POSITION PAPER

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EU Electrification: An Action Plan for boosting decarbonisation and competitiveness

Executive Summary

The broad-scale electrification of Europe is crucial for accelerating the climate transition, slashing Europe's dependence on energy imports and securing industrial competitiveness. Electrification thus also serves as the foundation of geopolitical autonomy and a more secure energy supply. The EU Electrification Action Plan is an opportunity to set the strategic objectives and concrete actions necessary to achieve these goals.

Unfortunately, for the past decade, electrification has been stagnating in Europe – just as other parts of the world have electrified their economies at an increasingly fast pace. High and volatile electricity prices, insufficient low-carbon electricity supply, and unclear political signals have acted as major barriers that have been slowing down electrification.

The technology industries represented by Orgalim want **an Action Plan that creates the right market conditions for investments to electrify industry processes** and expand the electricity system to deliver stable and competitive low-carbon electricity and manage growing demand sustainably Achieving this requires urgent, coordinated action on multiple fronts:

- **Role of policymakers**: European policymakers must deliver clear, consistent, and long-term policy signals to build industry confidence and drive investments in clean technologies.
- **Energy prices and electricity market design**: Reduce taxes and levies on electricity to restore industrial competitiveness and accelerate electrification**.** Electricity market design and network tariff structures must actively support increased electrification of end-use sectors and work together to incentivise investment and efficiency.
- **Infrastructure**: Upgrade and digitalise electrical grids to accommodate increased demand and integrate renewable energy sources.
- **Investments**: Substantial investments are needed in grid infrastructure, electricity supply and industry facilities. Public funding should focus on de-risking innovative projects while maintaining the level playing field within Europe.
- **Energy demand**: Harness surging electricity consumption with the deployment of energy efficient solutions.
- **Electrification technologies**: Support the development and manufacturing of electrification technologies and promote their deployment.

Introduction

Orgalim members are global leaders in energy and resource efficiency, automation and circularity technologies. Our sector's companies are committed to the EU decarbonisation objective and strive to transform the manufacturing industry towards electrification wherever this is the most effective way to do so. As both suppliers of electrification and energy efficiency solutions for the industry, and consumers of energy for their production, the technology industries are at the core of the equation for making electrification a success for Europe's future.

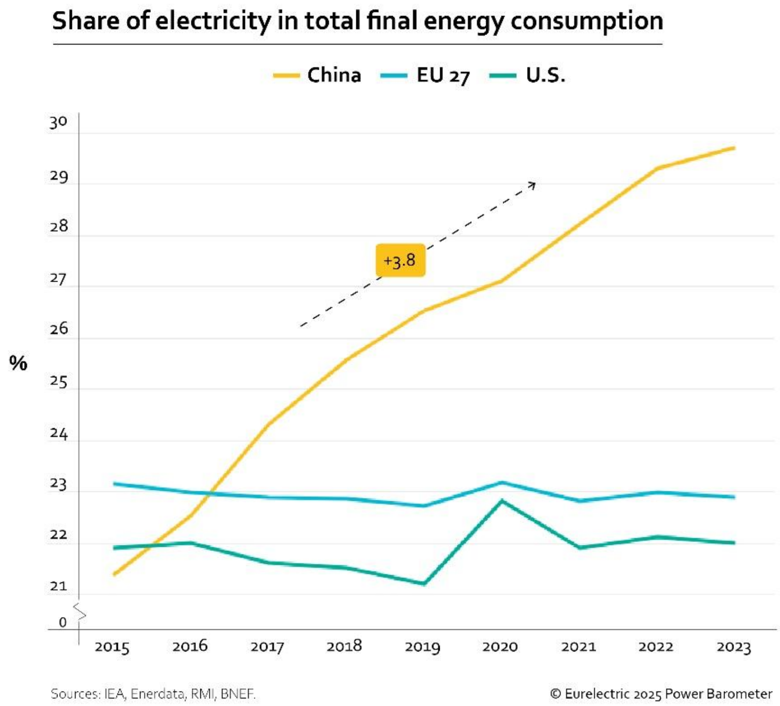
The broad-scale electrification of Europe is essential to enable a much faster scale-up of carbon-neutral energy capacity and smarter, more flexible energy systems, as well as unlocking massive energy efficiency savings across industry, transport systems, and buildings. Among the different energy vectors, electricity has shown that it is by far the best, cheapest and most efficient way to integrate renewable sources.

Electrification plays a major role in reaching climate neutrality. In its Communication on an EU climate target for 2040, the European Commission states that electrification, along with a fully decarbonised power system by 2040, is the main driver of the energy transition.

However, for the past decade, electrification has been stagnating in Europe – just as other parts of the world have electrified their economies at an increasingly fast pace. Our global competitors have understood that electrification is the foundation of geopolitical autonomy and a more secure energy supply. Now, it is Europe's turn to create the conditions for a low-carbon, low-cost, independent energy source to boost competitiveness and achieve the aims of the Green and Clean Industrial Deals. **The Electrification Action Plan is the right place to set the strategic objective of structurally bringing down Europe's electricity prices to the level of China and the US**. Such a clear common objective, accompanied by targeted actions, will help to focus all necessary efforts by all relevant stakeholders.

This **requires a coordinated effort between industry and policymakers**. Europe possesses unique strengths – including its skilled workforce, technological expertise, and industrial capacity – that position it to develop the solutions needed for a global shift to net-zero emissions. However, businesses cannot drive this transformation alone. A supportive policy framework is essential to incentivise innovation, de-risk investments, and accelerate deployment.

Now more than ever, European policymakers must uphold climate targets, implement cost-effective policy instruments, and shape regulatory frameworks that reinforce both sustainability and industrial competitiveness. By doing so, Europe can continue to lead by example and provide the tools and technologies that enable the rest of the world to follow.



Barriers – and actions to overcome them

There is high potential for decarbonisation in electrifying industry processes. A 2020 McKinsey study shows that almost half of the energy consumed in industry can be electrified with technology available today[1]. In practice, this means that industry processes requiring heat lower than 1,000°C could be electrified. Most of Orgalim members' manufacturing production is not based on high heat levels and intensive use of energy, as shown in our industry figures[2]. So why is European industry not electrifying more rapidly?

Two principal barriers to a speedier industrial electrification are the insufficient supply of low-carbon electricity and high, volatile electricity prices. This, combined with unclear policy messages on climate and energy goals, ageing infrastructure, long delays for connecting industrial consumers to the grid and slow digitalisation, make it difficult for companies to invest in electrification.

Therefore, the objective of the EU Electrification Action Plan should be both to create the right market conditions for investments to electrify end-user sectors and expand the electricity system to deliver a stable and competitive low-carbon electricity supply which is able to meet growing future electricity demand through sufficient grid capacity.

Orgalim recommends a holistic approach, acting on both electricity supply and demand, focusing on infrastructure, investments, energy markets and technology, while using carbon market instruments to support climate neutrality.

No political targets, but the right market conditions

While we support an overall EU decarbonisation objective that offers a long-term vision to investors, we oppose the definition of electrification targets for individual economic sectors. Companies should be able to freely choose the decarbonisation solutions that suit them best, be they based on electricity, hydrogen, or alternative fuels. The priority is to create the right market conditions for incentivising this transformation.

The electrification of consumer demand plays a crucial role in achieving the decarbonisation of end-user activities. However, we must keep in mind the bigger picture: the integration of emission reduction and circularity goals presents a significant challenge for manufacturing industries. As an example, electrifying certain metal processing activities may reduce the use of recycled materials. Combining a mix of different technology solutions is therefore necessary to meet the EU's climate and environment goals.

Clear political commitment to clean transformation

European policymakers must remain united and resolute in their commitment to climate neutrality and the transition to a low-carbon energy supply. Clear, consistent, and long-term policy signals are essential for building the confidence industry needs to make major investments in clean technologies, energy infrastructure, and innovation. Companies across the European technology sector are ready to lead the transformation, but they depend on a stable and predictable regulatory environment to plan effectively and allocate resources efficiently. Fragmented or fluctuating commitments risk undermining progress, delaying investment, and weakening Europe's competitive edge in the global economy. A steadfast political consensus is not only a prerequisite for meeting climate goals – it is a strategic enabler of sustainable growth, energy security, and technological leadership.

[1] McKinsey & Company, Plugging in: What electrification can do for industry, May 2020.
[2] Orgalim, our industries in numbers, 2025

Energy prices and electricity market design

High energy prices make it difficult to build a solid business case for electrifying industry processes but also reduce the incentives to invest in the manufacturing of new solutions for electrifying the wider society. The current energy taxation system provides limited differentiation between the taxation of high-carbon and low-carbon energy sources, which can discourage investments in electrification and low-carbon energy generation. In addition, Member States need to accelerate implementation of the Electricity Market Design reform to enable benefits for consumers.

Key actions:

- **Reduce taxes and levies on electricity in the EU**, which on average are respectively 3 and 3.5 times higher for household and industrial consumers than for natural gas, by ensuring fair tax policies and levies to enhance industrial competitiveness and accelerate electrification in the EU.
- **Remunerate demand flexibility schemes and incentivise energy storage.**
- **Implement electricity market design rules on Power Purchase Agreements (PPAs)**, including standard contracts for smaller companies, and increase the budget of European Investment Bank (EIB)-financed guarantees schemes for PPA off-takers.
- **Expand energy sharing schemes and energy community projects** to cover not only small and medium-sized enterprises (SMEs) and households, but **businesses of all sizes.**
- **Provide guidance for standardised network tariffs** that incentivise flexibility and efficient utilisation of existing infrastructure, without conflicting with market prices. Manufacturers of smart technologies that enable users to provide flexibility should be able to offer solutions that work across the EU.
- Make industry electrification projects eligible for support by the EU Decarbonisation Bank.

Infrastructure

Electrical grids' capacity must be expanded, upgraded and duly digitalised to accommodate the demand from widespread electrification in transport, buildings and industrial processes, as well as to optimise the system and make full use of flexibility options. Electricity networks must be interconnected to enable efficient use of low-carbon energy across Europe. There is also a lack of large-scale rollout of digitalised technologies for demand response flexibility and system integration. Finally, the energy storage capacity must be deployed across Member States to reap the benefits of a system powered by low-carbon sources.

When disproportionate permitting laws delay grid expansion

Danish operator Energinet uses horizontal drilling across roads, forests and natural areas to build the grid. Occasionally, a temporary release of drilling fluid ("blowout") may occur but is quickly contained by an emergency response team always present during the drilling process and capable of cleaning up and restoring the area within 12–24 hours.

Despite this rapid response capability and the absence of significant environmental impact, national authorities require months to assess the impact of a potential blowout. This is due to the Water Framework Directive making no distinction between permanent and temporary impacts. As a result, a short-term release like a blowout is subject to the same assessment as discharges from industrial plants or wastewater treatment facilities. This is resulting in permitting delays of over two years for some projects.

Key actions:

- **Develop, interconnect, and modernise the electricity grid infrastructure** at transmission, distribution, and storage levels to increase its capacity and resilience.

    - **Enable fair cost-sharing between Member States for infrastructure projects.** For example, agree on a portfolio of energy infrastructure projects with a strategic regional interest that benefits directly and indirectly all involved countries due to the increase of production and capacity, independently of the geographic location of the project. The costs associated with the resulting benefits for the indirectly benefitted Member States should be covered by EU funding (CEF-Energy) because they benefit the overarching European energy system.
    - Provide **adequate financial support for enabling the build-out infrastructure, such as electricity grids at all voltage levels**. This should be achieved through elements of the upcoming Multiannual Financial Framework 2028-2034, such as the Competitiveness Fund or the financing tools of the EIB.
    - Provide clear long-term commitments: Network development plans should be clearly **aligned with the National Energy and Climate Plans for all voltage levels and accompanied by industrial plans**.
- **Accelerate further the grid infrastructure permitting processes**, including by fully digitalising the administrative procedure and increasing transparency for applicants.
    - Guarantee timely grid access for electrified industrial processes and charging infrastructures through a combination of robust energy system planning and strict implementation of market design grid provisions on grid connection procedures and timelines.
    - **Facilitate the connection of industrial sites to the grid** through a clear and transparent connecting process which fully considers the needs of industrial consumers. Today it is difficult to know where industries can connect to the grid, the duration of the connection process, if there are other customers in the queue for access etc.
    - Guide grid operators to **transition from a first-come, first-served approach in granting permits for grid connections to a value-based system** that prioritises projects based on their potential to deliver significant economic and decarbonisation benefits.
- **Work on a better system integration** of low-carbon energy sources, and alternative power generation such as waste-heat recovery, **that help drive down consumers' electricity costs.**
- Launch the **network codes on data interoperability and demand response** to help the deployment of an efficient digital electricity infrastructure.
- Promote an **increase in investments in digital electricity infrastructure**. Only by combining investments in physical and digital grid infrastructure and technologies such as flexibility management can the efficient and reliable grid integration and operation of distributed generation for electricity consumers be assured and accelerated.
- **As part of the digitalisation effort, work on completing the rollout of smart meters** which play a key role in managing the integration of variable renewable energy generation, empowering consumers, and enabling smart grids infrastructure.
- **Enable a permanent dialogue** between industry-system operators and Member States, CEN CENELEC for developing and upgrading the infrastructures and for planning the appropriate manufacturing capacity and **cooperate closely with industry stakeholders, in particular grid technology providers,** for designing and implementing legislation.

Best practices

Flexibility has enhanced the business case for electrifying the processing industry at BIRN, a cast iron company in Denmark. By using a technological solution, BIRN can adjust the power consumption in the foundry to start the iron melting process only when the electricity grid is loaded. BIRN entered a permanent non-firm grid connection agreement with the grid operator, which provides cheaper and faster grid connections for electrification projects. These non-firm connections do not always guarantee the ability to export or import the full power requirement. Therefore, these agreements benefit both industry consumers with cheaper connection and the grid operator with a cost-effective use of the grid by balancing production and consumption locally.

Investments

Substantial investments are needed both in grid infrastructure and in industry facilities for the deployment of electrification. As an illustration, the EU Grid Action Plan estimates that around €584 billion is needed by 2030 to upgrade and modernise its electricity grids, in particular the distribution network – and a new study estimates the costs of needed EU energy infrastructure investment at €2024 billion until 2040[3]. EU public funding and regulation can join forces to stimulate private investment.

Key actions:

- **Public investment to de-risk industry-driven innovative electrification projects.**
- **Stimulate private investment in electrification by creating the right market conditions** (taxonomy, energy taxation, TOTEX approach for grid operators' investment, etc.). Public funding should focus on kickstarting and de-risking the development of low-carbon generation capacity.
- **Support SMEs who collectively play a key role in decarbonising the industrial sector**. These companies often have the agility to adapt but lack the internal resources and expertise to take the first steps. Public support is therefore essential to unlock their potential through funding, technical assistance, and simplified access to innovation. Ensuring that no segment of industry is left behind will reinforce the EU's resilience, foster local employment, and drive innovation across all levels of the economy.
- The EU Emissions Trading System (ETS) is a key policy measure in Europe to drive investments in low-carbon technology and electrification. The current two ETSs should be developed carefully to keep the system cost-efficient, simple and transparent. **If carbon pricing via the EU's ETS functions well, there is no need for additional policy instruments** to achieve the central goal of carbon neutrality.
- To expand electrification, energy efficiency gains must be considered in investments, with a pragmatic and user-friendly implementation of the **energy efficiency first principle**.

Energy demand

The Action Plan must prioritise the deployment of digital grid technologies that enhance efficiency, resilience, and real-time management of electricity demand. Smart solutions, including AI-driven optimisation tools, can significantly reduce energy waste, forecast consumption patterns, and enable dynamic balancing of supply and demand. Promoting energy-efficient products and fostering circular design principles will further lower the environmental footprint of the sector. At the same time, flexibility – enabled through digitalisation, decentralised energy sources, and demand-side response – must become a core feature of our energy system.

Key actions:

- Financially support and incentivise industry, car drivers and homeowners **to deploy electric equipment, electric mobility devices and electric heating and cooling technologies**. This support should be aligned with state aid frameworks and a clear, direct-electrification pathway.
- Support the deployment of energy efficient solutions for **optimising the energy consumption of data centres.**
- Promote the **role of next generation smart meters and ensure that all consumers have the chance to participate in demand side flexibility,** while being incentivised and rewarded for doing so.
- Adopt the **EU-wide demand response network code** to enable flexibility services for consumers.

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[3] European Commission: Directorate-General for Energy, Artelys, LBST, Trinomics, Finesso, A. et al., *Investment needs of European energy infrastructure to enable a decarbonised economy – Final report*, Publications Office of the European Union, 2025, https://data.europa.eu/doi/10.2833/8232521

- Ensure that grid codes on connection, cybersecurity and demand response are harmonised at a level of at least 80% across the EU
- Promote **energy efficiency, resource efficiency and circularity in products** via the Ecodesign for Sustainable Products Regulation (ESPR) **and industry processes.**
- Focus on incentives to **deploy advanced manufacturing solutions**, including AI-driven systems, that save energy and resources.

Electrification technologies

As mentioned above, technologies to electrify industrial processes and increase their energy efficiency are already widely available – and many more will emerge in the near future. European companies are global leaders in the advanced manufacturing sector that develops solutions for energy and resource efficiency, automation and circularity. The Action Plan must both incentivise the roll-out of such technologies and support the dynamism of European companies in advanced manufacturing solutions.

Key actions:

- **Research and innovation** programmes must support projects developing industry-driven technologies for the electrification of households, services, public buildings, transportation and industry.
- Regarding the promotion of existing technologies, there is a need to **fill in the knowledge gap with regard to electrification technologies**. Strategies such as one-stop shops and national campaigns, as well as technology training to educate public decision-makers, would be useful to change mindsets and mitigate perceived technology risks.
- Adopt a **technology-neutral approach in lead markets policies** for manufacturing technologies, so that every part of the value chain can contribute to the energy transition. Let the market and innovation decide which technologies are needed for the energy system transformation.
- Incentivise the manufacturing of electrification technologies through a **holistic focus on their value chains** in legislative initiatives such as the Grids Package, Industrial Accelerator Act, etc.

More information

Climate Law: Europe needs competitive tech industries and clear, pragmatic plans to reach the 90% target by 2040

Orgalim key recommendations on energy and climate - Orgalim

Orgalim represents Europe's technology industries, comprised of 770,000 innovative companies spanning the mechanical engineering, electrical engineering, electronics, ICT and metal technology branches. Together they represent the EU's largest manufacturing sector, generating annual turnover of €2,755 billion, manufacturing one-third of all European exports and providing 11.6 million direct jobs. Orgalim is registered under the European Union Transparency Register – ID number: 20210641335-88.

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