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Climate proof Europe's power grid

currENT'S SEVEN RECOMMENDATIONS TO POLICY MAKERS - SUMMARY VERSION

CURRENT
Enabling Network Technology throughout Europe

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Introduction

Our vision is a European power network that is the recognised world leader in enabling decarbonisation through the efficient use of modern grid technology.

We believe that renewable generation, coupled with electrification, is the 'first order' solution for the economic decarbonisation of Europe.

Renewable-based electricity solutions can meet, by 2050, more than 70% of our total energy needs. As to make the 'can do' a 'will do' we need powerful climate proof power grids. Such grids are possible already today.

Power networks – both transmission and distribution – have to become even stronger enablers and accelerators of the energy transition.

currENT members offer solutions that climate proof existing power networks and add innovative elements to the new ones that are yet to be built. Power networks can be optimised and reinforced through our innovative solutions, and additional networks can start off with the latest state of the art technology.

Our seven recommendations to policy makers

Regulation of electricity network companies plays a key role in enabling the energy transition, and achieving the ambitious global targets set out in the European Green Deal.

currENT, launched in June 2020, encourages policy makers both at European and national levels, but also network operators and regulators to adopt the following seven recommendations. These recommendations will enable a framework that supports the uptake of new solutions in Europe's power networks.

1. Align regulation with European long term (2050) energy, climate and social policy

There are many regulatory measures and changes planned for 2020 on innovation in power grids: from the Offshore Communication, to the Smart Grid Indicator, to the revision of the TEN-E Regulation. It is critical that these regulatory measures are aligned with one another, and with top-level energy-, climate- and social policy in order to deliver on our one common goal: The European Green Deal.

We want to see an approach that considers what needs to be achieved over the coming decades to ensure that we reach climate neutrality by 2050. This approach involves looking back from the future and answering the questions:

- What technologies are best suited to deliver the Green Deal and Europe's climate neutrality?
- How can regulation facilitate their introduction and implementation at scale?

2. Accelerate near-term investments that future proof and strengthen resilience of power grids

Power networks must not delay Europe's green recovery from the unprecedented COVID-19 crisis. Climate-proof investments in power networks must continue to take place, and the deployment of renewables and use of next generation solutions must be accelerated.

Rapidly deployable solutions enable network operators to quickly adapt to the changing needs of their grid, and maintain a high standard of security of supply in a cost effective and sustainable way.

These solutions can lead to the quicker release of additional capacity on the existing network, and can often be re-deployed, giving greater long-term flexibility to network operators and increasing the robustness of grids against future uncertainties.

Furthermore, solutions that provide support to maintain grid stability and increase overall observability can enhance the preparedness of European power grids towards risks such as climate change and cybersecurity, thus strengthening the resilience of the network as a whole.

Regulation must support the use of these solutions across the European grid.

3. Optimise existing grids and build new ones where needed

Today, new grid investments are often made before the capacity on the existing grid is fully utilised. Building new grids requires large amounts of capital investment, and typically takes many years to consent and develop due to public opposition and administrative hurdles. In this way, grids can become a major bottleneck for the energy transition, rather than an enabler.

Regulation must support the optimisation and reinforcement of existing grids as a first step, like the NOVA Principle in Germany[1]. New grid technologies can enable network operators to maximise the capacity on the existing grid, minimise constraint costs, and create more flexibility on the network. Utilising this existing capacity can deliver earlier benefits to consumers and in some cases even defer or eliminate the need for new infrastructure.

Where the existing network is insufficient or non-existent (e.g. offshore grids), investments should be directed towards those infrastructure projects/new corridors that are identified in a pan-European decarbonisation roadmap as being critical to delivering on the EU Green Deal.

4. Use Social Cost Benefit Analysis when assessing power network investments

The current Cost Benefit Analysis (CBA) applied to most network projects is insufficient[2]. A CBA should capture the full societal impact of a project, not just the monetary costs and benefits. The Social CBA (SCBA) already in use for Projects of Common Interest (PCIs) could be further improved to capture the value of the below listed factors, and introduced as a mandatory requirement for all cross border and national projects over a certain threshold:

- Support for the achievement of policy objectives (e.g. the Green Deal)
- Flexibility of the solution (its capability to adapt to changing situations)
- Deliverability of solution and risk of delays
- Disruption to the environment and communities by the works required to deliver the project
- Benefits of early delivery.

While in most cases the SCBA is the best approach, it must be recognised that there are some exceptions. For example, for offshore grid projects where it may not often be possible to accurately calculate the benefits until the allocation/scale of offshore wind generation and associated network is planned and some anticipatory investment with reference to a plan will be required.

[1] https://www.transnetbw.com/en/world-of-energy/nova-principle

[2] 2019 Copenhagen Infrastructure Forum https://ec.europa.eu/info/events/energy-infrastructure-forum-2019-2019-may-23_en

5. Increase transparency in network development and operational procedures

Increased transparency and consultation on network development and operational procedures enables industry stakeholders to share their knowledge and perspective, by identifying and proposing improvements to existing plans. This facilitates the selection of better solutions for all of society. Transparency is central to ensuring that new technologies are fairly considered, evaluated and ultimately taken up if the best solution. This transparency is also critical to ensuring that the learnings and best practices of innovation projects are shared with the wider energy community, thus avoiding wasting money and resources on duplicating pilots of already proven technologies.

6. Opt for an output-based regulatory approach, and incentives and obligations for license holders to trial and implement new technologies

Several assessments of European and national regulatory frameworks, such as the Ecorys et al 2019 report[3], challenge the cost-based regulatory models commonly used across Europe. Such assessments see these regulatory models creating a bias towards large CAPEX investments that is hampering the uptake of less capital-intensive alternative solutions. The CAPEX bias can be lessened through taking a more output-based approach to regulation, where the focus is on the target outcomes of network investments rather than the type of solution. This should also be applied to investments in innovation to enable the wider energy industry to take a more active role in developing and implementing new solutions. This approach needs to be reinforced by output-based incentives that support greater investment in trialling new technologies and transitioning these technologies to Business As Usual (BAU) investments. However, incentives alone are not effective in creating change, and thus these incentives must be complemented by obligations.

7. Develop a structured, transparent, and collaborative approach to qualification of innovative solutions

Innovative solutions fall into different categories based on their technological readiness level (TRL). Regulatory frameworks must differentiate between these categories, as low TRL solutions may need to be piloted whereas mid or high TRL solutions have already been proven and thus the focus should be on implementing these solutions at scale.

In many countries, the uptake of new technologies is slow due to long pilot processes, low levels of shared learnings, and a lack of a structured process for adding new solutions to the technology toolbox. If it takes a long time to bring innovation to wide-scale implementation, there can be a high 'cost of delay' for society. To enable consumers to benefit from new technologies quicker, an accelerated process for qualifying new technologies should be introduced across Europe. This process would involve a greater sharing of learning between network companies to ensure that all consumers can ultimately benefit from the wealth of R&D, pilot projects and clean tech developments taking place in Europe.

[3] https://ec.europa.eu/info/publications/energy-infrastructure-forum-2019-background-papers_en