



Electrifying Europe's energy system with wind energy

The EU has committed itself to achieving climate neutrality by 2050. To meet this objective, the bulk of Europe's energy system will be electrified. Direct electrification, complemented by indirectly electrifying the hard-to-abate sectors, will be the most cost-effective and energy efficient way of cutting energy sector emissions to net zero. Electric City 2021 will gather all actors involved in delivering this fundamental transition of Europe's energy system.



The report shows that industry could directly electrify 76% of heat and power by 2050. The report further finds that direct electrification will be the preferred solution for individual road transport, short distance shipping, rail and large parts of heating. And initial progress is being made in electrifying commercial road transport and aviation.

As a result, the demand for electricity in the EU is set to increase almost threefold to 6,800 TWh per year by 2050. Overall, we're expected to go from one quarter to three quarters of electricity in the EU energy system.

Aside from the 57% direct electrification, another 18% of final energy use will be electrified indirectly through renewable hydrogen and its derivatives. Renewable hydrogen will only be used in hard-to-abate sectors where direct electrification is either technically impossible or too expensive. In all other sectors direct electrification will be the preferred decarbonisation strategy.

But crucially, most of this transition will be powered by renewable energy sources. The growth of renewables and electrification won't be mutually exclusive, one will complement the other. Only if the electricity that will power the heat pumps in Europe's and fuel Europe's electric cars comes from renewable sources, electrification can effectively reduce carbon emissions.

The European Commission expects renewables to provide the vast majority of electricity in 2050. Wind energy will be the number one source of electricity shortly after 2025, supplying 25% of the EU's electricity needs. By 2050 it will even supply half of the EU electricity mix; with onshore wind remaining the bulk of installed wind energy capacity.

For electrification to succeed, we will need to approach it with an open mind and an appetite for new partnerships. That's the starting point for Electric City 2021. The event is more than the leading on- and offshore wind energy conference. It gathers new partners on the transition to an electric energy system.

Exhibitors and participants come from heavy industry, mobility, district and domestic heating, energy storage, hybrids, hydrogen, grids and more. Cross-sectoral cooperation won't just be an aspect of the event, it will be part of the central message.

And the wind industry does not have a hard time, convincing these players to come to Copenhagen for Electric City 2021. The demand for electrification and renewables is growing steadily. Back in the days the energy-intensive industries were sceptical about the reliability of wind energy. Today they embrace the transition to cheap and clean renewables.

For the wind industry, this means new voices at the conference, debating changes we need

Europe has set itself ambitious climate targets for 2030: 55% reduction in greenhouse gas emissions from 1990 levels. And wind will be at the heart of this; it's expected to become Europe's leading source of electricity shortly after 2025.

At Electric City 2021, WindEurope's annual onshore and offshore wind event in Copenhagen on 23-25 November, representatives from the wind industry and beyond will be coming together to break new ground. 2030 is around the corner; Electric City 2021 is an important opportunity to lay the foundations of Europe's electrified future.

Before we look at the event itself, we need to put it in the wider context of European energy policy. For the EU to reach its stated goals of climate neutrality by 2050, the EU will need to abate the 3.5 Giga tonnes of CO₂ equivalent it emits per year today.

Energy use of various kinds is responsible for around three quarters of these emissions.

Transport, buildings and industry are each responsible for approximately 30% of energy-related CO₂ emissions. It is these sectors that need to decarbonise if we want to see substantial progress towards the net zero target.

So how can electrification make a difference here? As it stands, electricity accounts for only a quarter of the energy consumed by industry, transport and buildings in Europe. But there is great news: already today most sectors in the EU economy could electrify their power and heating needs with established and commercially available technologies.

The European Commission says direct electrification should cover at least 30% of final energy demand by 2030 and at least 57% by 2050. A recently published report by the European Technology and Innovation Platform on Wind Energy (ETIPWind), which portrays a net zero energy system in Europe by 2050, is keen to stress this point.

in policy, business models and technology to deliver the transition.

It means new business partners and customers on the exhibition floor, including people who haven't engaged with wind before, but now want to.

It means a unique event with a diverse programme covering every aspect of electrification, demonstrations of new technologies, new thinking and new relationships to power the energy transition, and Europe's Green Deal.

At the same time, the onsite conference and exhibition in Copenhagen will be a key milestone for the wind industry. A chance, after two years of restrictions, to re-connect and get up to speed on everything that is going on in wind energy across Europe. Copenhagen has recently been named the safest city in Europe.

The Danish Covid-regulations will allow for full exhibition halls and lively side and networking events. And if recent in-person events have shown anything, it's that they are ideal both for the atmosphere and for ease of doing business.

So what's on the agenda? The Electric City 2021 Conference Programme touches on crucial aspects of the electrification debate, particularly the future stumbling-blocks. Strengthening grid infrastructure, energy system flexibility, simplifying permitting procedures for renewable energy projects, concerns around cybersecurity, improving wind turbine circularity, electrification solutions for corporate consumers and much more. A chance to get our heads around future challenges ahead of time, and a chance to tackle them head-on while we can.

But there will be much more beside the Conference and the Plenary Sessions. A topic



as all-encompassing as electrification can't be approached with broad strokes. Electric City 2021 will also have dedicated Feature Areas onsite, an Innovation Park showcasing cutting-edge start-ups. A Safety, Skills and Training Zone for leaders in all aspects of health and safety. And Global Markets Theatre showcasing emerging markets for renewables across the globe.

And the attendee roster is extensive. Ten government ministers from across Europe, as well as figures from industry, finance, academia and R&I, all leaders in their respective fields with an expertise to bring to this debate.

And Electric City 2021 has over 360 exhibitors in its specialised Exhibitors Hall,

including some of the biggest movers and shakers in European wind, eager to meet, share knowledge and do business. All told, WindEurope is expecting more than 8,000 participants from across Europe and beyond to join the event in Copenhagen over the three days.

What about the venue? Denmark has lifted all its restrictions. The recently-renovated Bella Center in Copenhagen has already hosted a number of safe events in recent months. WindEurope and the Danish hosts have put together a comprehensive health and safety protocol for the event, drawn up with the Danish authorities and leading exhibitors. The organisers promise to do their utmost to ensure a responsible and enjoyable event for all participants.

One new fresh idea or perspective is all it could take to determine Europe's electrification journey. Electric City 2021 will offer many of them, with the European Union's Fit-for-55 package and the momentum of COP26, there is so much to discuss. But the fresh the perspectives, the better.

www.windeurope.org/ElectricCity2021/



About Electric City 2021

Registration for Electric City 2021 is open now. WindEurope's annual onshore and offshore wind conference and exhibition will take place in Copenhagen on 23-25 November.

The event is hosted in collaboration with WindDenmark and supported by the three official event ambassador companies Ørsted, Royal Dutch Shell and Vestas Wind Systems.