

An EU industrial strategy towards climate neutrality¹

Key takeaways from an Ifri/InnoEnergy high-level conference

November 2019

The EU energy and climate policies are at a turning point. There is a new push to both accelerate and deepen the low carbon energy transition, and the EU green deal could be presented in the coming days.

Several industry leaders, policymakers, analysts and investors gathered on November 21, 2019 in Brussels to discuss and share their recommendations for a European industrial strategy for low carbon technologies.

Ifri's Energy and Climate center director Marc-Antoine Eyl-Mazzega, and head of EU energy and climate policies, Carole Mathieu, collated key analyses and recommendations throughout the day of high-level discussions

Pursuing climate neutrality will lead to replacing quantitative growth by qualitative growth. This is a huge potential win for the EU economy as it will decarbonize while creating new economic opportunities and improving citizens' well-being.

The drive towards climate neutrality will help create new jobs, offsetting job destruction from high-emitting sectors or from transformation related to the third industrial revolution. While an immense effort will be devoted to the success of each of the EU member state's domestic transition, a robust external strategy will be paramount to complement these efforts.

1. This report was prepared by Marc-Antoine Eyl-Mazzega, Director, Ifri's Energy & Climate Center and Carole Mathieu, Head of EU Energy Policies, Ifri's Energy & Climate Center.

The adoption of the climate neutrality target and enhancement of the 2030 emissions reduction objective could also stimulate global momentum for an upward revision of climate commitments (NDCs) ahead of the US presidential election and COP-26. In the event the EU's trading partners refuse to contribute to global mitigation efforts, the introduction of carbon border tax adjustments could be explored as a last resort option. Yet life-circle carbon environment footprints should become standard in EU procurements and will secure a localization of the production of low carbon technologies and related jobs on the EU territory.

Keeping control over value chains, supporting European industrial champions in the field of low carbon energy technologies and smart/digital systems, and ensuring technology sovereignty should be key objectives of an indispensable EU industrial strategy for climate neutrality.

An additional 200 billion euro investments per year are needed and the EU is preparing a 1 trillion euro investment package by 2030. The energy and economic transition must be fair. Technology neutral approaches are a condition for efficiency and acceptance. No stakeholder must be demonized or left vulnerable. All forces, stakeholders, sectors, policies must be mobilized. Predictable and prescriptive regulation will be needed alongside private sector investments and behavioural changes. Stakeholder coordination at the vertical and horizontal level will be essential, especially in regions and territories that should be empowered to define and implement the most relevant strategies for structural change.

Reaching climate neutrality is not a jump in the unknown since many policies and instruments are already in place. They must be fully implemented and accelerating measures need to be taken. Most technologies are available and need to be scaled up to reduce deployment costs. EU support mechanisms such as Horizon Europe, the Innovation Fund, the European Fund for Strategic Investments, IPCEI schemes will play a crucial role, alongside the European Investment Bank's strategic support.

We still have to develop the most cost efficient and secure systems. Priorities include:

Improve energy efficiency

The energy efficiency potential is still very large and member countries are not on track to meet their targets. Priorities include doubling efforts on building retrofits, enhancing building standards and implementation for new builds, adapting training and education of construction industry professionals to latest building energy consumption modelling softwares, ensuring high quality installation jobs at housing level and monitoring the progress achieved.

Electrify end-uses while managing grid and flexibility pressures

Electricity covers 25% of end-uses and this rate must double a minima by 2050. But it comes with challenges that must be weighted and addressed. These include managing rising peak loads and flexibility requirements, the need to massively and rapidly expand renewable energy sources and power grids, avoiding overinvestment into grids and generation capacities, making best use of the other existing infrastructures (gas notably) to avoid sunk cost. Smart sector integration is a solution to be explored and its potential will be assessed in a forthcoming study from the European Commission.

Residential heating must be largely electrified (notably through heat pumps) and complemented by isolation works and battery solutions to mitigate peak loads. Demand side management strategies will also play an increasingly important role and additional tools for managing peak loads such as small hydrogen or biomethane boilers could also be used.

Transmission and distribution grids will be essential and will have to be expanded and best designed to accommodate: future needs stemming from higher demand, new generation and flexibility requirements; vehicle charging needs and decentralized generation (distribution level); the new geography of low carbon electricity production such as in the North Sea. Governments will need to retain the ability to impose priority projects even when resisted, provided that fair compensation or interest-based measures are included.

EU gas demand represents the equivalent of 5000 TWh, more than current electricity demand, and replacing it with electricity will require investment and infrastructure at an unrealistic scale (over 7000 TWh of electricity if it is to be replaced with hydrogen from electrolysis). There is a need to look at how to optimize the decarbonation of gas and adapt the existing gas infrastructure in the most cost-efficient way. The challenge is that the electrification process will involve many stakeholders that will have to coordinate and act strategically in a cross-sectoral approach, whereas the current regulatory framework is pushing for unbundled activities. This discrepancy may require a revision of the institutional setting.

Invest in the electricity sector: the market design and carbon price as drivers

About 100 additional billion euro per year will have to be invested into electricity generation and transmission. Storage investments will also be increasingly needed, and stationary battery storage —aggregated and at housing or communities level — will play a growing role alongside traditional hydro and interconnections.

This requires strengthening carbon pricing mechanisms. Carbon market reforms

should be pursued to deliver adequate price levels: reduce the total quantity of allowances issued annually faster, strengthen the market stability reserve and take due account of the phase-outs of carbon intensive generation capacities. A carbon price floor for power generation that would guarantee the stability of carbon prices would be a needed complement to lower financing costs for low-carbon investments.

The role of TSOs will also have to be reconsidered notably to set an efficient framework for storage investment. Hybrid models, partly regulated partly competitive, could be laid out. Last but not least, the market design would need to be adapted as the more renewables with low marginal cost production and the less fossil fuel power generation capacities will be in the mix, the greater the market price failures will be. Smart capacity markets with long term contracts and rewarding supply security (power supply availability in all circumstances) are a solution.

Ramp up wind and solar deployment

Record amounts of solar capacity were installed in 2019, while wind has dramatically slowed down in Germany where thousands of jobs were lost. In contrast, the UK's government has committed to a steady auction of 2 GW of offshore wind, stabilizing the market.

Onshore and offshore wind, alongside solar deployment will have to substantially increase to decarbonize the power generation and transportation sectors. Social resistance is rising and slowing down projects' development rates. The key is to engage local communities and give them shareholder rights, empower supporters, address concerns, develop local infrastructure and address decommissioning issues.

Promote and invest in skills

Skills development must be addressed aggressively to ensure that the transition towards climate neutrality is not slowed down by a lack of skilled labour.

Skills related to digital services and processes are playing a growing role in increasingly automated factories. High-tech competences need to be developed alongside capacities to reskill workforce from a crisis-hit sector to the new low carbon sectors — it takes six months to reskill a coal worker to a wind installer.

Beyond ensuring that the transition has a net positive impact on jobs, the focus should be on creating high-quality jobs covering both the downstream and upstream parts of the low-carbon value chains.

Ensuring a steady and predictable implementation of renewable deployment targets is also crucial to avoid drastic and sudden job cuts in these emerging industries. Another major challenge will be to address gender imbalances in the men-dominated IT and

energy industries.

Weight the source of supply and end use of decarbonized hydrogen

Low carbon hydrogen will be needed to decarbonize several energy-intensive industries by 2030 onwards and possibly also in the transport and electricity sectors but one needs to carefully weight its source of supply and end use. It is currently 2.5 times more expensive than the current gas-based hydrogen. It will primarily be needed as feedstock for industrial processes and for refineries, which currently consume most of the hydrogen produced. It is important to note electricity can also ensure high temperatures.

Power to gas solutions (to meet interseasonal demand needs remains more uncertain due to the inefficiency of electrolyses, the need for large, continued and cheap electricity generation and supply infrastructure, the difficulty to monetize heat, and the uncertainty over the actual seasonal storage demand by 2040.

Decarbonized hydrogen will however be possibly produced by pyrolysis where carbon black will be reused, alongside electrolysis of renewable power. Blending biomethane and hydrogen into parts of the gas grids will also be possible so that partial use of the existing gas infrastructure will continue. Scaling up pilot projects is key. Contracts for difference combined with border adjustments could help create a market for green hydrogen.

Develop and expand sustainable battery production and recycling

The battery alliance has been a major initiative that must be further developed and expanded to other sectors.

Since the battery directive only allows revision by 2023, this is hindering the start of a serious mobile battery collection and recycling effort including precise targets for each metals for another five years. This will deprive the EU of a large cobalt collection opportunity. An accelerated revision mechanism could be needed as car battery recycling standards and industry facilities will take three years to develop after the directive revision when other countries can already take a lead.

Likewise, the EU must quickly define common standards to evaluate the environmental footprint of EV battery manufacturing processes. Moreover, it should consider introducing a bonus/malus system to favour “green batteries” over those with a higher environmental impact.

Scale up sustainable finance

ESG reporting and criteria are increasingly driving investment decision. Climate and environmental footprints are not yet factored into the market evaluation of companies but investors and banks increasingly ask questions – especially those who have committed to end support to fossil fuel projects.

Green bonds are taking off. Sustainability performance indicators are increasingly used in bank's lending policies, rewarding or sanctioning performance. The ECB will adapt its credit policy for carbon screening. Cities are setting up climate funds. While climate is already a strong focus of the EIB, its new energy-lending policy goes a step further by excluding fossil fuel projects as of 2021, increasing the share of lending dedicated to climate action from 1/3rd to 50%, and favouring investments in energy efficiency, renewables, decentralized solutions and grids.

The establishment of the EU taxonomy system currently undergoing the trilogue process is another crucial step as it will help qualify sustainable activities and facilitate decision-making by investors and asset managers. The only relevant approach is to take a look at the entire value chains of the low-carbon solutions and, for instance, remain open to mining investments as it is becoming clear the transition will be mineral-intensive.

To scale up sustainable finance, key issues will need to be addressed:

- How to avoid that entire not totally green sectors get less access to finance and fall into dependency on non-EU stakeholders?
- How to adjust green standards depending on the location of investment projects?
- How to fix the mismatch between the need to finance capital intensive projects with long payback periods and the fact that market and technology perspectives are uncertain?
- How to standardize the definitions of green bonds beyond the EU?
- How to ensure a convergence of rating agencies in the way they assess environment footprints?
- How to put start-ups in touch at the right time with the sustainable finance opportunities?
- How to ensure funding is available for the needed scale-up of innovation, to avoid that companies die after having developed a patent?
- How to ensure that risky innovation and emerging technologies receive the funding for innovation and test pilots?

This conference was held by Ifri, the French Institute of International Relations in partnership with EIT InnoEnergy. Speakers included Hans van Steen, Director, DG Energy, European Commission, Pascal Canfin, Chair of ENVI committee, European Parliament, Marc N ezet, Senior Vice-President Innovation, Schneider Electric,  yvind Vessia, Head of European Affairs,  rsted, Jochen Hierl, Principal Adviser, European Investment Bank, Bertrand Piccard, Founder and Chairman, Solar Impulse Foundation and [many others](#). This summary does not aim to reflect exactly and fully the detailed presentations but to summarize main points and ideas voiced during the presentations and discussions.

Slides of different presentations are also available [here](#).

In 2019, Ifri is celebrating its 40th anniversary and has been ranked the world's second most influential think-tank (Upenn Index). Its Centre for Energy & Climate combines a unique expertise on energy markets, value chains and technologies, as well as the interplay between geopolitics and energy markets.