NETWORK CODES
EVERYONE IS INVOLVED!

REGIONs

PAN-EUROPEAN

NATIONAL
WHAT ARE NETWORK CODES?

Network codes are the new technical rulebook of the European energy sector. They are secondary legislation (as opposed to directives, for instance) and address technical issues. They are, however, binding in all Member States. Codes are divided into three families:

>> Market Codes look at integrating markets and increasing competition as well as having more participation from renewables and consumers.

>> Connection Codes look at secure connections of more renewables and demand response.

>> Operational Codes look at optimising network use and streamlining practices in grid operation.

WHY DOES EUROPE NEED NETWORK CODES?

With the liberalisation of the energy sector and the energy transition, transmission (where high volumes of electricity are transported and traded) is a crucial part of the power system. The organisation of markets and transmission systems is complex and requires a lot of expertise.

To speed up market integration and the energy transition, in 2009, the EU tasked the newly created European transmission system operators for gas and electricity, ENTSOG and ENTSO-E, to draft technical codes.

The European Commission and ACER (the European Agency for the Cooperation of Energy Regulators) fixed the regulatory framework that the codes need to respect. The ENTSOs were also under obligation to regularly consult with stakeholders. The Member States approved the codes, and other EU institutions also gave the green light.
NETWORK CODES/GUIDELINES: The Foundations of the internal Energy Market

3 Connection Codes
Requirements for:
> Generators
> Demand side
> HVDC connections

...paving the way for offshore wind...

3 Market Codes
Rules for:
> Capacity Calculation
> Day ahead / Intraday
> Forwards
> Balancing

...market coupling...

2 Operational Codes
Rules for:
> System Operation
> Emergency Situations

...regional cooperation to increase security...
WHY SHOULD I BE INTERESTED IN NETWORK CODES?

You should be interested in network codes as they will enable more wind and solar energy, allow for more competition and integrate new market players such as groups of consumers.

If you are interested in where the power you use is coming from, how you could optimise your consumption, how to use more green energy or how to reduce your bills, those are all reasons to be interested in the European network codes.

HOW WILL I BENEFIT FROM NETWORK CODES?

Power markets need to be more integrated in Europe and must adapt to a new power system, help increase competition and be more sustainable, which includes lowering Europe’s carbon footprint.

By facilitating cross border trades and integrating new players as well as storage, demand response and renewables, the network codes contribute to decreasing electricity prices and carbon emissions.
WHAT MATTERS TO ME IS TO HAVE ELECTRICITY WHENEVER I NEED IT. WHAT DO NETWORK CODES DO ABOUT THAT?

By harmonising how grids operate across Europe and by developing tools for closer grid coordination, network codes contribute to making the best use of our power network. This not only means reduced grid costs but also increased security of supply.

Indeed, through the codes, all grid operators will apply state-of-the-art processes and will be able to help one another even more. With more variable generations such as wind and solar, this is a great benefit for the security of supply.

WILL THE CODES GIVE ME MORE CONTROL OVER MY POWER USAGE?

Putting the consumer in the driver seat will require many additional steps, but the codes at least create the first step to develop demand response. This way, consumers can value their flexibility, for example, through aggregators, and become more active if this is what they wish to do.
BENEFITS FOR INTERNAL ENERGY MARKET & CONSUMERS

Sustainability

Connection codes will ease the integration of 260 GW of PV & wind and more than 11 GW of demand-side response across Europe.

Security of supply

The operational code will allow to maintain security of supply through increased cooperation of grid operators.
MAGNETIC MARKET & CONSUMERS

Competitiveness & Social Welfare

> 23 countries in day-ahead market coupling
> 1 billion € increase in social welfare with market coupling and 80% already achieved
> +/-120 TWh of power are exchanged in intraday markets each year. With the market codes and continuous trading this will double by 2020
> 10 million of market data published each year on ENTSO-E website
WHAT IS IN IT FOR EUROPEAN COMPANIES?

The reduction in electricity costs that the codes will enable will boost Europe’s competitiveness. Furthermore, by setting rules for connecting large renewable plants to the grid or demand response, the codes help develop the green economy.

WILL OUR GRID BECOME SMARTER WITH THE CODES?

Implementation of codes will also lead to the development of new tools, new software and new technology to optimise the use of the generation and of the network. The codes are not only a basis for Europe’s energy transition, they also contribute to the electricity sector’s fourth industrial revolution – the digital revolution.

DO I NEED TO DO ANYTHING TO IMPLEMENT THE CODES?

At a household level,

>> if you want to get involved in a demand response programme,

>> if you want to invest in decentralised generation and produce electricity from solar panels/windmills or

>> if you want to value the use of your storage facilities such as your electric car battery,

you will need to do this through an intermediary. This intermediary must follow the technical requirements set in the codes.
WILL EUROPE DEVELOP MORE CODES IN THE FUTURE?

The energy transition is increasing the need for flexible services. The digitisation of the power system is raising questions regarding cybersecurity. We therefore expect that more codes will be needed to deal with technical issues at the EU level regarding distributed flexibility and cybersecurity.

HOW DO OTHER COUNTRIES LOOK AT EUROPE’S NETWORK CODES?

Europe is seen as a first mover in this sense, and other countries like the United States or Japan, or organisations like the IRENA (International Renewables Energy Agency), look at this and see what they can learn and implement for themselves. The ‘network codes made in Europe’ have a high potential to be copied elsewhere.