

## CONCEPT NOTE<sup>1</sup>

### Private high-level discussion on **Clean Power to fuel Europe's Green Deal**

5 November 2019, 5pm  
De Warande (Zinnerstraat 1, 1000 Brussels)

#### Format of the event

On 5 November 2019, Eurelectric and the OECD Round Table on Sustainable Development will bring together leading policy makers, senior business executives and high-level experts for a private, informal discussion on Clean Power to fuel Europe's Green Deal, covering pathways towards net zero emissions by 2050 and the enabling effective decarbonisation, innovation and just transition measures.

The Round Table provides a high-level 'safe place' to facilitate in-depth discussions on strategic policy issues in the broad environment field. This meeting is held under the Chatham House rule, with no media present, to encourage an uninhibited and lively exchange.

#### Agenda

17:00-17:30 Welcome

17:30-19:00 Keynote followed by discussion moderated by Connie Hedegaard

19:00-20:30 Dinner

#### Background information

##### **Clean Power to fuel Europe's Green Deal**

Europe's new leadership is set to shape a European Green Deal, which will represent an unprecedented opportunity to put in place a policy framework to deliver on the Paris Agreement, capable of promoting deep decarbonisation by seizing the economic and industrial opportunities it offers, and by ensuring its social inclusiveness.

Delivering on these ambitions requires an increase of the EU's contribution to the fight against climate change. Europe is set to become the first climate neutral continent in the world by 2050: With the finalisation of the Clean Energy for All Europeans Package and the European Commission's 2050 long-term strategy for a prosperous, modern, competitive and climate-neutral economy, new frameworks have recently been created.

The EU power sector is committed to play a vital role towards the long term goal as decarbonisation through electrification represents a historical occasion to modernise the EU's economy, revitalise its industry and ensure long-term growth and jobs. Public and private investments at major scale in clean energy and infrastructure will be needed as much as policy tools that can deliver decarbonisation in the most economically sound and societally acceptable way.

##### **Electrification as the key means to achieve decarbonisation**

Cost-effective decarbonisation is crucial if Europe is to remain competitive in the global market place, and the power sector is committed to leading this transition. In parallel, this would give the opportunity to the European manufacturing industry to acquire strong expertise in the field and lead the market. In the vision published in 2018, the European power sector made a pledge to become carbon neutral well before mid-century, taking into account different starting points of European member states and the commercial availability of key transition technologies.

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<sup>1</sup> The RTSD Concept Note does not reflect the views of the OECD Secretariat or its member countries. The RTSD is grateful to Eurelectric for their financial support. The Round Table on Sustainable Development is chaired by Connie Hedegaard, who served as European Commissioner for Climate Action during 2010-14, and is managed by Ziga Zarnic, Advisor in the OECD Office of the Secretary-General. The concept note and event organisation was prepared together with the Eurelectric team.

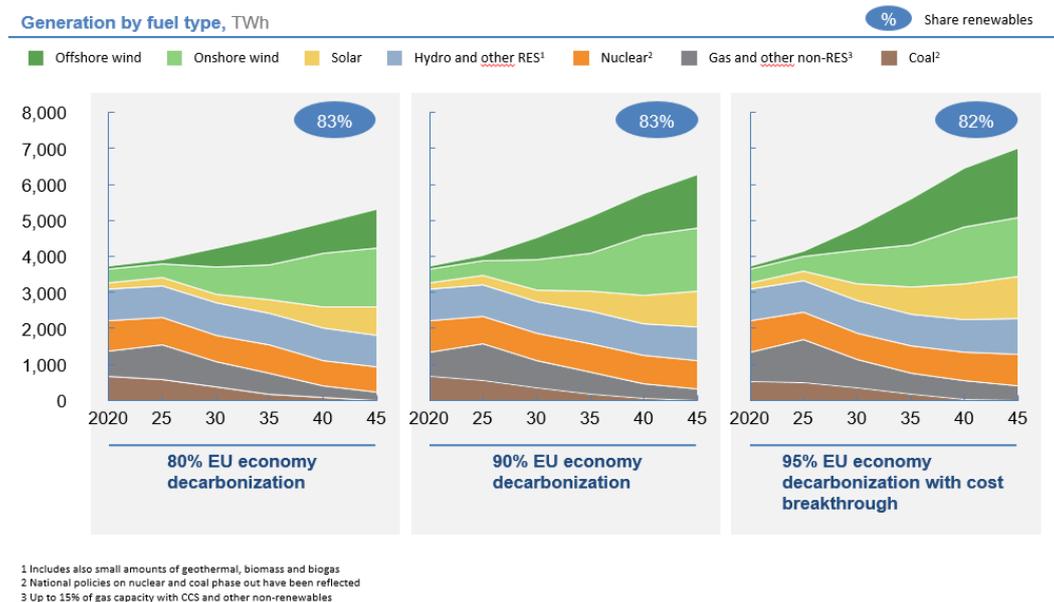
Efficient electrification is by far the most important solution to achieve decarbonisation, reducing GHG emissions in three ways:

1. Firstly, direct electrification enables a switch from emitting fuels to carbon neutral electricity from variable renewable sources such as solar and wind power, hydro and nuclear.
2. Secondly, direct electrification reduces total energy demand thanks to the higher efficiency of electric solutions compared to conventional solutions for most applications. For example, electric vehicles consume only 25% of the energy consumed by conventional vehicles. In space heating, the coefficient of performance of heat pumps is 4 to 5 times higher than the coefficient of performance for typical gas boilers.
3. Thirdly, via electric production of fuels such as hydrogen and power-to-X, indirect electrification can reduce emission in end uses where direct use of electricity is not appropriate, e.g. marine transport, aviation as well as selected industrial processes.

In short, electrification is a way to accelerate decarbonisation in other sectors of the economy in a cost-effective way. Least-cost energy systems that can achieve carbon neutrality are characterised by

- a very high penetration of renewables and high transmission build
- an increasing need for system balancing and flexibility provided by multiple sources (a system-wide shift from dispatchable generation to renewables require hour-to-hour as well as seasonal balancing to respond to the variability of production)
- a changing role of fossil generation (fossil energy supply will be gradually phased out)
- decreasing costs of carbon neutral technologies as well as innovation to develop technologies that can abate the last tons of CO<sub>2</sub> emissions.

**In the least-cost, carbon neutral electricity system, the bulk of electricity is provided by renewables and nuclear<sup>2</sup>**



### Significant investments required to reach carbon-neutrality

This transition will require very significant investments in carbon neutral power generation & transmission, storage, demand-side management, industrial and energy efficiency solutions, electro-mobility, low and medium voltage networks as well as the entire spectrum of smart grid solutions. The decarbonisation of the power sector by 2045 will in itself require at least 100bnEUR/year<sup>2</sup> of investments in generation and storage. The electricity sector is ready to play a leading role in these investments. In addition, consumers will have to undertake large investments in electrification of households and businesses. In this context, the Clean Energy Package is a major step forward but it fails to deliver a definitive solution to the problem of providing long-term investment signals to achieve the energy transition cost-effectively while ensuring security of supply. Moreover, the CEP does not

<sup>2</sup> [Eurelectric, Decarbonisation Pathways, 2018](#)

address the main problem for final consumers: very high taxes, levies and inefficient grid tariff structure that hinder electrification and, hence, lead to an inefficient decarbonisation process.

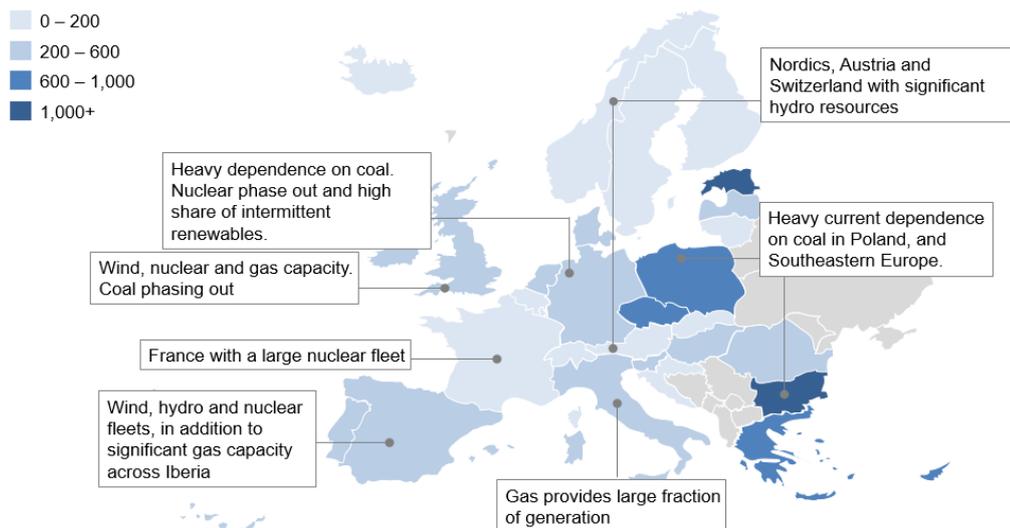
Overall, an efficient energy transition requires a consistent combination of market design, regulatory framework and energy policies. The whole market framework, including a strong EU Emissions Trading System (ETS) to provide an efficient carbon price signal, must be able to work and provide these investment signals to accelerate the energy transition. Markets, not only policies, should define the supply-demand balance. Commitment to a strong and stable ETS is necessary. More generally, a CO<sub>2</sub> price signal is also required to decarbonise transport, heating and other diffuse sectors. Political and regulatory risk remains the biggest problem for making long-term investments, including those made by small (including domestic) consumers.

### A clean, just and fair transition

The path and investments required to reach carbon neutrality of the power sector differ from country to country as the EU Member States have different generation mixes, a variety of available resources and market design specificities. These different starting points in terms of energy mix, economic situation and industrial activities require different pathways and levels of efforts across EU countries and regions.

Moreover, active involvement of citizens in a more decentralised power market will be a key enabler. This includes demand side response and self-generation, local energy communities, as well as increased social acceptance for high renewables build out and new transmission lines. Addressing taxes and levies in electricity to ensure fair competition between clean energy carriers will be a must to achieve consumers' uptake.

**European countries have different starting points in the energy transition<sup>2</sup>**  
 2015 carbon intensity of electricity<sup>1</sup>, kg CO<sub>2</sub>/MWh



<sup>1</sup> Refers to carbon intensity of domestic electricity production, i.e. does not take into account the carbon intensity of electricity mix consumed  
 SOURCE: Eurostat and national statistics

### Questions

1. What is holding back electrification? What are the main barriers and challenges?
2. What should Europe's Green Deal contain to overcome the inertia and speed up electrification?