockdown persists, the greater economic impact it will have on subcontractors** if DSOs are not able to carry out capex program, maintenance activities. Redundancy schemes among subcontractors have been witnessed in some countries (ES, PT).
- A majority of countries pointed the risk of bankruptcy and a worsening of the pre-pandemic situation of shortage of skills/ workforce in some sectors (such as construction). Backlog of projects are expected and may cause higher costs (AT, FR, ES,PT) and in some country (HU) a deterioration of the quality of distribution activities.
- Some countries (PT, FR, SI) have anticipated the risk of bankruptcy of their suppliers/subcontractors and have deployed contingencies measures such as anticipations of payment, resumption of some works (i.e installation of smart meters, construction etc…) for non-critical services as much as possible. DSOs are following carefully the situation of their suppliers and subcontractors.

	In a long term perspective, do you foresee economic impacts on subcontractors and potential repercussions for DSOs to carry out their activities?
AT	Economic impacts on subcontractors are definitely visible, but no hard repercussions on the DSO itself, although some negotiations with third party companies which claim higher costs have to be faced.
CY	Yes, this is obvious. However, EAC is strongly based on its own staff to carry out most of the activities. The impact will be sourced from the suppliers.
DE	In the long run this is a quite possible scenario. Subcontractors might suffer from cancelled jobs leading to bankruptcies and a reduced market offering in some areas. At this point in time we already see partly higher availabilities of subcontractors in selected crafts – good for now but with an uncertain outcome in the long run.
ES	Yes. Many subcontractor have launched redundancy schemes. It will take some time to recover the level of operational capacity. Moreover, we expect a backlog of projects during the second half of the year that may cause future delays and additional costs
FI	We do not foresee major economic impacts on our contractors or subcontractors if we are able to continue our capex program and network maintenance activities as planned. The situation may change if the COVID-19 lockdowns last for several months.
FR	Possible risks in the equipment supply chain when DSOs activities will resume can be considered. Analysis is in progress.
HU	If the pandemic situation persists or escalates and we do not have the possibility to carry out certain activities for a longer period of time, that could cause a serious financial problem for the subcontractors. If these companies bankrupt or default, the pre-pandemic scarcity of subcontracting capacity will increase further after the situation returns to normal. Such circumstances would cause quality deterioration of distribution activities - against the planned level of service in accordance with customer expectations. The adequate governmental response may ease the emergence of such situation.
LV	The problems could arise if due to the crisis the subcontractors cooperating with Sadales tikls AS would encounter operational problems and would cease their operation. In that case the planned works of DSO would be delayed and we would have to use the resources to perform the subcontracting operation once again
PL	Some investments may be delayed due to the extended procurement proceedings, reported problems with workforce availability and predicted disturbances within supply chains
PT	The COVID-19 context required the adoption of strict measures to isolate the population, such as mandatory confinement, teleworking, closure of establishments and facilities. To this extent, EDP, in view of the need to ensure the maintenance of DSO activities, essentially guaranteeing the

	In a long term perspective, do you foresee economic impacts on subcontractors and potential repercussions for DSOs to carry out their activities?
	continuity of the electricity distribution service, implemented strategies to mitigate the spread of the pandemic outbreak, by employees and subcontractors, to reduce the expected impact on the company's regular activities, with emphasis on priority activities. To guarantee a workforce operating under the conditions defined, compatible with the minimum levels required to respond to the operation of the network, some activities were delayed/suspended, with the corresponding impact in the activity of the subcontractors. The longer the period in which this situation persists, the greater the damage to companies. However, and in the short term, EDP has implemented a set of measures that create stability along the value chain such as: - anticipation of payment terms; - maintenance of support and operational structures in normal operation (teleworking and on the ground); - less disruption as possible in non-critical services, e.g. by anticipating smartmeter installations planned for next quarter, keeping global goals and focusing on equipment outside the customer's house; - creation of a team to monitorize the situation, taking decisions and putting the necessary measures into action.
RO	Not for now. There is a risk that smaller subcontractors may go bankrupt due to postponement of some works, but we expect they would access the available state aid/support schemes/facilities.
SE	At the moment there seem to be access to subcontractors and their services are unaffected
SI	The company regularly monitors measures and recommendations regarding the coronavirus epidemic and takes all measures within its responsibility to protect employees and users from the spread of infections so as to ensure a stable electricity supply to end users and to ensure the uninterrupted business. They estimate that the consequences will not have a long-term negative impact on their subcontractors. SODO estimates no significant long-term impact on the DSO system in the field of subcontractors except previous mentioned for those subcontractors that employ workers from foreign countries. Due to the intervention measure of extending payment deadlines, companies with the status of "public companies" are expected primarily to face liquidity problems (both for DSO and for subcontractors), which will require more funds to cover liabilities to suppliers. Subcontractors are monitored for compliance with coronavirus-related construction site rules, and we find that they have problems with workforce coming from abroad.
UK	Following returning to a full programme of work, we are likely to see skilled workers in great demand. Some outages and major projects are likely to be deferred this year, or greatly scaled back in scope. Specialist workers who are part of a pool of workers, working on large projects, will be in great demand next spring/summer, and there could be a shortage.

Network charges

Summary

- Payment cancellation/ deferral, discounts have been set up by almost all countries for different categories of the population such as small customers, domestic/business customers, retailers under conditions fixed by national regulatory frameworks.

- **Economic impact:** The payment deferral combined with the decrease of consumption due to the downturn of the economic activity lead to a decrease of revenues (coming from regulated incomes) and cash flows, affecting already at this stage countries in different manner (-20% in Cyprus, 280 M HUF loss revenues in HU, increase of net debt in Slovenia).
- Immediate impact for the DSO is also the **cost for financing additional credit** to relators and debitors (estimated at 25 M revenues loss in Slovenia). Impacts are foreseen on the recovery of costs in the following years, the operation and capacity to finance projects on the longer term.

	What is the state of play regarding the payment of network charges, do you see immediate and medium term impacts in case of payment deferral?
AT	We expect some cases of payment-difficulties, but we will try to counter this with deferral and instalment payments.
CY	Yes, payment deferral is in place for domestic customers, but the effect has not been quantified yet. Tourist industry deactivation in Cyprus will affect the economy and this in turn will affect the revenue and cash statement of the EAC. With network charges remaining at the same level, and consumption decreasing by 20%, revenue will be substantially reduced.
DE	In Germany Grid operators do not bill customers for grid fees directly but via the electricity sales companies. It's thereby the obligation of electricity sales companies to the cover grid fees connected to the consumption of their customers and to deal with potential non-payments at their own risk. At this point in time we do not have any indication that sales companies will not fulfil this obligation.
ES	The network charges system in Spain is based on a settlement mechanism, where Retail companies collect regulated charges from customers, pay them to Distribution companies, which settle this incomes against the Spanish Power system in order to cover all the regulated costs. The settlement system continues, where Distribution companies are obliged to keep payments to the Power System based on metered consumptions, but Retail companies are exempted from the calendar of payments to Distribution companies, as certain customers (self-employed and SMEs) can request a 6-month payment deferral of energy bills. We consider this introduces a working capital risk to Distribution companies and regulatory measures should be considered to recognize this situation if the payment deferral measures are extended in time, or defaults happen in the payments from retail companies to distribution companies. Moreover, this Covid-19 crisis has had great impact on the economy due to the hibernation. Consumers are reducing their consumption and they are allowed to reduce their contracted capacity with no additional costs, so regulated incomes (network + policy charges) are reduced, additionally to the reduction of other electric system incomes. In this context, it is expected that regulated system cost will be higher than system incomes, generating a tariff deficit for this year. Additionally, not all customers will return to their activities, impacting on the company accounts and the regulated cost recovery in following years
FI	Until now warm winter weather has impacted Finnish DSOs more than COVID-19. However, we anticipate too see more customers who have economic difficulties, and therefore we are flexible in invoicing and debt collection processes. We offer customers longer payment plans when needed. We have also temporarily cancelled electricity disconnections due to unpaid grid bills. We do not anticipate major economic impact on Finnish DSOs assuming that COVID-19 lockdown is over in summer 2020.
FR	The French government took temporary measures to handle the current lockdown situation. Energy bills are suspended for very small enterprises impacted by the propagation of the pandemic under certain conditions (see question below). These companies experiencing difficulties to pay their bills should contact their supplier in order to arrange a payment delay. The postponed bills will have to be paid six months after the end of the "sanitarian state of emergency" and without any penalties. This will imply a delay in collecting network charges from these customers.

	What is the state of play regarding the payment of network charges, do you see immediate and medium term impacts in case of payment deferral?
	The French National Regulatory Authority has officially stated it would be supportive of the new mode of operation and take due account of the crisis.
HU	Immediate impacts (MVM Group) - Due to the delays in utility bill payment an increase has been observed in case of receivables of all business segments of our customer service business line (both system and energy charges) since the introduction of pandemic emergency: - Electricity segment: - regulated universal service: 12%, ~ 300 M HUF; this results in a loss of network charges revenue 120 M HUF - competitive-market's service: 90%, ~ 400 M HUF; this results in a loss of network charges revenue 160 M HUF. - It is clear that the pandemic situation is already increasing and will further increase the levels of receivables . Medium term impacts - Due to the pandemic situation the small suppliers, and the customers who will be billed directly by the DSO are expected to be in late payments. According our calculations, 10 % of small suppliers and 20% of the affected customers will be late in payment. It causes an increase in the net debt, equal to approximately 1 monthly distribution fee.
IE	RA was currently designing a supply suspension scheme that will provide for deferment/cancellation of Network Charges. Scheme is not yet Finalised.
LV	Up till now we have not encountered significant payment deferral regarding the payment of network charges. There have been discussions with a few business clients on the payment terms, but these situations have been solved
PL	For DSOs, no payment problems are currently observed. An increased number of TPA customers' requests for prolongation of payments due to the announced epidemiological situation is recorded. The above in the long term will increase the payments subject to recovery. According to the provisions of the Act on pandemic proceedings, the DSO does not suspend energy supplies, including at the request of sellers. At this stage, it is not possible to precisely determine the impact of the epidemic on the medium-term effects on DSOs
PT	The Portuguese Regulator (ERSE) published a specific regulation introducing "exceptional" measures to address the pandemic crisis. This regulation includes three measures related to network charges: - Consumers are given the possibility of opting for deferred payment plans and, when they do so, retailors are entitled to a deferral in the payment of the corresponding network charges to DSOs (payment of invoices in 9 instalments, with 2 months deferral of the first instalment); There is a similar extension of the payment period for the charges paid by DSOs to TSOs. - Small retailors (<5% market share) that experience a decrease of revenue of 40% or more are entitled to an additional period of 2 months to pay their invoices of network charges to DSOs; There is a corresponding extension of the payment period of the charges paid by DSOs to TSOs. - Business consumers that are in "crisis situations", as defined by specific legislation (also published within the pandemics context), are entitled to discounts in some network tariff components with an adjustment to the effective capacity level required by the operation context of the consumer for these customers, DSOs apply the discounts in their invoices to retailors, which them pass them on to consumers). Beyond operational challenges related to the implementation, from the perspective of the DSO the most immediate impact is the increased effort and cost of financing additional credit to retailors. From a system perspective, there is an increased risk of default associated with potential failure of retailors, which would translate in future tariff costs.
RO	Not yet, but this depends how long the emergency state will be applied and to whom the support measures established by the government will apply. In case that will not be directed only to those really need them, a negative effect on the chain could extend throughout the value chain, from suppliers to network operators and producers.

	What is the state of play regarding the payment of network charges, do you see immediate and medium term impacts in case of payment deferral?
SE	Not to a large extent yet but some obviously. There will most likely be a more widespread situation of unpaid invoices in mid-May when the invoices for the first quarter is sent out. However, until then we cannot communicate anything with certainty
SI	As part of measures to mitigate the social and economic consequences of the spread of COVID-19), the Slovenian Energy Agency has introduced an extraordinary measure to change the network tariff, which will reduce the electricity bills. For the period from 1 March to 31 May 2020, small business and household consumers will not be charged a tariff for capacity charge and the network charge for these users will be 33% lower. This reduction of network charge will certainly affect the operation of the electricity distribution companies. At the moment, they are still examining all the effects of the current changed circumstances of the epidemic on maintaining solvency. Currently, their rough estimate of the negative impact on solvency in the electricity distribution system due to the extension of payment deadlines to the businesses is around EUR 25 million. In the current harsh conditions, maintaining the solvency of the entire electricity system is of the utmost importance. As so far, the electricity distribution companies, together with electricity suppliers, will carry the largest share of liquidity shock absorption in the electricity system. SODO is estimating the impact of changes regarding payment of network charges. At the moment there are no government measures for payment deferral, but measures have been taken to reduce the network charges and payments of contributions supporting the production of electricity in high-efficiency cogeneration and from renewable energy sourcesfor small business customers and household electricity customers. In the current harsh conditions, maintaining the solvency of the entire electricity system is of the utmost importance.
UA DTEK	The effect that we see already now: According to the Law «On amendments to some legislative acts of Ukraine aimed at preventing the occurrence and spread of coronavirus disease (COVID-19) (hereinafter – the Law) for the period of lock down or restrictive measures related to the spread of coronavirus disease (COVID-19), and during 30 days from the date of its cancellation, it is prohibited to terminate/suspend the provision of housing and communal services to citizens of Ukraine if such services are not paid or paid not in full. However, this law directly affects the cash flow of the supplier and therefore significantly affects the DSO. DTEK Grids already sees that the payments from the Supplier have deviated from the planned payments to some of the DTEK DSOs for UAH 250-300 mln only in March/April. Due to the non-payments of the Supplier (as stated above), the DSOs lose their working capital; therefore, the working capital load has increased. DTEK Grids expects the following problems during the lock down: - General decrease of the level of payments by the electricity suppliers and consumers paying directly to the DSOs for the electricity distribution services; - Decrease of the level of payments for the old debts for the electricity consumed before January 1st, 2019 – the debts of the legal entities and households consumers is more than UAH 4 bln.; - Failure to fulfil debts restructuring contracts by the legal entities and consumers. In a long term perspective - Due to the nonpayment (or payment not in full) for the electricity by the consumers to the electricity suppliers and consequently nonpayment (or payment not in full) by the suppliers to DSOs, we see the decrease of the working capital of the DSOs. As for now, the ongoing projects of DTEK Grids are not stopped due to the following reasons: - Currency risks (risk of deficiency of a tariff source to complete projects); - The risk of inability to complete projects on time that are agreed with the regulator. The projects that are planned for this year are put into the priority by DTEK Grids to be completed until the end of 2020.

	What is the state of play regarding the payment of network charges, do you see immediate and medium term impacts in case of payment deferral?
	In a long term perspective, due to the currency fluctuation there is a risk that DSO will be unable to complete the projects. The DSO can exceed the cost of the project up to 5% without the previous agreement of the Regulator, and 5-10% only if the Regulator agrees.
UK	This is a matter for the regulator Ofgem who are talking to the industry accordingly

Government support

Summary

- In most countries, governments support programs have brought different forms or support (tax holidays, credit guarantees, tax decrease) to all companies affected, including energy companies. There no energy specific measures.
- Potential measures could be implemented to alleviate the financial strain on DSOs:
  - Decrease of the VAT applied to electricity (CY)
  - Deferral of VAT tax payments associated with invoices which have been deferred (SI, SE) or a guarantee scheme to allow DSO to provide its activities.
  - Regulatory flexibility to allow DSO companies to invest in specific projects that will contribute to the economic recovery and development of other sectors, beyond the current regulatory limits (ES)
  - Opportunity to test key personnel (e.g. accessing to control rooms) (DE)

	In case of government support measures, do you consider them appropriate? If no support exists, what measure would you like to see implemented?
AT	Perspectively the government support measures are appropriate.
CY	There are government measures for a 10% decrease in the final price of electricity. This obviously, in conjunction with decreased sales in electricity, affect the financial position of the EAC. **We would like to see a decrease in the VAT instead** (currently VAT in electricity is 19%), which we believe is allowed by the relevant EU Directives.
DE	Currently the government sets the framework and values DSOs as operators of critical infrastructures, that fits well. Concrete wish: We would like to have the opportunity to get key personnel tested. Of course, we understand the scarcity of testing facilities and fully agree to the absolute priority of staff of medical institutions – still the possibility to get e.g. control room personnel tested would significantly improve our resilience when infection rates would go up again.
ES	Distribution companies have a key role in the reconstruction process in the post-COVID-19 scenario. The type of investments that distribution activity performs have a direct impact in local economies and act as a catalyst for the economic development of other sectors. Specific investment plans are to be allowed and properly recognized, where Distribution companies have to be allowed to invest in specific plans, over current regulatory limits, where Enviromental actions and readiness for Climate Change resilence are key drivers and an opportunity to develop future energy grids

	In case of government support measures, do you consider them appropriate? If no support exists, what measure would you like to see implemented?
FI	As it looks now, we do not anticipate a need for government support for Finnish DSOs.
HU	As of today there is no energy sector specific government support scheme in place. MVM Group received support, for example, when purchasing of protective equipment. If needed, the Hungarian Energy and Public Utility Regulatory Authority (HEPURA) is open to help licensees to overcome the difficulties caused by the pandemic situation with supportive measures. The government determined generic pandemic economic support, such as i) loans and government funds for aiming SME (small and medium sized enterprises) up to 800.000 EUR ii) support scheme for labor expenses (Kurzarbeit), iii) tax easing and or deterioration for the period of the pandemic, etc. While our companies continuously investigate the opportunity of the application of any of these support elements, as of now the Group does not apply any of these. The government established a fund which serves as i) a pandemic crisis fund and ii) in the mid-term it shall be the cornerstone of the economic recovery, however the exact rules are not published yet. There is no specific government support regarding (partial) moratorium. MVM Group seeks the opportunity to recover some or all of the OPEX and CAPEX regarding the pandemic. Some government-initiated, designated measures effecting the energy sector as well, e.g: Creation of Task Forces by the Government to be prepared to manage the period of state of danger. The assignment of the essential elements of system (e.g. essential strategic companies) by the Defense Minister. Many temporary Government Decrees to manage the interim emergency.
LV	In Latvia, several forms of support (e.g. tax holidays, credit guarantees) are provided to all companies affected by the crisis, regardless of the sector. There are several support measures that are directed towards employees as well as specific rules in case of the employee being idle, due to the crisis situation
PL	Government support programs appear to be well addressed at this stage of epidemic development
PT	Many regulatory obligations have become more flexible to reflect the impacts of the pandemic in DSO activities and services, which is appropriate. In financial terms, there are currently no specific support measures for DSOs, except for the above-mentioned possibility of delaying some tariff charges payed to TSOs (in proportion to the deferral of collections by the DSO). One possible additional measure that could be implemented to alleviate the financial strain on DSOs, would be to allow the deferral of VAT tax payments associated with invoices to retailors which's payment has been deferred.
RO	The measures should be addressed only to those directly affected by COVID-19 crisis, both individuals and companies; this would allow the State to effectively allocate budgetary resources to those needing them the most. The support should be balanced. The financial stability of utilities should not be materially affected by those support measures and the State should also plan measures to ensure the viability of utilities (direct loans, state guarantees, interest rate subsidies etc). Free-market economy should still function, with no price interventions on price formation (eg price capping measures etc)
SE	We have made a number of suggestions to the government regarding energy tax payments/reliefs but no response yet. Overall, there are support schemes for the business sector and the energy companies may access them. However, the sector is not generally deeply affected compared to for instance the service sector. Security of supply generally unaffected

	In case of government support measures, do you consider them appropriate? If no support exists, what measure would you like to see implemented?
UA DTEK	The mechanisms should be applied to the suppliers to guarantee 100% payments to be made to the DSOs during the quarantine period in order for the latter to provide its essential activities while ensuring security and quality of supply. Proposed measures: - State aid to the suppliers in the form of: 1) subsidized (concessional) loans; 2) subsidies; 3) other form of state aid, that will strengthen the working capital of electricity suppliers. - Development and adoption by the Regulator of the Recommendations for the Universal Service Suppliers that will establish for the Universal Service Suppliers the order of the expenditure of payments received from consumers; - Provision by the suppliers a monthly (by the end of the year) report to the Regulator regarding the funds received from consumers and spent according to the Regulator's Recommendations; - Conducting of the information campaign for consumers to inform them about the importance of timely payments for electricity during the lock down period.
UK	At this time, the UK government has implemented various financial support mechanisms for commercial businesses. UK government, however, does not deem it possible (as enshrined in EU law) to support businesses that have not been profitable in previous financial years.

Customers & Retail Services

Existing government and company support for customers

Summary

Measures taken by national authorities to support electricity customers:

- In several European countries (e.g. FR, BE (Flanders, Brussels), DE, ES, GR, IE, IT, PL, PT, Ukraine), a temporary prohibition to disconnect residential and/or SMEs for non –payment of electricity bills has been decided by national authorities
- In a few countries (BE (Wallonia), IE, UK), customers with a Pre-payment meter are able to consume energy without having to charge the meter or benefit from free credit.
- In a few countries (FR, IT), a moratorium on energy bills has been decided by national authorities for some customers.
- In a few countries (BE, ES, IT), the list beneficiaries and/or the expiry date of social tariffs/support has been extended
- In a few countries (BG, CY, IT, RO, SL), national authorities either intervened or are considering intervening in price setting or reduced taxes & levies to lower electricity bills
- In BE, the Flemish Government will take on the electricity, gas & heat and water bills during one month for residential customers who are technically unemployed because of the crisis. An amount of 202€ will be paid directly by the government to the clients concerned.

Voluntary measures taken by electricity companies to support electricity customers:

- In several EU Member States, electricity suppliers have voluntarily taken additional measures to support their customers. They include:
  - Payment arrangements/deferrals for a larger amount of customers (e.g. AT, CY, CZ, DE, ES, FIN, FR, ICE, IE, IT, LT, NL, NO, PL, PT, SL)
  - Temporary suspension of disconnection because of unpaid bills (in countries where this was not (yet) imposed by national authorities or the measure was voluntarily extended to additional beneficiaries (AT, CY, CZ, ES, FIN, FR, HU, LV, NL, NO)
  - Discount on electricity bills for some customers (GR, SL) / Shifting customers to night tariff to reduce electricity bills (BE)
  - Additional staff have been mobilized to help find solutions adapted to vulnerable customers (FR)
  - Medical equipment / other material have been offered to public health services and/or solidarity measures have been taken to support key organizations involved in providing health and social assistance services (IT, ES, PT, PL, RO, UA)

	What support/reliefs are being provided in your country (e.g. deferral or cancellation of bills) to residential and business customers
AT	Oesterreichs Energie (OE)'s member companies will not switch off during the official measures for people who are demonstrably unable to pay their electricity
BE	Next to general socio-economic measures to aid families and companies during the period of the crisis, several measures were taken with respect to energy. T Flanders • the Flemish Government will take charge of the electricity, gas & heat and water bills during one month for residential customers who are technically unemploy

	What support/reliefs are being provided in your country (e.g. deferral or cancellation of bills) to residential and business customers
	• A temporary interdiction to disconnect customers (res/prof) was also decided and also to put on hold new activations or placements of budget meters. Wallonia • The pre-payment functioning of the budget meter will be suspended until the end of June as to allow customers to consume energy without having to charge • Suspension of placement and new demands of budget meters • Customers in the 'supplier X' procedure need to be taken back by their supplier. Supplier X is a temporary move of the customer with payment default to the • Suspend the cut off of electricity and gas for professional clients Brussels • Extension of the winter period until the end of June during which it is not possible to cut off residential customers Especially the measures in Wallonia will have an impact on suppliers (increase of bad debt risk). Other measures are being evaluated (e.g. increase of customer
BG	Payment deadlines for the utilities' bills were extended from 10 to 20 days without interest, and afterwards interest for delayed payment is calculated. Additiona The Bulgarian energy regulator decided (effective as from April 1st) to decrease by 42.8% the regulated natural gas price of the Public Provider Bulgargaz and Many social responsibility campaigns have been put in place by Eurelectric members and other energy companies – donations, solidarity campaigns, service p
CY	Following a decision by the NRA (CERA) and in accordance with a government proposal, EAC is announcing a 10% reduction to the price of electricity (excludi reviewed before the end of the two-month implementation period, based on the latest information and developments regarding COVID 19. During this period, Another important support measure that has been implemented by EAC from "day one" of the crisis is deferral of payments for residential customers; payments
CZ	Support is provided individually by suppliers without any coordination or help provided by the state. ČEZ Sales ad ČEZ Esco offer to its customers only in individually justifiable cases deferral of bills and deferral in collection and dunning.
DE	There is a partial moratorium for consumers and small businesses. Since End of March until end of June private customers and small businesses are allowed to d
ES	The measures that government has approved for these types of collectives are the following ones: - Increase in the number of beneficiaries of Social Bond, financed by the electricity companies. It includes self-employers who meet the requirements of the R - Banning energy cut-offs in case of non-payment for consumers in their primary residence and business consumers while the alarm state lasts. - Consumers have the right to terminate the arrangement of service contracts without penalties, if the company should be prevented from operating the servic Other measures for self-employers and companies: - Request for contractual modifications (mainly power reductions), without cost to the consumer. - Temporary suspensions of supply contracts without cost to the consumer. And for self-employers and business consumers they have the possibility of deferment bill payment. Additionally, article 29 of Royal Decree Law 8/2020 allows companies to ask for guarantees because of the alarm state.
FI	The government has not imposed any measures regarding the billing and debt collection of utilities, but many of Finnish Energy (FE)'s member companies volur their members to be very cautious when exercising the power to interrupt the supply of energy, especially when it comes to the problem of the Covid-19. Cust disconnections, FE recommend to notice the need for solidarity during the coronavirus epidemic (as emphasized also by the Government) and ensure that disc
FR	Suppliers are mobilized to guarantee continuity of service, of essential activities and maintain the link with their customers. For residential customers Measures taken by public authorities The French authorities decided to extend the winter period called "trève hivernale" (truce winter) during which energy suppliers (electricity, heat, gas) can no period (truce winter) has been extended to May 31. Voluntary Measure by Eurelectric members

	What support/reliefs are being provided in your country (e.g. deferral or cancellation of bills) to residential and business customers
	In France for example, one company decided to guarantee the supply of energy to all its individual customers by suspending, until September 1, any reduction company also undertakes to relax its payment terms and schedules. In doing so, the company goes beyond the measures put in place by the Public Authorities For business customers Measures taken by public authorities For businesses eligible to the Solidarity Fund (traders, self-employed persons and small businesses), the French authorities decided (Ordonnance n°2020-316) - Prohibit the interruption or suspension of the energy supply (electricity, gas) for the businesses concerned, - Give the possibility of requesting the staggered payment of invoices, without any penalty, from energy suppliers (with more than 100 000 customers). (Note : the Solidarity Fund is a public fund created to mitigate the economic and social consequences of the covid 19 crisis for the most vulnerable businesses Voluntary Measure by Eurelectric members In France, for example, companies have taken all the necessary measures to enable its customers, eligible for the Solidarity Fund, who request it to defer payme the postponement of payment of their due invoices until the end of the state of health emergency. This postponement will be spread over a period of 6 months those who would not be eligible for this arrangement, so that it can continue providing them with the most effective support during this period. One company has decided to support small businesses beyond the legislative rules and accepted the postponement of payment of their due invoices since t revenues).
GR	The government has suggested that no power interruptions should take place during the crisis for vulnerable customers. However, strategic "bad" payers will s PPC and HRON have both taken a series of voluntary measures to help their customers. • PPC: Zero fixed costs for all customers; 8% discount to vulnerable customers and to customers with consumption above 2.000 kWh; €5 discount to cu • HRON: Zero VAT charges in the electricity bill; Creation of e-bill platform to perform all actions (payments, new contracts, etc.); €12 discount for every n
HU	On a voluntary basis, household electricity suppliers (USPs) introduced the following measures: Temporarily suspended the disconnection of residential and non-residential customers due to arrears. Following the due date there is a 30 days period for the payment of the bills without default interest (normally it is 3 days). Validity of client statements on protected status are automatically extended till the end of the crisis situation. Temporary suspension of personal administration in customer service offices and promoted use of digital customer service channels (online, e-mail, mobile ap NKM Energy (MVM Group) started a campaign to promote electronic billing with incentive of 500 HUF for customers per new registration, and also additional 5 Beside these voluntary commitments, there is no general requirement to provide support for customers in the energy sector. Some recently introduced goverr do not affect the energy sector specifically
IE	Moratorium on disconnections Provision of extra emergency credit on Pay as you go meters Many suppliers are being flexible on payment with customers and are agreeing payment plans to help them to better manage their payments. Some suppliers h resolution
IS	Suppliers are looking into offering extended period for the payment of bills, both for households and companies that are heavily affected by the COVID situati
IT	Suppliers' downstream retailing activities have been influenced by the virus outbreak. Payments concerning electricity and gas bills have been suspended in the 11 municipalities in Lombardy and Veneto, part of the first "red zone" areas in Lomba Further measures are still under discussion, so it is not possible at this stage to draw any final conclusions on the effects of the measures themselves
LV	At present, government does not provide aid to households and business customers for the payment of electricity bills, including the suspension or cancellatio Due to the state of emergency and its potential impact on customers, Latvenergo/ Elektrum will provide supply of electricity without power outages in cases o
LT	The biggest electricity/natural gas supplier in Lithuania (Ignitis) introduced a possibility for households/commercial customers to postpone their payments for

	What support/reliefs are being provided in your country (e.g. deferral or cancellation of bills) to residential and business customers
NL	There are no measures regarding support/reliefs to residential and business customers regarding payment of the energy bills in general. Where the energy suppliers are the ones targeted to pay the energy tax and renewables levy -based on the energy sold- to the Tax Services, the energy supp three months (April, May, June). Most suppliers -except some smaller suppliers- offer this possibility to their customers. The postponed tax end levies have to Netbeher Nederland and Energie Nederland announced that all measures were taken to ensure reliable electricity supply during the crisis. Customers facing pa implement measures regarding the temporary postponement of payments.
NO	Utilities will give customers deferment of payment and even delay disconnection of customers from the grid, due to lack of payment.
PL	Domestic COVID legislation introduced significant changes to the Act of 10 April 1997 Energy Law. The new provisions prevent the electricity and gas suppliers electricity and there is no option to cut off the consumers irrespective to the cause of not paying (if its caused by the consequences of the COVID-19 crisis or for the repayment of unpaid bills, repayment plan, state support, tax exemption, etc. This is even more oppressing as DSOs have already stopped disconnectir The Polish government and parliament have prepared a special law "The Act of 16 April 2020 on special support instruments in connection with the spread of th downturn. Based on this law, suppliers and DSO's have no right to disconnect from the network household and business customers due to non-payment of ele of invoice payment deadline and spreading payments into instalments
PT	Recent legislation established that residential and business customers cannot be disconnected for non-payment during the State of Emergency and the follow Additionally, even if the State of Emergency ends before that, the energy Portuguese Regulator (ERSE) also published a Regulation that applies by the end of J additional period of 1 month (on top of the previous rules established in Regulation). This Regulation also sets rules for the payment plans between consumers a
RO	Romania has allowed SMEs affected by the crisis to postpone the payment for utilities. This support scheme is on the utility suppliers, not guaranteed by the sta severe. There is a high risk for the energy supply chain to face lack of cash and disruptions in payment without the state support. Also, many of the SMEs are fac In addition, a law was adopted In the Parliament setting the possibility to postpone the payment of the bills for utilities (energy, water, internet, s.o.) by three mo promulgation by the President, but for now it was appealed against, at the Constitutional Court. There is counter-relief to be provided to suppliers, through ze
SE	No national governmental support is known of for the electricity invoices. The electricity companies can on their own, when needed, defer payments. The secto to the covid-19 (carried-out by the distributions companies). The Swedish government has a general support package for all sectors, including relief on permitted employees. Staff that have been permitted (paused empl are now payed by the Swedish government
SI	As part of measures to mitigate the social and economic consequences of the spread of SARSCoV-2 (COVID-19), the Slovenian government issued a Decree cogeneration and from renewable energy sources for small business customers and household electricity customers. It is estimated the move will lower the av contributions between 1 March and 31 May 2020. In addition, the Slovenian Energy Agency has introduced an extraordinary measure to change the network tariff, which will further reduce bills. For the period fro charge for these users will be 33% lower. Together with the abovementioned government measure, the bill for electricity should be reduced by about 27%. Households and small businesses payments of network charges have been temporary reduced (capacity charges suspended), applicable for March, April and cogeneration with high efficiency and from renewable energy sources have been temporary suspended, applicable for March, April and May. As a consequenc household customers and small business customers, was reduced in March for 45,2 %. The similar percentage is expected in April and May. As part of measures to mitigate the social and economic consequences of the spread of SARS-CoV-2 (COVID-19), the Slovenian government issued a Decree cogeneration and from renewable energy sources for small business customers and household electricity customers. It is estimated the move will lower the ave contributions between 1 March and 31 May 2020. In addition, the Slovenian Energy Agency (the regulator) has introduced an extraordinary measure to change not be charged a tariff for capacity charge and the network charge for these users will be 33% lower. Together with the above-mentioned government measur approach of the suppliers are delayed payments and payment by installments.
SK	Expected support currently under discussion with the Ministry of Economy SR:

	What support/reliefs are being provided in your country (e.g. deferral or cancellation of bills) to residential and business customers
	- Selected electricity (and gas) customers would have the right to ask their supplier for an alternative due date of advance and billing. Consequently, the right market operator. - Transfer of selected components of the final electricity price to the State budget (e.g. system costs, network charges, nuclear fund, etc.) - Identification of components of the final electricity price that can be temporarily eliminated/cancelled (taxes, etc.)
UA DTEK	For residential customers a no disconnection policy was introduced for the period of lock down and 30 days after it is over. More specifically, according to th (COVID-19)»: accrual and collection of penalties and fines for late payments for utility services is forbidden; termination/suspension of the provision of utility services due to non-payment or not a full payment is forbidden. For business customers there are reliefs to some enterprises – according to the Decree of the Cabinet of Ministers #255. For the period of lock down it is forb - for electricity suppliers and DSOs to disconnect or suspend electricity supply to enterprises of the centralized water supply and sewerage (irrespective of o - for natural gas suppliers to terminate supply of gas to producers of heat and electricity
UK	All domestic energy suppliers have agreed with the Government to adopt a set of principles - https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/873960/Supplier_Agreement_19.3.2020.pdfhttps://as Suppliers are adopting their own policies and practices with regards to business customers.

Credit risk for suppliers

Summary

Credit risk for electricity companies and measures in place to alleviate such risk:

- In most EU Member States, suppliers have to pay system operators and national authorities for the grid charges and the taxes & levies contained in electricity bills irrespective of whether consumers pay their bills or not. Some recent developments to report in the context of Covid-19:
  - In FR, the NRA requested system operators to apply to the suppliers, upon request, the rescheduling of invoices for customers under a payment plan, free of charge. However taxes are still due to national authorities by suppliers.
  - In PT, suppliers can defer the payment of the network charges and taxes (provided they are included in the Third-Party Access Tariff) to the DSO, for the customers under payment plan.
  - In ES and IT, a decree foresees that suppliers may be partially exempted to pay the regulated tariff to the DSO until consumers have paid the whole bill.
  - In the NL, energy suppliers may ask to postpone the payment of the energy tax and the renewable levies to the Tax Service
  - In AT, taxes & levies and network charges do not have to be paid to national authorities and grid operators until the customer has paid the bill or agreed on an instalment plan.
  - In GR, national authorities are considering giving suppliers the possibility to make arrangements on the payment of regulated charges to the relevant authorities (for suppliers whose income/liquidity has been reduced by at least 30%).
  - In few countries (FIN, SWE), the DSO sends its own bill covering grid charges and sometime taxes too.

Impact of credit risk on electricity companies, retail markets and customers

- The suspension of disconnections, direct debits or payment plans along with the reduction of electricity consumption and power prices, as well as the increased risk of bad debt, are producing significant imbalances in the accounts of energy suppliers.
- This will affect the liquidity flow and also companies' bank ratings and terms & conditions to obtain the credits needed to operate, develop and invest in the system as well as serve customers in a period when the service they provide is essential
- Any bankruptcy of smaller companies could lead to:
    - spill over effect on other electricity companies and potential systemic risk
    - negative impact on the competitiveness of electricity retail markets
    - negative impact on all customers

	In the event of a (partial) moratorium on electricity bills, what is the state of play regarding the payment of network charges and taxes by suppliers to system operators/national authorities
AT	Taxes & levies and network charges do not have to be paid to national authorities and grid operators until the customer has paid the bill or agreed on an instalment plan.
BE	The energy part which goes to the electricity supplier constitutes on average less than one third of the total electricity bill in Belgium. Suppliers must keep paying most of the taxes and all the transport services to the public authorities and to TSOs & DSOs.
CY	At the present stage, there is only one electricity supplier, which is the vertically integrated, unbundled, EAC. The EAC- Supply Unit will pay on time all network charges to DSO/TSO, hence in this respect no problems are expected. However, if the support measure for the deferral of payments is prolonged and extended, then this might have a significant impact on the revenue of system operators.
CZ	Deferred payments of network charges is not directly permitted by the DSO, but moderate changes in network tariffs were temporarily issued by the Regulator in order to relieve customers with drop in consumption due to Covid. If a supplier allows its customer to defer the payment of its bill that is composed of both commodity and network charges, then the deferred network charges go on the account of the supplier.
DE	It's the obligation of electricity sales companies to cover grid fees, taxes and other obligations connected to the consumption of their customers and to deal with potential non-payments at their own risk. At this point in time we do not have any indication that sales companies will not fulfil this obligation.
ES	Royal Decree Law 11-2020 foresees that retailers may be exempted to pay the regulated tariff to the DSO until consumers have paid the whole bill. This delay on the payment will have an impact on the system revenues. The regulated revenues decrease (network tariffs and policy charges) caused by allowed contract changes and temporary suspensions (article 42 of Royal Decree Law 11/2020) will be recovered through State Budget
FI	It's not obligatory for electricity supplier to take care of possible bad debts. Instead suppliers are flexible in invoicing and debt collection processes and could offer customers longer payment plans when needed. However, DSO's have to collect electricity taxes for the state.
FR	Taxes Despite the partial moratorium on electricity bills, taxes are still due to national authorities by suppliers.

	In the event of a (partial) moratorium on electricity bills, what is the state of play regarding the payment of network charges and taxes by suppliers to system operators/national authorities
	Network Charges Following the measures taken by the government regarding the payment of electricity bills, the French Energy Regulatory Commission (CRE) expressly requested the system operators, Enedis and the main local distribution companies, to apply to the suppliers, upon request, the rescheduling of invoices, free of charge. The mechanism is in place today. (This measure is applicable to the gas network too.)
GR	National authorities are considering giving suppliers the possibility to make arrangements on the payment of regulated charges to the relevant authorities (for suppliers whose income/liquidity has been reduced by at least 30%).
HU	There is no officially imposed moratorium on payment of electricity bills (not even partial) and there are no changes in the requirements to pay network charges or taxes, the general rules have been in place. However the USP suppliers voluntarily agreed on suspension of shutdown in the field of residential electricity supply. The suspension of shutdowns affects also residential customers who have debt bill with more than 60 days but not those who were already switched off. It means that in case of delay in payment the traders do not initiate the shutdown at DSOs, although it is not the same as offering payment moratorium. As it is a voluntary commitment from the suppliers, actually it does not have an effect on the settlement with DSOs.
IE	No proposal on either a partial or full moratorium on payment of bills Discussion on suspension of Networks Charges – decision pending No proposed suspension of energy taxes
LV	A moratorium on electricity bills has not been announced in Latvia. However, Latvenergo AS on its own initiative does not disconnect customers from services for unpaid bills during emergency state
NL	No (partial) moratorium on electricity bills Where the energy suppliers are the ones targeted to pay the energy tax and renewables levy -based on the energy sold- to the Tax Services, the energy suppliers are asked to postpone putting the energy tax and renewables levy on the bill for companies who pay every month a final bill. This is for three months (April, May, June). Most suppliers -except some smaller suppliers- offer this possibility to their customers. The postponed tax end levies have to be billed to these customers before November
PL	Energy suppliers in Poland have not been exempted from payment of network charges and taxes. An electricity sales company that provides comprehensive services to its customers and settles with DSO in the field of distribution services, still needs to make payments in this regard to DSOs. We appeal for the implementation of a refinancing mechanism for the effects of late payment, and the risk of permanent loss of receivables, e.g. as a result of bankruptcy of recipients, permanent inability to pay debts after the epidemic
PT	Suppliers can defer the payment of the network charges and taxes (provided they are included in the Third-Party Access Tariff) to the DSO, for the customers under payment plan, through a 9 month payment plan
RO	No similar measures adopted, as support is expected to be granted to suppliers by the state in order not to disrupt the value chain. Currently, the moratorium for SMEs applied in Romania is supported exclusively by the energy suppliers, that are supposed to pay all the network charges, producers and other taxes as usual. That is why ACUE asked the Government to urgently back this moratorium with a proper support scheme for the suppliers (such as state guarantees, factoring, cash infusion) so that the lack of cash may be avoided.
SE	The Swedish customers receive two separate invoices, you need to have contracts with two companies: one with the electricity network operator who owns the grid where you live and transports the electricity to your home, and one with an electricity supplier that sells the electricity to you.

	In the event of a (partial) moratorium on electricity bills, what is the state of play regarding the payment of network charges and taxes by suppliers to system operators/national authorities
	The energy tax is an issue for the distribution companies as the energy tax is a part of the tax for distribution of electricity controlled by the distribution companies
SI	With the exception of prolonged payment term (from 20 to 60 days), there have been no other changes
SK	See previous answer
UK	Suppliers currently remain liable for all network charges and policy costs.

Existing government support for suppliers

Summary

- Whilst most governments have put in place action plans to support people and businesses, no specific support was introduced for electricity suppliers despite the measures imposed on them and their impact on utilities' balance sheets. Noteworthy exceptions exist in few countries where specific measures were taken to alleviate the negative impact of government measures:
    - In FR, the NRA requested that suppliers applying to their customers payment deferrals of electricity bills benefit from deferred payment of ARENH (Regulated Access to Incumbent Nuclear Electricity).
    - In GR, the government is considering the creation of a separate guarantee fund for energy companies through which they can have access to bank loans.
    - In IT a 1.5 billion € "COVID account" was created in order to guarantee the financial stability of energy suppliers and cover for other regulatory interventions for customers.

	Are there any government support for suppliers/retailers being provided (please briefly describe)?
BE	Not for the moment.
CY	No, there is no government support on this. In fact, there is a government and Regulator decision for a 10% discount on final electricity bills, for 9 months. This will be implemented via a 10% discount on regulated energy prices (not on VAT and RES fee). The amounts due to this discount will not be reimbursed in any way to EAC (Supply Department, DSO, Generation Department)
CZ	No government support has been considered for energy suppliers so far.
DE	There are some loosenings in regard of deadlines for various official requirements. However, there is no direct support for suppliers at the moment.
ES	Article 44 allows suppliers and DSOs to ask for guarantees to finance the bills
FI	No, there is no need for that.

	Are there any government support for suppliers/retailers being provided (please briefly describe)?
FR	The French Energy Regulatory Commission (CRE) requested that suppliers applying to their customers payment deferrals of electricity bills benefit from deferred payment of ARENH electricity (Regulated Access to Incumbent Nuclear Electricity). CRE also invited EDF to grant payment facilities to "small and fragile" suppliers, particularly vulnerable to the sharp drop in electricity consumption during the current health crisis. The rules are detailed in Deliberation N°2020-076.
GR	The government is considering the creation of a separate guarantee fund for energy companies through which they can have access to bank loans.
HU	There is no direct support for suppliers/retailers provided
IE	None that are specifically geared at Energy retailers though a range of broad supports to business generally are being provided
IT	A 1.5 billion € "COVID account" was created in order to guarantee the financial stability of energy suppliers and cover for other regulatory interventions for customers.
LV	In Latvia, several forms of support (e.g. tax holidays, credit guarantees) are provided to all companies affected by the crisis, regardless of the sector. No special aid is provided for suppliers/retailers
NL	Energy suppliers can make use of all generic (tax and financial) measures the government is now offering to businesses. On top of this energy suppliers may ask for postponement of paying received energy tax and renewable levies to the Tax Service up to June 19
PL	There are no proposals in the existing law acts and new legislation regarding the support for suppliers in order to avoid the so-called chain reaction in such strategic sectors for the state. If customers not pay sellers and DSOs on time, sellers will stop paying to producers on time (as well as other trading companies or on the stock exchange) and for distribution services to DSOs, the DSOs will stop paying for transmission services to the TSO, then TSOs will stop paying for system services to the producers
PT	The biggest concern for suppliers is the market position of energy forward contracted to supply B2B customers. The significant reduction of consumption along with a significant drop of wholesale market prices result in a mark to market position that in most cases is higher than the overall supplier margin. Suppliers/retailers are also facing competition with the regulated tariff that was recently adjusted to reflect the current market price drop, causing additional concerns of increase in the overall forward position. There is no government support for suppliers/retailers being provided, other than the above-mentioned possibility of payment plans regarding network charges
RO	There are support measures (mostly fiscal) addressing all the economic operators. In addition, zero-interest loans or factoring facilities may be provided to suppliers which need to defer receivables from customers, but these were not yet approved by the Government.
SE	See previous answer
SI	At the moment, unfortunately not. Some measures for providing the liquidity are still in preparation. There are also considerations on government guarantee scheme for delayed payments dedicated to SME..
SK	See answer above
UK	There is no energy supplier specific support available. Suppliers may be able to access economy wide support schemes (e.g. Coronavirus Business Interruption Loan Scheme (CLBILS), Coronavirus Large Business Interruption Loan Scheme (CBILS) and the Coronavirus Corporate Financing Facility (CCFF)). However, outside of a few of the very largest suppliers via the CCFF, we are not confident of suppliers being able to access such schemes.

Recommendations

Summary

Short term recommendations:

- Establish government support schemes to enable customers to pay their electricity bills and thus reduce the impact of bad debt on companies
- Where prohibition of disconnections and payment plans have been put in place:
  - Create specific funds through the state budget that can relieve the financial and economic burden from suppliers through advanced payments and bad debt compensations.
  - Postpone payments due by suppliers for taxes, levies and grid charges until bills have been paid
  - Design a mechanism to recover the excess bad debt linked to the current crisis throughout the system over time

Long term recommendations:

- Whilst this is part of market risks, EU and national authorities should be aware of the significant impact that lower electricity consumption and power prices will have on the balance sheets of energy retailers and on their long term ability to invest in the energy transition and thus take appropriate measures
- In case of default of existing suppliers, the costs for the system should be recovered without endangering other suppliers and generating a systemic risk

	In case of government support measures, do you consider them appropriate? If no support exists, what measure would you like to see implemented
AT	Voluntary agreement **not** to **switch off electricity** and **gas** for private and small enterprise customers until end of June. - Small enterprises (< 100 MWh/year, annual turnover < 10 Mio €) that oppose a shutdown must declare and, if possible, prove that the deferral of payments is necessary to maintain operations due to liquidity problems - private customers must declare substantiated reason for payment problems (e.g. Member of a vulnerable group to virus, unable to go outside the home, no internet banking) - In these cases, the energy companies grant instalment plans or deferrals in order to find adequate solutions for the customers
BE	A solution to compensate suppliers for the prefinancing issue i.e. suppliers need to pay grid fees while their customers request payment delay or do not pay at all. A possible bad debt sharing between all actors (suppliers/DGO's/TSO's/Governments) in function of their part in the invoice regarding unpaid invoices related to the crisis. A temporary halt regarding new legislation with impact on suppliers.

	In case of government support measures, do you consider them appropriate? If no support exists, what measure would you like to see implemented
CY	In general, yes, we consider them appropriate. Instead of a 10% decrease in the final electricity bill, we would like to see a **reduction in the VAT for electricity** (currently this is 19%). This was also examined in the past (some years ago), but was thought to be non-compliant with the existent EU legislation. We believe this should be re-assessed.
CZ	In general, any direct financial support to vulnerable customers should be provided by the state through its standard social policies rather than by private companies. However, this is an exceptional case; therefore also suppliers decided voluntarily to take their part in helping to customers caught in financial destress due to Covid.
ES	We consider that these measures are appropriate, although they imply an increase in Suppliers and DSOs IT systems development expenditures, process changes, front-office adaptation, etc
FI	No, there is no need for that.
HU	Our companies are permanently monitoring the customers' payment habits and arrears therefore we can forecast if any support is needed due to payment difficulties either on the client side or on the supplier side. There is no specific government support regarding (partial) moratorium. MVM Group seeks the opportunity to recover some or all of the OPEX and CAPEX regarding the pandemic. Also, we would like to see the promotion of electronic billing and payment through legal incentives to reduce cash circulation and unnecessary personal interactions. In general we consider the Government's general Economy Protection Action Plan supportive since it aims to maintain the level of solvency of firms and clients. However, we will be able to evaluate the impacts in-depth only after elaboration and examination of further regulatory measures.
IE	Government support measures are currently aimed at business in general, where Energy stakeholders also have input. Supportive of the income support schemes to enable customers to pay bills to support the energy value chain. Energy retailers focus for support is on liquidity issues, where cashflow, cash collection and bad debt could become major hazards in the months ahead.
NL	Up to this moment our members (energy suppliers as part of big (international) companies, as well as energy supply only) informed us that they are coping with the current situation. Energie-Nederland is in close contact with the government (Economic Affairs) and the regulator to see if additional measures are necessary. Member are asked to signal problems in time
PL	We appreciate efforts to strengthen the public health sector and mitigate the socio-economic effects of coronavirus in the European Union. However, we ask for support for the energy sector which is currently undergoing transition and is therefore extremely sensitive to the economic effects of the COVID-19 pandemic. The energy companies are again the ones that bear the costs of market changes and reduce their revenues. Support for the energy suppliers in the form of loans to cover the deferred payment from the customers or public aid for the sector is necessary so as not to stop capital-intensive processes of energy transformation that have already begun. We also would expect the measures to be implemented such as: - Creating a specific catalogue of consumers entitled to the deferral, which could only cover household customers. - Implementation of a mechanism refinancing the effects of late payment. - Temporary suspension of the DSO's ability to terminate the general distribution agreements with the trading companies.
PT	In case of default of existing suppliers, the cost for the system should be recovered in such a way that won't endanger other suppliers, generating a systemic risk

	In case of government support measures, do you consider them appropriate? If no support exists, what measure would you like to see implemented
RO	The measures should be addressed only to those directly affected by COVID-19 crisis, both individuals and companies; this would allow the State to effectively allocate budgetary resources to those needing them the most. The support should be balanced. The financial stability of utilities should not be materially affected by those support measures and the State should also plan measures to ensure the viability of utilities (direct loans, state guarantees, interest rate subsidies etc). Free-market economy should still function, with no price interventions on price formation (eg price capping measures etc). For the suppliers, there should be state guarantees/cash directly from Treasury/factoring scheme – bills payed by the banks/guaranteed credit lines.
SE	In the light of the covid-19 pandemic Swedenergy, the Swedish government and the energy minister are in close contact. A number of the measures requested by the energy sector are therefore implemented. Ex: covid-19 testing and childcare (if schools are closed) for employees with important positions within the energy sector, lowered travel restrictions for foreigners traveling to Sweden with societally important positions within the sector etc
SI	The new price for payment of grid use fee and contribution for renewable energy sources and high-efficiency cogeneration for all household customers and small business customers was published on 20 March with the effect of 1 March. The retrograde setting of prices of course means an extra work for DSO and the suppliers. However, the government should also consider which measures are needed to reduce the negative impact on electricity distribution sector. Customers' insolvency will affect the poorer liquidity flow, this affects our bank ratings and terms and conditions to obtain credits that we urgently need to operate and develop the system. In the moment, we are waiting for government proposals. It needs to be seen if they will be sufficient to deal with the situation.
SK	See answer above
UK	Customers cancelling Direct Debits or asking about extending or renegotiating payment terms are understandable requests given how many households and businesses are facing extremely serious disruption as a result of COVID-19. However, expecting energy suppliers to bear all the risk is not reasonable, or for many suppliers, feasible given their financial positions. In particular non-domestic customers and suppliers need further, targeted support, particularly with regards to meeting the costs associated with supporting and funding the wider energy system (i.e. network charges and policy costs), if we are to avoid systemic financial distress across the non-domestic supply community.