

Public consultation - New EU Strategy on Adaptation to Climate Change

A Eurelectric response paper

August 2020

Eurelectric represents the interests of the electricity industry in Europe. Our work covers all major issues affecting our sector. Our members represent the electricity industry in over 30 European countries.

We cover the entire industry from electricity generation and markets to distribution networks and customer issues. We also have affiliates active on several other continents and business associates from a wide variety of sectors with a direct interest in the electricity industry.

We stand for

The vision of the European power sector is to enable and sustain:

- A vibrant competitive European economy, reliably powered by clean, carbon-neutral energy
- A smart, energy efficient and truly sustainable society for all citizens of Europe

We are committed to lead a cost-effective energy transition by:

investing in clean power generation and transition-enabling solutions, to reduce emissions and actively pursue efforts to become carbon-neutral well before mid-century, taking into account different starting points and commercial availability of key transition technologies;

transforming the energy system to make it more responsive, resilient and efficient. This includes increased use of renewable energy, digitalisation, demand side response and reinforcement of grids so they can function as platforms and enablers for customers, cities and communities;

accelerating the energy transition in other economic sectors by offering competitive electricity as a transformation tool for transport, heating and industry;

embedding sustainability in all parts of our value chain and take measures to support the transformation of existing assets towards a zero carbon society;

innovating to discover the cutting-edge business models and develop the breakthrough technologies that are indispensable to allow our industry to lead this transition.

Dépôt légal: D/2020/12.105/49

Distribution & Market Facilitation Committee
Generation & Environment Committee

Contact:
Caoimhín Ó BRIAIN — Senior Advisor - cobriain@eurelectric.org
Hélène LAVRAY — Senior Advisor - hlavray@eurelectric.org

Public consultation -New EU Strategy on Adaptation to Climate Change

A Eurelectric response paper

August 2020

Introduction

- Eurelectric welcomes the opportunity to respond regarding the EU's strategy on climate change adaptation. The electricity industry has a vital role to play in decarbonisation of society and thus has a central role in climate change mitigation, by continuing to deliver on increasingly aggressive targets for renewable integration and facilitation of e-mobility, eHeat, and flexibility. The electricity industry also has a key role to play in climate change adaptation by building, maintaining and continuing to enhance a secure and resilient infrastructure that can withstand increasingly severe and frequent weather events.
- This requires continued focused investments in the power system taking into account an increased expectation of power system resilience from customers, due to their increased reliance on the electricity system for e-mobility, eHeat and industry.
- Adaptation to climate change is two-fold and covers both adaptation to long-term changes (physical chronic climate-related risk) and adaptation to extreme weather events (physical acute climate-related risk) whose number and severity are expected to increase. Over the past 20 to 25 years, Europe has experienced a whole range of weather events which have allowed the power sector, when necessary, to develop appropriate measures to increase its high level of resilience.
- Since mitigation is a response to global risks, the location of mitigation action is not environmentally significant but will benefit all. On the contrary, adaptation is a response to local risks. Therefore, the location of adaptation action is significant as its benefits are local and/or national. Appropriate response to adaptation needs will vary between Member States, within Member States and between industry sectors. As a consequence, Eurelectric considers that the national and local levels are the best choice to conduct adaptation strategies.
- The European Union can play a facilitating role through: knowledge sharing; programmes supporting awareness; support for local authorities, including ensuring exchange at local level between all relevant stakeholders to assess and implement adaptation measures. There is also significant room for action by the EU to support local authorities on initiatives for vulnerability assessment and risk awareness for instance. This also includes investments

in monitoring programs and warning systems accessible to all. All of these measures would allow identifying the infrastructures that need to be secured, notwithstanding that safety could be on the scope of the private sector/industry and/or matter of public-private partnerships, if possible.

- The EU can further be instrumental in ensuring that national measures on adaptation to climate change are mutually compatible and compatible with the internal market. Since climate change related considerations cut across traditional regulatory approaches, the EU may have a role in promoting integration at a European level.
- A systemic approach of adaptation to climate change is necessary: power generation installations and transport infrastructures must be resilient but it is also necessary to ensure that other factors adapt to climate change e.g. the transport of workers, IT and data centres.
- While Eurelectric represents a wide range of the electricity value chain the primary considerations for this response are from the electricity Distribution and Generation perspective, due to their front line roles in climate change adaptation and power system resilience.

Impact of Climate Change on Power Generation Portfolio

In general, the following elements must be taken into consideration:

- The generation portfolio will require protection against and anticipation of extreme weather events, including floods, storms & high winds, heat waves & droughts.
- Adaptation of existing assets to climate change, with priority to critical infrastructure, and accounting for climate change in the design parameters of new assets.
- Maintenance: update and/or new monitoring plans based on assessments of infrastructure vulnerabilities. This may change the existing design limits to cope with the expected future increase in frequency and intensity of climate hazards.
- Operation and emergency plans, including health and safety protocols.
- To facilitate knowledge base strengthening, the power sector would welcome initiatives that would allow for a better support and funding of climate change adaptation research projects, in particular of local weather patterns.
- Policy (such as the link of the EU adaptation strategy with other EU legislations like Biodiversity Strategy and Renovation Wave) and market framework for adaptation to climate change
- Investment in energy infrastructure, based on assessment of infrastructure vulnerabilities, and on best practices guidelines about measures that avoid losses (social, economic and environmental benefits). Here it is also important to establish a link with the EU taxonomy for environmentally sustainable economic activities (to qualify as green, an investment needs to contribute to at least one of six environmental objectives, including adaptation to climate change). The EU should enable increased private investment in adaptation via increased public-private investment opportunities or incentives through e.g. the EU Taxonomy or the EU Green Bond Standard.
- It is important for the EU strategy to address the case of regions with specific vulnerabilities that require specific support (e.g. EU's outermost regions in the Atlantic and Indian Oceans as well as Mediterranean countries and regions).
- EU Recovery plan.
- Evolution of electricity demand and consumption patterns (e.g. winter vs summer with air conditioning).
- Cooperation with public authorities and other stakeholders/civil protection plans in order to increase knowledge on impacts from climate change on the power sector and better inform planning, prevention/anticipation and future investment decisions.

Renewables

- The expected increase of renewables generation in the electricity mix (over 80% in capacity and generation by 2045)¹ will bring benefits in terms of climate change mitigation but also adaptation (e.g. reduced water consumption from the power sector).
- Recent analysis² from the JRC shows that some renewable energy can be positively impacted by climate change while some others seem to face no impact, even if large regional differences can appear.

¹ Eurelectric, [Decarbonisation Pathways](#)

² JRC Technical Report, Seasonal impact of climate change on energy production, <https://ec.europa.eu/jrc/en/peseta-iv/energy-supply>

- Adaptation to climate change also raises cross-sectoral issues such as those associated with the sharing of natural resources (water, land) between the energy sector and other sectors, issues of special relevance for renewables sources of energy.

Wind (on-shore and off-shore) and Solar

- The impact of changing weather patterns should be further analysed: respectively, winds intensities and flows and cloud coverage as well as the possible impact of high summer temperatures on PV efficiency.

Hydropower

- Overall for the EU and UK, hydropower is projected to increase with global warming. However, both geographical and seasonal variability is expected across Europe.
- Moreover, existing energy infrastructure can reduce the effects of extreme weather events, such as flood and droughts. A case in point are hydropower plants with storage capacity, helping us to avoid flood disasters and provide water in dry seasons. An integrated water management system and advanced tools to monitor water flows will therefore become a crucial tool in adapting to climate change.
- Due to climate change, multi-purpose uses of reservoirs will become even more important. Already today, many reservoirs are being used in multiple ways, for renewable hydropower generation as well as providing other crucial benefits to society (i.e. flood protection, drought mitigation, drinking water, irrigation, recreation, etc.).
- Hydropower plants do not only play a crucial role in climate resilience due to their storage capacity but also due to the fact that they constitute essential black-start sources. After a system collapse, grid operators need power plants with a so-called black start capability (a start-up without help from the grid) to restore grid operation.

Thermal and Nuclear Plants

The following elements should be taken into consideration:

- Evolution of overall capacity (and impact of progressive closure of coal plants on water needs)
- Differences between river and coastal/estuary plants
- Distinction use/consumption
- Water scarcity
- Water quality e.g. temperatures
- Improved cooling technologies have the potential to strongly reduce the negative effects of water scarcity, particularly for nuclear plants in southern Europe.
- Supply chain disruptions

Impact of Climate Change on Electricity Distribution Systems

The increased frequency and severity of extreme weather events in recent years has presented challenges for distribution system operators in terms of ensuring continuous improvement in power system resilience. Customers are becoming more reliant on their electricity supply with the drive towards eHeating / cooling and e-mobility, which results in increased levels of demand and a greater focus on power system resilience. This is affected by challenges of gradual climate change and the impact of more extreme weather events.

In order to adapt to the effects of extreme weather events driven by climate change, Distribution System Operators (DSOs) must consider the following factors:

- Tree/vegetation cutting standards, increased frequency of patrol cycles at various voltages, and associated budgets - trees coming into contact with overhead lines during high winds cause the majority of power outages. Extended cutting ban seasons result in increased vegetation growth, requiring increased cutting schedules.
- Network design standards, such as
 - Planning standards for network investments and development taking into account an increasing number of possible contingency scenarios.
 - Network design standards accounting for increased equipment resilience requirements, while considering the whole life of the asset.
 - Overhead line maximum span lengths between structures in areas exposed to cross winds.
 - Overhead line ground clearance standards due to increased sag levels from elevated temperatures, and forestry corridor standards.
 - The choice whether to underground assets in place of overhead lines, taking into account improved network resilience, environmental and visual amenity considerations, balanced against the associated cost to the customer.
 - The decision to relocate assets threatened by coastal flooding
 - Implementation of an Integrated Coastal Zone Management system.
 - Investment in innovative network design solutions to mitigate against extreme weather events, both for new assets and for improving resilience of existing network assets.
- Investment in further digitalisation, such as
 - Protection equipment upgrades to ensure a safe, secure and reliable system – increasing protection selectivity and reliability thus minimising customer outages.
 - Digitalisation of controls and indications from plant to an increasing degree, down to low voltage levels, enabling better decision making in the face of outages as well as an ability to sectionalise remotely and restore supply to maximum possible customers before repair works commence.
 - Utilisation of further automation in terms of automatic network sectionalising schemes ('self-healing' networks).
 - Increased IT systems and supports to centralised control staff and call centre staff to support storm response.
 - The use of drones for network patrols, both in normal conditions to highlight hazards and actively prevent outages, and in response to extreme weather events to allow for damage assessment.
- Maintenance cycles of overhead line assets
- Companywide contingency plans for a variety of scenarios
 - Storm preparedness plans (such as high levels of precipitation, wind, lightning etc.)
 - Flood response plans

- Flooding represents a major risk to electricity infrastructure. From a mitigation perspective, substation flood risk assessments and similar assessments for other critical assets / properties, provide an opportunity to mitigate the effects of major flood events.
 - Climate change risk assessments need to be conducted and regularly reviewed in line with new forecast data.
 - Heat wave response plans
 - Severe cold weather events and associated impact on sagging of power lines due to ice, access & egress, availability of generation, etc.
- Emergency load shedding and rota shedding plans
- Staff and equipment deployment in response to severe weather events
 - Managing the safety of staff and the public during such extreme weather events while endeavouring to restore supply in a timely fashion.
 - A flexible resource model and a level of agility that enables allocation of resources where they are needed.
 - Preventing a shortage of critical materials which may be required in response to a storm event, which may be exacerbated by the event's impact on key supply chains.
 - Building a relationship with neighbouring regions and countries to provide and accept additional staff as necessary in response to extreme weather events.
- Public relations before and during extreme weather events, and provision for vulnerable customers
- Coordination efforts across stakeholders in the face of an emergency
- Impact of compound climate events on assets e.g. prolonged spells of both precipitation and wind
- Interdependencies with other critical infrastructure and support sectors (e.g. IT, Transport)

Recently Storm Ophelia in 2017 tested distribution system operators' ability to respond to such extreme weather events, and investments in electricity distribution infrastructure that mitigate against these gradually increasing threats should increasingly be included within company business plans and budgets.

DSOs should not be prevented by regulators from recovering any efficiently incurred costs which are focused on driving improvements to system resilience in the face of increased severe weather events, as well as other resilience driven investments such as mitigation measures against new cyber-attack threats.

It is necessary to move forward in a remuneration framework for regulated activities that guarantees adequate remuneration for the investments and maintenance operations necessary to strengthen and adapt the networks to the extreme situations that will occur more frequently in the future and guarantee the security of these infrastructures in the face of such adverse weather events.

Eurelectric pursues in all its activities the application of the following sustainable development values:

Economic Development

- Growth, added-value, efficiency

Environmental Leadership

- Commitment, innovation, pro-activeness

Social Responsibility

- Transparency, ethics, accountability



Union of the Electricity Industry - Eurelectric aisbl
Boulevard de l'Impératrice, 66 – bte 2 - 1000 Brussels, Belgium
Tel: + 32 2 515 10 00 - VAT: BE 0462 679 112 • www.eurelectric.org
EU Transparency Register number: [4271427696-87](https://ec.europa.eu/transparency/regexp1/?table=INITIATIVES&id=4271427696-87)