

Smart Sector Integration Strategy

Eurelectric recommendations

Eurelectric represents the interests of the electricity industry in Europe. Our work covers all major issues affecting our sector. Our members represent the electricity industry in over 30 European countries.

We cover the entire industry from electricity generation and markets to distribution networks and customer issues. We also have affiliates active on several other continents and business associates from a wide variety of sectors with a direct interest in the electricity industry.

We stand for

The vision of the European power sector is to enable and sustain:

- A vibrant competitive European economy, reliably powered by clean, carbon-neutral energy
- A smart, energy efficient and truly sustainable society for all citizens of Europe

We are committed to lead a cost-effective energy transition by:

investing in clean power generation and transition-enabling solutions, to reduce emissions and actively pursue efforts to become carbon-neutral well before mid-century, taking into account different starting points and commercial availability of key transition technologies;

transforming the energy system to make it more responsive, resilient and efficient. This includes increased use of renewable energy, digitalisation, demand side response and reinforcement of grids so they can function as platforms and enablers for customers, cities and communities;

accelerating the energy transition in other economic sectors by offering competitive electricity as a transformation tool for transport, heating and industry;

embedding sustainability in all parts of our value chain and take measures to support the transformation of existing assets towards a zero carbon society;

innovating to discover the cutting-edge business models and develop the breakthrough technologies that are indispensable to allow our industry to lead this transition.

Dépôt légal: D/2020/12.105/20

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Eurelectric recommendations for a smart Sector Integration Strategy

- 1. Fully align the ‘Smart Sector Integration Strategy’ with ambitious decarbonisation goals for 2030 and 2050**, with carbon-free electrification and energy efficiency recognised as the main drivers to remove carbon emissions in all sectors of the European economy.
- 2. Revamp energy taxation and tariffs to incentivise decarbonisation and electrification.** This can be done by removing unnecessary or undue taxes & levies on electricity, harmonising them across energy carriers as well as preventing distortions of grid tariffs for Power-to-X (e.g. Gas, Heat...). We also call for issuing country-specific recommendations on improved energy taxation under the European Semester.
- 3. Sectors which are not exposed to any carbon pricing (e.g. maritime transport) or an insufficient carbon pricing (e.g. individual heating, in some Member States) should be addressed either by extending the ETS scope or through other carbon pricing measures**, using the most efficient tool for each sector.
- 4. Identify best links between sectors through coordinated, cost-effective and future-proof infrastructure planning tools.** In a more decarbonised, decentralised and digitalised energy system, closer cooperation is required among all stakeholders (especially TSOs and DSOs) to anticipate possible futures of the electricity, heat and gas networks, supply & demand.
- 5. Ensure the adequacy of European investment plans and economic recovery programmes with the decarbonisation objectives.** Therefore, they should be based on sustainable & green growth while, at the same time, support and accelerate electrification & smart sector integration by targeting investment in critical technologies – RES, digitalisation, EV charging infrastructure, storage, heat pumps including industrial ones for electrification of district heating systems, electric distribution grids.
- 6. Include cross-sectoral interactions and new flexibility solutions into a comprehensive European framework that remains technology open.** A smart Sector Integration should identify the most cost-efficient emissions reduction policies and establish clear rules allowing Power-to-X solutions (district heating, hydrogen...) generated from RES respecting the additionality principle stated in the Renewable Energy Directive (RED II) or from otherwise curtailed RES to count as renewable under that Directive. Different flexibility solutions (Power-to-X, demand-side response including V2G, generation) should compete on a level-playing field.
- 7. Maintain leadership and market-based approach in the development of key emerging technologies coming from electricity and gas sector coupling (such as electrolytic hydrogen)**, consolidated through a clear classification of decarbonised & renewable gases and an updated gas market design suited for cost-effective decarbonisation. For instance, Power-to-Gas plants, alike gas-fired power plants, are facilities converting an energy carrier to another one which should not be carried out by regulated entities.

Creating positive synergies for a successful & smart Sector Integration

I- Introduction

The electricity industry, represented by Eurelectric, is committed to delivering a carbon neutral power supply for Europe well before 2050. **Electrification will make a key contribution to the decarbonisation of transport, buildings and industry.** To that end, we are transforming the energy system to make it more and more responsive, resilient and efficient. In addition, new partnerships with all the sectors of the economy are needed to efficiently reduce the carbon footprint.

Clear decarbonisation goals for 2030 and 2050 will drive joint efforts towards fighting climate change. Europe needs an ambitious smart sector integration strategy to:

- **Unlock all the system benefits resulting from positive synergies among sectors;**
- **Foster energy efficiency;**
- **Benefit from decarbonised and renewable energy sources across the economy.**

By integrating different sectors, Europe will facilitate the use of clean and carbon-neutral power supply to decarbonise efficiently transport, industry and heating & cooling. In other words, **through a coherent sector integration plan, the European Union can make the best use of a decarbonised energy system to reach the climate objectives.**

II- Guiding principles for better integrated sectors

The Green Deal reflects the strong commitments of the European Commission to support the ambition of a net-zero economy by 2050. Eurelectric has previously presented the [key enablers](#) that should support this ambition. Among them, a smart sector integration will greatly contribute to reducing the carbon footprint. In addition to creating an adequate framework for cross-sectoral dialogue, the strategy promoting such a vision should respect the following principles:

✓ A clear decarbonisation pathway

Predictable, stable and market-based frameworks is needed to ensure the necessary investments for a clean and cost-efficient transition. To this end, Eurelectric supports clear decarbonisation objectives at the European level: a GHG emission reduction target of up to 55% by 2030 and the long-term objective of carbon neutrality by mid-century. In addition to the objectives set-out in the Climate Law proposals, we call for the identification of the most cost-efficient emission reduction policies, based on National Energy and Climate Plans as well as energy demand & supply forecasts aligned with the objectives of the Paris Agreement.

- ✓ **Carbon neutral electricity, in particular renewables, and electrification at the heart of the future energy system**

As demonstrated by the European Commission's long-term scenarios, a carbon neutral power system will be dominated by renewable energy sources, which would [represent more than 80% of the electricity mix by 2045](#), complemented by other carbon neutral sources. The transition of the entire energy system will rely notably on the wide-spread use of decarbonised electricity, driven by direct electrification of end-user. In this highly-renewables powered future, Power-to-X technologies, for instance, can transform the surplus of green electricity into additional energy carriers (offering carbon-free solutions for hard-to-electrify sectors) or contribute to storage options, especially long-term and seasonal ones (providing additional flexibility tools to the energy system as a whole).

- ✓ **A transition amplified by an ambitious energy efficiency policy**

A successful and cost-effective transition relies on using energy in a more efficient way. The EU should maintain a high energy efficiency ambition to reduce the carbon footprint in all sectors by promoting reliable carbon-free technologies and by developing innovative services as well as electric solutions through the use of the most energy-efficient vector. The Smart Sector Integration Strategy is an opportunity to strengthen the energy efficiency ambition through the value chain of all sectors.

- ✓ **Additional flexibility for system stability**

The transition to a carbon-neutral power system will result in important needs for system balancing and flexibility provided by multiple sources (from inside and outside the electricity sector such as batteries, pumped storage, V2G or hydrogen). A comprehensive Sector Integration Strategy should tackle the different options available in a short, medium and long term.

- ✓ **Increased ambition with enhanced synergies**

A comprehensive Sector Integration would urge the stakeholders to move away from a silo thinking. In addition to physically connecting the different sectors, the Strategy should improve cooperation and dialogue among sectors and review the energy governance.

- ✓ **Leaving no one behind**

European policies need to effectively support the countries, regions, industrial sectors, technologies, workers and consumers that will be the most affected, in line with the “no one left behind” principle as described by President Von der Leyen.

III– Decarbonising all sectors: the way forward

➔ A CARBON FREE ENERGY SYSTEM

Electrification will drive the decarbonisation of the European economy, as reflected by the various long-term forecasts. To allow for a cost-efficient transition in all sectors while keeping the lights on, such a system-wide shift will see a significant increase of variable generation. This will also require firm, dispatchable and flexible carbon-neutral and low-carbon capacity to ensure security of supply. To support this:

- A swift and rigorous implementation of the Clean Energy Package is a must.
- A strong EU ETS would deliver the most cost-efficient emission reductions in the sectors covered and should be the core instrument.
- Regulation should remain technology open.
- To deliver on this ambition, we need to address the issue of permitting and public awareness with regard to the deployment of clean technologies and electricity networks.

Best practices are shared every day by market players, providing concrete solutions to tackle the challenges ahead. A coherent sector integration will only be possible if the dialogue between sectors and sharing the best practices is improved. The electricity sector will continue to talk with other actors in order to identify the positive synergies with all the sectors with a view to implementing decarbonised solutions.

Power-to-Gas technologies, such as hydrogen produced with electrolyzers, will be needed in the long run even if technological and economic uncertainties remain. Reaching carbon neutrality by 2050 requires drastic changes in the way we generate, transport and consume energy. We are moving to a more decentralised, digitalised and decarbonised energy system where new types of interactions between electricity and gas sectors offer new perspectives. Therefore, the [coupling of electricity and gas sectors is a key link](#). In a highly renewables powered future, P2G and G2P will participate in balancing the networks and contribute to security of supply. That is why it is important, while preventing lock-in risks, to:

- Promote technologies that provide medium/long term flexibility (Power-to-Gas) by market players;
- Introduce new sector coupling technologies in a functioning market design;
- Develop a coordinated electricity and gas infrastructure planning based on cost-benefit analysis approach and avoiding the emergence of stranded assets.

➔ A RELIABLE ENERGY SYSTEM

Firstly, the taxation framework has to ensure a level playing field for all energy carriers. Today, electricity is subject to heavy taxation and imposed levies while the price gap between energy carriers on end-users bills has increased. Moreover, obsolete or unappropriated grid tariff design distorts competition among energy vectors.

Secondly, the European energy system has to be prepared for increasing shares of renewables in power generation and the phasing-out of fossil fuels. The main challenge of a decarbonised energy system is to provide flexibility from a very short to seasonal timeframes.

Storage. A level playing field for all technologies is needed to overcome all types of barriers, as storage and other flexibility assets will become increasingly important. This should also include Power-to-X technologies (such as Power-to-Gas and Power-to-Heat) and Vehicle-to-Grid (V2G), which can be a way to store renewable and carbon-neutral energy and to contribute to the flexibility needs and security of supply for energy systems. Those technologies can notably play a key role in delivering flexibility by storing otherwise curtailed power generation, before turning back to electricity for final use or consuming it in form of gaseous or thermal energy. Moreover, further market integration with larger interconnected electricity markets, instead of separated electricity markets is necessary to create new potential for any kind of flexibility products and a level playing field for flexibility facilities including storage in those markets.

Infrastructure. The electricity grid is evolving fast to transport growing shares of renewable electricity while ensuring balancing and flexibility for the entire energy system. Infrastructure planning investment tools (e.g. TYNDP) need to be aligned with the Paris Agreement objectives and ensure an appropriate framework between sectors (electricity and gas), as well as stakeholders (regulators, market participants, TSOs and DSOs). Moreover, a revised TEN-E Regulation, fully aligned with the EU energy and climate targets, should underpin the wider decarbonisation of the EU economy by driving 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.

➔ HEATING & COOLING

Today, heating and hot water alone account for 79% of total energy use of the EU households while heating and cooling account for almost half of the EU energy consumption. Moreover, 75% of heating and cooling is still generated from fossil fuels. Reducing the carbon-footprint of boilers and heating system while keeping them safe, affordable and efficient is a challenge. **With a flexible integration of energy and heat sectors, the EU can deliver an ambitious strategy with clear goals to decarbonise energy demand from heating & cooling.** Power-to-Heat technologies, including heat pumps, already exist and will support the implementation of an ambitious strategy with clear goals to decarbonise energy demand from heating and cooling, including based on integrated planning at local level. Heat pumps are already available to perform an efficient coupling and their development potential is huge.

Moreover, it is vital to ensure the effective implementation of the revised Energy Performance of Buildings Directive (EPBD) and shape an integrated strategy for new and existing buildings pulling together synergies for electrification, on-site renewables, energy efficiency and smart technologies.

→ TRANSPORT

Electrification of transport within an increasingly renewable electricity mix is the most effective, efficient and sustainable way to decarbonise this sector, reduce its dependence on unabated fossil fuels imports from outside Europe and eliminate air pollution.

Eurelectric encourages measures ensuring that decarbonised electricity is the favoured option for charging electric vehicles, especially in the Member States where CO₂ intensity of the energy mix remains relatively high. This possibility is already a reality as operators of charging points largely select decarbonised energy suppliers but it must be promoted further. This could be achieved via specific requirements in public tenders and green tariff plans on the basis of Guarantees of Origin or via Power Purchase Agreements (PPAs), for instance near ports. A specific call for cohesion among the Member States with a strengthened regional support for electrification of transport should be also considered. Moreover, smart charging and V2G as “Power-to-Transport technologies” are key to integrate renewables: vehicles is becoming a resource of system flexibility.

Eurelectric strongly advocates for the implementation of smart charging in order to optimise the charging process and reduce costs for grid extensions. As shown by many studies and pilot projects and beginning large scale evidence, **the impact of electric mobility on the power system can largely be handled if a smart management of charging periods is implemented**. Regarding public charging infrastructure, smart charging will mainly be needed for public charging in residential areas and cities where people may have no access to private charging points. If not well anticipated, simultaneous public charging of electric vehicles at peak hours would severely impact the grid and necessitate important grid reinforcement.

→ INDUSTRY

A series of industrial processes can technically be electrified with up to 50% direct electrification in 2050 (e.g. cement and ethylene sectors as well as industries supplied by fuel). **The relative competitiveness of electricity against other carbon-neutral fuels will be the critical driver for this shift**. Hydrogen and other carbon-neutral alternatives will also play a role and drive indirect electrification in hard-to-electrify sectors. For instance, the [Hybrit project](#) aims at replacing coking coal, traditionally needed for iron ore-based steel making, with fossil-free hydrogen. The EU-funded [H2FUTURE project](#) is aiming at generating green hydrogen from renewable electricity to decarbonise steel production and provide ancillary services to the grid. Moreover important projects of common European interest (IPCEI) on Hydrogen are currently being prepared, and will allow the decarbonisation of refineries and cement plants across Europe.

Eurelectric pursues in all its activities the application of the following sustainable development values:

Economic Development

- Growth, added-value, efficiency

Environmental Leadership

- Commitment, innovation, pro-activeness

Social Responsibility

- Transparency, ethics, accountability



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