



EUROPEAN
COMMISSION

Brussels, **XXX**
COM(2026) 595

SENSITIVE*
UNTIL ADOPTION

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND
SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS**

ELECTRIFICATION ACTION PLAN

{SWD(2026) 595} - {SWD(2026) 596}

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Introduction

The recent crisis in Middle East showed for the second time in five years the risks of the EU's dependency on imported fossil fuels. Even though Europe was better prepared following the measures adopted since 2022, the sharp increase of oil and gas prices had a negative impact on the economy and the society at large. With over half of the EU's energy consumption met by imported fossil fuels, this is a structural vulnerability.

During the conflict, the EU has spent within 111 days an additional EUR 50 billion in fossil fuel imports, and the resulting inflation has led to an increase in interest rates. In addition, some Member States have adopted fiscal measures to alleviate the burden on consumers of fossil fuels in the short term, adding to the pressure on their public finances.

In an era of recurring geopolitical turbulence and volatile global markets, an energy independent Union powered by clean, abundant, homegrown, cybersecure and affordable energy is a matter of sovereignty. To secure Europe's resilience and security while supporting EU's competitiveness, a radical shift towards efficient electrification of demand is required. Clean energy deployment and energy efficiency are the enablers of a cost-effective and swift electrification. On the generation side, 70% of the EU's electricity already comes from homegrown clean sources today and important progress has been made in terms of efficiency, but this progress will soon hit a ceiling if not accompanied by electrification of demand sectors. In 2024, the EU used 20% less energy than it did in 2006¹. Electrification builds on Europe's efficiency gains, continuing the shift toward a cleaner power system.

A quicker **electrification of the European economy is the route to higher competitiveness, security of supply, and lower energy prices** and it does so across the entire value chain, from the manufacturing of net-zero technologies to the energy that reaches homes, businesses and industries. At the level of end use, switching from gas to heat pumps and district heating in homes² and offices, and from petrol to electric vehicles³, trucks and ferries, and electrifying industrial processes, reduces system costs, delivers more affordable, secure and cleaner European energy, helps build up the value chains of an electrified European economy, reduces emissions and air pollution, bringing health benefits.

As a successful global player in manufacturing electric technologies, the EU is well-placed to capture upstream opportunities. Clean electrification value chains such as renewables, nuclear, heat pumps, battery and thermal energy storage and grids already employ over four million people⁴, and the sector accounted for 30% of EU GDP growth in 2023⁵. Electrification creates a strong European market for these technologies, giving EU

¹ Eurostat. Figures refer to primary energy.

² "5 things you should know about heat pumps", DG ENER

³ Ayvens – Car cost index 2025.

⁴ IRENA Renewable energy and jobs: Annual review 2025; IEA World Energy Employment 2025; GIFEN, Programme Match, April 2023; ENEN2plus Euratom Research and Training Programme Project

⁵ IEA commentary - Clean energy is boosting economic growth, April 2024

manufacturers the scale needed to compete globally. Across a growing share of sectors, clean electric solutions are increasingly cost-competitive to their fossil fuel alternatives. Now, it is necessary to identify and remove the barriers that still prevent widespread adoption. This requires a value chain approach as well as anticipating and managing structural change across sectors and regions⁶. To drive this change, this plan proposes an ambitious **electrification target** for the European Union. By boosting electrification, Europe could replace [two-thirds] of its gas demand and [halve] oil consumption, lowering the EU's fossil fuel import bill by EUR [200] billion cumulatively until 2040⁷. This ambition will help deliver on Europe's energy and climate goals, contributing to cutting an average 520 Mt CO₂ emissions (20% of current level) from now to 2040.

Action

- Propose an electrification target of [X]% of final energy consumption by 2040, enshrined in EU legislation as part of the Energy Union package for the decade ahead (Q4 2026).

Clean technologies that drive electrification are already commercially available and in most cases bring energy costs down for consumers. Battery electric vehicles (BEVs) and heat pumps are more efficient than their combustion alternatives thus increasing energy savings for the European economy. BEVs can still be more expensive to buy, but are generally much cheaper to use than petrol and diesel vehicles. Driving a BEV can save up to 78% compared to an equivalent fossil-fuelled car⁸. Switching from gas boilers to heat pumps cuts the average EU household's heating bill by up to 60%⁹, while providing important co-benefits for climate adaptation through their ability to also cool down buildings, especially during heatwaves. In some industrial processes, electrification with heat pumps leads to cost savings if the electricity-to-gas price ratio is between 2.5 and 3.5¹⁰. These efficiency gains lower energy system costs, reducing energy prices for all users, and benefitting the whole economy.

With over 8 million BEVs on EU roads, 28 million heat pumps in EU buildings¹¹, and increases in large-scale heat pumps in district heating, the change has already started. Yet, despite sharing with other major economies a significant exposure to imported fossil fuels, the EU's electrification rate has remained stagnant at 23% for a decade compared to over 30% in China, Korea, Japan today¹². Unlocking the electrification potential would support

⁶ 2025 Full Progress review on the implementation of the Council Recommendation on ensuring a fair transition towards climate neutrality, European Commission Working Document, July 2026 (forthcoming).

⁷ Source: JRC POTEnCIA and JRC-GEM-E3

⁸ Depending on the Member State. The website <https://evroutes.com> uses residential prices to calculate savings from the use of electricity compared to oil.

⁹ European Commission – Five things you should know about heat pumps: https://energy.ec.europa.eu/news/5-things-you-should-know-about-heat-pumps-2025-12-05_en

¹⁰ IEA – “Renewables for industry – electrification of low-temperature heat and steam”, 2026

¹¹ European Alternative Fuels Observatory; European Heat Pump Association

¹² IEA - [impetus for EU electrification](#). The electrification rate corresponds to the electricity share of final energy consumption.

Europe's strong clean tech manufacturing base and related value chains of wind turbines, BEVs or heat pumps and boost the number of qualified jobs significantly.

Tapping into the EU's electrification potential requires tackling a **number of barriers**. First, electricity on average is almost three times more expensive than gas for EU companies and two and a half times more expensive for households¹³. Second, the upfront investment cost of the switch from fossil-fuels to electricity is still very high. Third, electricity grid capacity, connection queues and sub-optimal use of existing grids constrain both the switch to electricity among consumers as well as the addition of new electricity generation capacity. A fourth barrier is slow innovation uptake to make new electrification solutions commercially viable. Finally, bold action is needed to reinforce European supply chains, boost EU's manufacturing and address skills shortages.

Building on AccelerateEU, this Plan acts on **these barriers**¹⁴ to speed up electrification across the sectors that are most dependent on fossil fuels, notably transport, buildings and industry¹⁵. The barriers and related actions by sector are described below. EU energy legislation¹⁶ supports electrification, so the starting point should be its full and effective implementation. With the launch of Electrify Now¹⁷ in June, a global platform to drive the acceleration of clean electrification, the EU will also promote electrification globally, as the world enters what the IEA has called the "age of electricity".

But for the EU to stay in the electrification race, **urgent additional action is needed to remove the barriers**.

1. Reducing the gap between electricity and fossil energy costs

1. Levelling the field: rebalancing the price ratio between electricity and fossil fuels

There is a persistent price disparity between electricity and fossil fuels. Only in two Member States electricity is less than twice as expensive as gas¹⁸. This is a critical barrier to electrification, for both industry and households. This imbalance directly stifles demand for electric alternatives: Member States with the lowest electricity to gas price ratios record triple the heat pump sales compared to Member States where the ratio exceeds three¹⁹. When

¹³ Eurostat

¹⁴ Delivering on the Accelerate EU Communication of April 2026.

¹⁵ The KPI for electrification rate is 32% by 2030.

¹⁶ For example, the Renewable Energy Directive (RED), the Energy Efficiency Directive (EED), and the Electricity Market Design (EMD). The RED mandates integration of renewable electricity in heating, cooling, and transport, directly stimulating electrification. The EMD allows energy communities to generate, store, and share renewable electricity. The EED requires national policies to enforce the "energy efficiency first principle", which prioritizes cost-effective, highly efficient electrical solutions over traditional fossil fuel combustion.

¹⁷ [Electrify Now - Energy - European Commission](#)

¹⁸ Only in Finland and Sweden is the electricity-gas price ratio below 2 for the same amount of energy – own calculations based on Eurostat data for second half 2024.

¹⁹ EHPA - Taxation policy for heat pumps, 2025

electricity costs are over 2/2.5 times more than gas, the economic case to switch to heat pumps or electric processes diminishes significantly.

Half of the amount paid by EU households through their electricity bills corresponds to the price of electricity, a quarter to taxes and levies and a quarter to network charges²⁰. First, the price of electricity still too often depends on the price of natural gas, leading to high prices in those hours (*see section 1.3*). Secondly, taking all taxes into account, electricity is taxed more than gas in most Member States²¹. Third, levies are often charged to the electricity bill; in at least five Member States, some of these levies are unrelated to or go beyond the electricity system²². Fossil fuel subsidies still exist in several Member States distorting market prices by artificially lowering the cost of fossil fuels and weakening market signals for cleaner energy. Finally, while the electricity system is growing and changing, the design of network charges needs to evolve to ensure cost-efficient transmission and distribution networks.

The Commission supports efforts by Member States to rebalance the power/gas price ratio²³. The Recovery and Resilience Facility has notably supported reforms in this area.

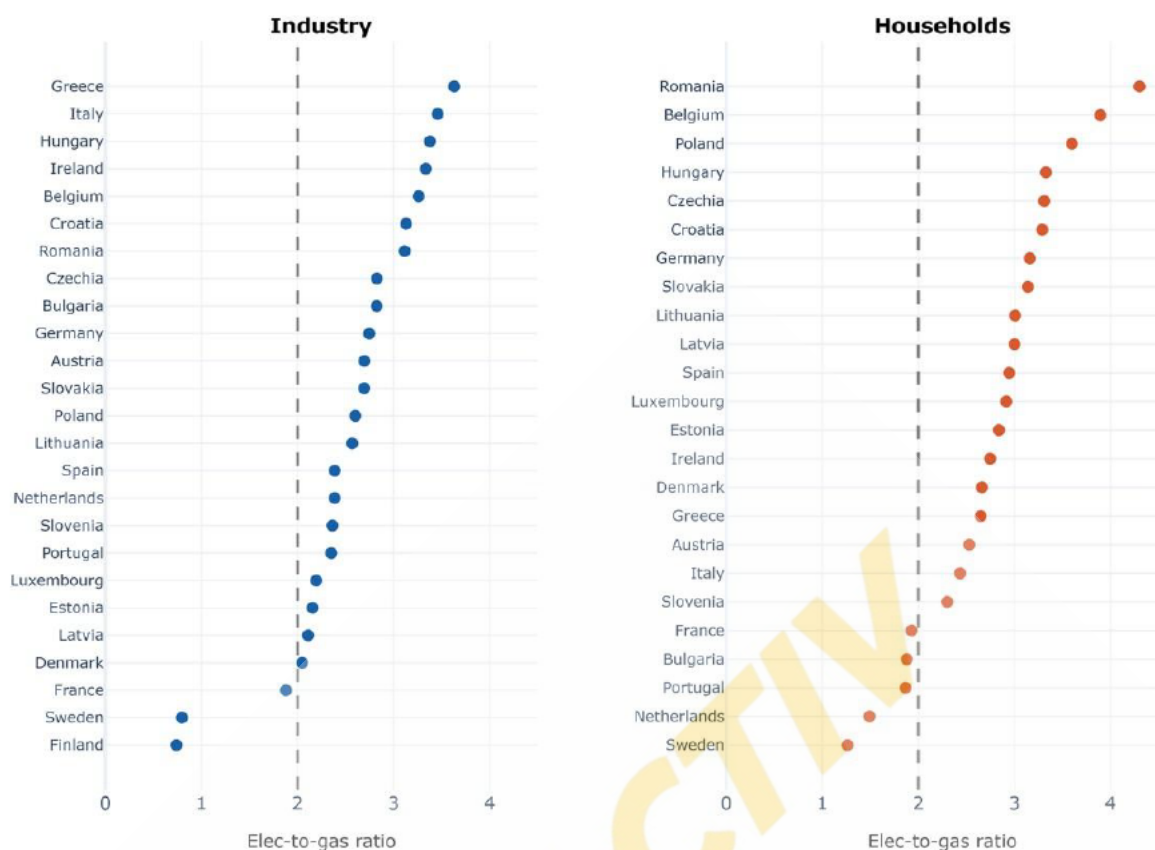
Recent energy taxation reforms have done this in **the Netherlands and Belgium. Denmark** has reduced electricity excise duties to households using heat pumps and reduced electricity taxes to the minimum for two years.

²⁰ Source: VaasaETT, data for May 2026 – 48% electricity, 26% taxes and levies, 26% network charges

²¹ Source: Eurostat, all taxes including excise duties and VAT.

²² France, Germany, Italy, Portugal and Greece.

²³ The Action Plan for Affordable Energy, the Energy Union Task Force, and the Clean Industrial Deal State Aid Framework have provided tools for action and coordination



Electricity-to-gas price ratios in EU Member States²⁴ for industry and households (a ratio of 2 means that electricity prices are double those of gas for the same amount of energy)

Action 1:

- To improve the electricity-to-gas price ratio from the taxation side, the Commission is adopting a legislative proposal to future-proof electricity bills alongside this plan.
- The Commission will propose measures on progressively phasing out fossil fuel subsidies as part of the post-2030 Energy Union package (Q4 2026).

KPI on national electricity/gas price ratios to maximum 2.5 for households and 2 for industry by 2030²⁵

2. Reducing electricity system costs through flexibility

Price volatility creates uncertainty, raises risk and the cost of capital undermining the case for electrification. Spiked, zero or negative prices signal the need for flexibility of the electricity system which can smooth prices, enhance the resilience of the energy system and lower system costs to the benefit of all users.

²⁴ Malta, Cyprus and Finland (for households) are not present in the relevant Eurostat datasets

²⁵ The basis to calculate the level of the KPI is the coefficient of performance of heat pumps in residential and industrial use, respectively, compared to gas boilers. In addition, the KPI takes into account the need to recover the initial capital investment.

Households, industrial consumers, hydrogen producers, data centres and drivers of BEVs²⁶ can also gain from being flexible, with the right remuneration and framework conditions, such as dynamic price contracts and dynamic network charges as well as remuneration for the provision of ancillary services. The Commission supports Member States in ensuring the use of flexibility from existing buildings and products, with a focus on transparency for consumers²⁷. Flexibility also ensures that new demand for power does not excessively increase system costs.

Expanding computing capacities on the Union's territory and AI developed and deployed in the EU through innovative and sustainable Cloud and AI technologies are essential for the EU's Tech Sovereignty. With the proposal for a Cloud and AI Development Act²⁸, the Commission aims to address the limited and geographically concentrated availability of computing capacity in the EU and the risks associated with dependence on cloud and AI supplied by non-European providers. But it also poses challenges, not only in terms of increasing energy consumption but also for electricity grids, carbon emissions and environmental resources such as water. To limit the impacts, data centres need to be highly energy-efficient and sustainable. Well-designed and integrated flexible data centres can help reduce overall electricity system costs and help moderate prices by supporting grid stability and renewable integration. Flexible data centres can contribute to grid efficiency, demand response, on-site clean energy capacity, and system flexibility. Data centre acceleration zones established by the Member States, as proposed in the Cloud and AI Development Act, and tripartite agreement announced in the Strategic Roadmap for Digitalisation and AI in the Energy Sector could help facilitating the integration of data centres, enabling infrastructure deployment and limiting the impacts on resources and consumer bills.

Energy storage is an essential element to optimise the functioning of the EU energy system. The Tripartite Agreement on Energy Storage²⁹ has recently brought together important players in the value chain, including Member States, storage and renewables developers and manufacturers, industrial consumers as well as the European Commission and financial institutions around mutual commitments to accelerate deployment of energy storage as a priority for the coming years (2026-2028). The pledges submitted for the period 2026-2028, taken together, account to 30-35 GW of stationary storage capacity.

Nevertheless, further efforts will be needed to meet the energy system's flexibility needs by 2030 (200 GW installed³⁰, up from around 55 GW in 2026), both for short- and long-duration

²⁶ For instance, EVs can engage in smart and bidirectional charging through vehicle-to-grid (V2G) services. Based on existing projections, companies above 100 employees (except rental fleets, taxis and private car services) could reach a share of 50% of their fleet charging smartly, and 15% of their fleet reinjecting electricity into the grid by 2030 (Shares based on different studies/publications - ENTSOE TYNDP assumptions, T&E). Commission analysis shows that by 2040, EV smart charging and V2G could deliver over €44 billion in annual savings for EV owners and additional benefits to the power system through reduced investment needs.

²⁷ For instance, through a new expert group to activate flexibility from new and existing buildings and products.

²⁸ COM(2026) 502 final.

²⁹ https://ec.europa.eu/commission/presscorner/detail/en/ip_26_1426

³⁰ Source: JRC POTEnCIA

storage. For cross-seasonal storage, potential revenue streams are often insufficient to cover upfront investments.

Storage is also playing a growing role for industrial consumers. In Power Purchase Agreements, electricity storage can help cover more of the consumer's demand with renewable sources³¹. Member States can promote this by implementing the April 2026 Commission Recommendation on removing barriers to PPAs³². On the demand side, thermal storage provides another source of flexibility for industries that use heat: its capacity in the EU is expected to triple to 1.5 GWh by 2028.

Action 2

- *To improve the electricity-to-gas price ratio from the network charges side, the Commission is adopting a legislative proposal on future-proof electricity bills alongside this plan, which will **ensure that network charges incentivise electrification**, a flexible and system-friendly use of the grid, including storage installations and accelerating smart meter deployment.*
- *To facilitate demand response, the Commission will propose a new network code and the revision of the network codes on requirements for generators and demand connection in 2026, for the seamless integration of battery storage, EVs and heat pumps into the electricity grid. The Commission, together with other parties to the Tripartite Agreement on Storage, will ensure robust implementation of the commitments agreed in this cooperative model, covering the whole storage value chain, including long-term storage solutions. This will be a priority for the Energy Union Task Force.*
- *The Commission will organise a high-level conference to assess barriers and solutions for storage, including long-duration storage and combined with renewable PPAs.*

Transport:

- *Annexed to this communication, the Commission is launching a framework for regulatory sandboxes and living labs across Member States to enable new vehicle-to-grid (V2G) business models.*
- *By mid 2027, the Commission will assess and promote the introduction of smart charging by default in electricity supply contracts linked to electric vehicles.*
- *By end of 2027, the Commission will introduce V2G requirements for new EVs, including technical requirements to enable interoperability such as standardised communication protocols³³.*

Industry:

- *By 2027, the Commission will support the development of a methodology to assess flexibility potential in the different industries and industrial processes, as well as data centres, to fill the knowledge gap in the emerging industrial flexibility sector.*
- *The Commission will shortly adopt a rating scheme for data centres, in the form of a label, to increase transparency in the energy use of data centres and promote lead*

³¹ More granular guarantees of origin can also contribute to this evolution. See Commission Recommendation on removing barriers to the development of power purchase agreements and other energy purchase agreements (C/2026/2676)

³² C/2026/2676

³³ On the basis of the necessary empowerment for the Commission to take action in this field, proposed through Omnibus IX (Automotive Omnibus).

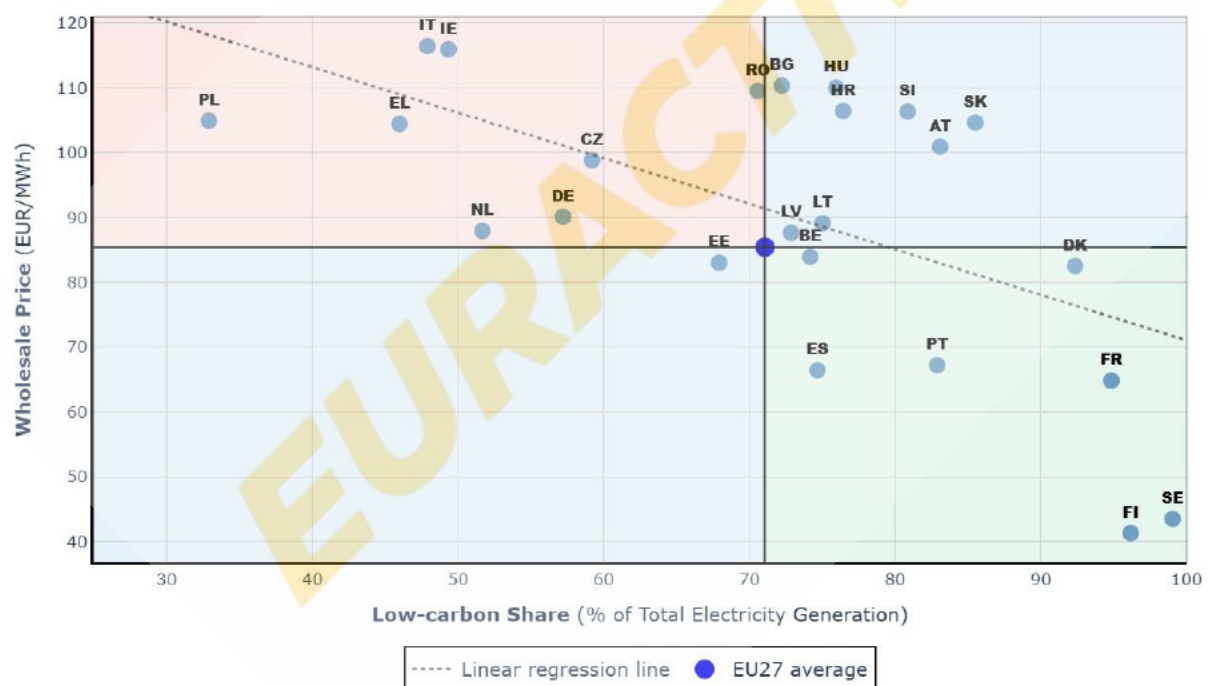
markets for sustainable digital assets and services across Europe, as well as introduce minimum performance standards to leverage their flexibility potential.

KPI: 200 GW of storage capacity by 2030.

3. Making electricity cheaper and increasing the share of clean affordable, homegrown energy

As the figure below shows, the lowest electricity prices in the EU are observed in markets with very high shares of clean electricity (renewables and nuclear³⁴) since they are less exposed to fossil fuels setting the wholesale electricity price. Moreover, renewable and nuclear energy drive fossil fuels out: the additional 260 GW of wind and solar capacity installed since 2021 displaced 14 bcm of gas only in 2025, saving more than EUR 5 bn in fuel costs. Europe needs to move even faster.

Wholesale Electricity Price vs. Low-carbon Electricity Share (2025)



As electrification increases demand for electricity, more rapid growth of renewable and nuclear generation will be needed³⁵. The EU has put in place a supportive framework for accelerating the growth of clean electricity capacity³⁶, including the EU ETS carbon price. Implementation and enforcement of the EU energy legislation towards the achievement of the

³⁴ In 9 Member States, the share of nuclear generation was above the EU average of 23% in 2024: Belgium, Bulgaria, Czechia, Finland, France, Hungary, Slovakia, Slovenia and Sweden.

³⁵ This displacement of fossil fuels also pushes down the primary energy factor (PEF), which reflects the higher efficiency of electricity in final uses. The PEF is defined through the Energy Efficiency Directive and is set to be revised by the end of 2026.

³⁶ Affordable energy action plan, AccelerateEU as well as Renewable Energy Directive and Electricity Market Design, with Power Purchase Agreements and two-way Contracts for Difference growth, and acceleration of permitting through the Grids package

agreed 2030 targets, including the renewable energy framework, is a priority. The **integration of renewable** generation in the system is hampered by insufficient planning, lack of location signals, grid congestion and a general lack of flexibility resulting in regular curtailment. Although the Renewable Energy Directive (RED3) addresses some of the barriers to electrification and the deadline for its transposition expired on 21 May 2025³⁷, no Member State has fully transposed the respective parts of this framework yet. This slows down the roll out of renewable capacity, contributing to persistently high electricity prices.

In addition, further actions are needed. Across the board, Europe can improve predictability and coordination of clean energy supply investments and help leverage the unique density of the European electricity grid. Coordination of these investments in generation with flexibility should also be improved as this plays a key role for the affordability of electricity prices. At EU level, an existing platform provides transparency for all stakeholders on upcoming renewable energy auctions. By adding a database with detailed information on these auctions and flexibility support schemes, the Commission will support Member States in making best use of public funds to accelerate renewables deployment for the benefit of electricity consumers.

Action 3

- *The Commission will reinforce support to Member States in implementing RED3 with the aim to have full and adequate transposition by Summer 2027.*
- *The Commission will support cross border cooperation amongst national authorities in the interest of faster nuclear reactor licensing decisions. In full respect of Member States' prerogative to determine their own energy mix, lifetime extension of existing reactors should be pursued unless uneconomical or incompatible with highest safety standards.*
- *By Q2 2027, the Commission will launch, a map-based tool to help energy-intensive industries and investors assess the location-specific factors that influence their energy investments ("GeoDep"), such as proximity of generation, available infrastructure or favourable electricity-to-gas price ratios³⁸.*
- *By 2027, the Commission will set up a detailed auction design database to complement the existing RES auction platform³⁹, to make the best use of public support.*
- *The Commission will shortly adopt guidance on NZIA non-price criteria in renewable energy auctions to ensure a secure and diversified industrial base for clean energy technologies.*

KPI: 100 GW of additional renewable electricity capacity per year up to 2030

Geothermal energy remains an underutilised resource for high efficiency renewable electricity and a heating and cooling solution with reduced network costs. According to

³⁷ Except for some provisions related to permitting for which there was an earlier deadline of July 2024.

³⁸ This tool could also provide support for the establishment of Industrial Manufacturing Acceleration areas in the context of the legislative proposal for an Industrial Accelerator Act.

³⁹ <https://union-renewables-development-platform.ec.europa.eu/auctions/auctions-table-overview>

recent estimates it could cost-effectively meet at least 10% of Europe's electricity needs⁴⁰ and 25 % of its heating and cooling demand, if an enabling framework were put in place.

Action 4

The creation of the Geothermal Stakeholder Partnership by Q1 2027 will help lift regulatory, technical and investment barriers and accelerate deployment of geothermal energy. It will gather skilled professionals from Member States and the industry to exchange best practices on data collection, national geothermal development strategies, financing, permitting, skills and public acceptance.

2. Lowering upfront costs for electrification of end-use sectors

To accelerate electrification, upfront technical, administrative and financial costs need to be alleviated. While ETS1 already drives the business case for decarbonisation in the electricity sector and for electrification in industry and maritime transport, ETS2 will play a crucial role in incentivising electrification in road transport and buildings, including for SMEs, while generating the revenues to accelerate much-needed investments to support users transition towards more clean energy sources. The Social Climate Fund will accompany the implementation of ETS2 through targeted support for vulnerable households, transport users, and micro-enterprises.

Member States can also address this barrier through tax reforms, such as providing preferential VAT rates on electrification assets. Only six Member States apply to heat pumps a VAT rate below that for gas boilers⁴¹, and the Commission encourages other Member States to follow suit. Member States can (and several do) offer reduced registration taxes for electric vehicles, shorter depreciation times or tax incentives for company EVs or heat pumps⁴². The Commission will facilitate such reforms with its adoption of a Circular VAT initiative, part of a Circular Economy Act, aimed at aligning VAT rules with environmental and sustainability goals. Member States may make use of the targeted fiscal flexibility by requesting a broadening in the scope of the National Escape Clause (capped at 0.3% of GDP annually and 0.6% of GDP on a cumulative basis) to introduce energy security measures reducing dependence on imported fossil fuels, including electrification⁴³. The Commission will engage with national promotional banks within the context of the Energy Transition Investment Council to provide guidance. It will also promote best practices, including to national promotional banks, in financing electrification projects.

In Annex II, the Commission proposes **guidance to Member States on social leasing and support schemes** for e.g., household batteries, clean energy and heating and cooling products, as well as for EVs. On this basis, the Commission will support Member States to direct funds under the Social Climate Fund to these mechanisms.

⁴⁰ [Ember](#) estimates that [43GW](#) of enhanced geothermal could be developed [in the EU](#) at costs below €100/MWh

⁴¹ European Heat Pump Association EHPA – “European countries failing to make heat pumps affordable”

⁴² The Commission recommended such tax incentives in the Clean Industrial Deal, and set out design principles for them

⁴³ 2026 European Semester - Spring Package - COM(2026) 200 final

Action 5

As part of the Green VAT initiative announced in the Clean Industrial Deal, the Commission will present an EU framework for Member States to reduce value-added taxes on electrification assets including EVs, heat pumps, household batteries, as well as industrial electrification.

1. Industry

While the EU's industry sector has achieved major energy efficiency improvements, it represents almost a quarter of the EU's energy demand and the sector's shift from fossil fuels to electricity remains slow. Industrial waste heat recovery also offers a large potential, estimated at 300 TWh/year⁴⁴, to bring down energy costs.

With the right conditions, industrial electrification represents a unique opportunity for European industry to modernise, increase its efficiency and productivity and reinforce its global competitiveness. Electrification is technically already feasible for 60% of industrial energy demand that relies on fuels⁴⁵, using in particular industrial heat pumps. In many cases, new equipment needs to be adapted to be rolled out to adapt to specific industrial applications. Accelerating this transformation requires an approach that coordinates all relevant actors across the value chain to jointly address obstacles. Electrifying industrial processes in the most energy-intensive industries will lead to a substantial increase in the EU's electricity demand, with the demand from steel sector alone potentially more than doubling to 165 TWh by 2030 and further major increases in aluminium, cement and chemicals by 2050⁴⁶.

Immediate efforts should focus on applications with the highest potential for electrification with commercially available technologies. Economic gains are achievable in processes requiring low to medium temperatures in industries such as food and beverages, pulp and paper or textiles, using industrial heat pumps or electric boilers⁴⁷. These technologies can already deliver process heat up to 400-500°C. Certain higher-temperature applications⁴⁸ can to a large extent be electrified through resistance heating and electric arc furnaces. For other high temperature processes, e.g. petrochemicals production, electrification is at a demonstration stage.

The reuse of excess heat, either on site in the same plant, in a data centre or in an industrial cluster, or through district heating, combined with electrification will further improve the efficiency of industrial processes. As data centres are already electrified, their growing consumption goes hand in hand with electrification; its smooth integration with the grid can be improved, through digitalisation, flexible connection agreements, additional renewable generation capacity, including on-site, and the use of microgrids.

Action 5:

⁴⁴ The equivalent of the heating needs of 15 to 20 million homes RE-WITCH, 2025, Understanding the regulations governing waste heat & cooling technologies, Danfoss Impact, 2023, The world's largest untapped energy source – Excess heat

⁴⁵ Fraunhofer ISI/Agora "Direct electrification of industrial process heat"

⁴⁶ GROW – reference?

⁴⁷ The direct use of renewable heat can also be a cost-effective solution for many of these processes, where available.

⁴⁸ And further industries like ceramics, building materials or glass manufacturing.

- *The proposal for the revision of the ETS Directive supports the decarbonisation of industry, including energy-intensive industries, inter alia through ensuring the Member States spend more of the national ETS revenues on the decarbonisation of the industrial sector and making the transitional free allocation of allowances conditional to investments into emissions reductions, including electrification. .*
- *The proposal for a revised ETS framework includes the establishment of the € 100 billion Industrial Decarbonisation Bank including the €30 billion ETS Investment Booster. Both mechanisms will support investments in industrial electrification, as the critical pathway for industrial decarbonisation, grid connection infrastructure, on-site energy management systems and battery or thermal storage, benefiting system integration. The calls for proposals will be launched immediately after the legislation is adopted.*
- *The Commission will launch a second industrial heat auction under the Innovation Fund in 2026, further supporting the rollout of electrified and renewable heat solutions to reduce reliance on imported fossil fuels.*
- *The Commission will collaborate with industrial sectors, technology suppliers and Member States to develop sector-specific electrification roadmaps along the value chain. Priorities include the scale-up of electrification technologies, standards, modularisation of components, demand flexibility and protocols for the effective integration of these technologies in industrial processes, innovative business models and access to financing.*
- *The Commission will work with industry to facilitate cluster-based partnerships for electrification and waste heat reuse of industrial sites, involving industrial actors, including data centres⁴⁹, as well as providers of energy and flexibility services⁵⁰.*

2. Transport

Road transport consumes almost a third of the EU's energy⁵¹.

Whilst the number of **battery electric vehicles (BEVs)** has grown sixfold since 2020 only 2.9% of cars are battery electric. Across the EU, more than 8 million BEVs are already leading the transformation of the sector which depends the most on imported fossil fuels. In 2025, even before the conflict in the Middle East, EVs saved EUR 4.1 billion in avoided oil imports⁵². BEVs sales have climbed to a record 20.4% of new sales so far in 2026⁵³, notably driven by the CO₂ emission standards as the main EU-wide policy tool, tax incentives, new support schemes including social leasing and a lower total cost of ownership than comparable petrol and diesel vehicles. The Commission proposed a Clean Corporate Vehicles Regulation to accelerate the registration of electric cars by large companies, which are also a source of affordable vehicles for the second-hand EV market, due to their high turnover⁵⁴. Some Member States use taxation of corporate cars to incentivise electrification, which the

⁴⁹ Building on new initiatives such as Eurelectric's « power couples » plan.

⁵⁰ Possible priorities for these partnerships include demand aggregation for PPAs or heat storage services or engagement with electricity grid operators to facilitate grid access.

⁵¹ Eurostat

⁵² EMBER - A clean break: leaving fossil volatility for clean tech security

⁵³ European Alternative Fuels Observatory.

⁵⁴ 60% of new cars in Europe are purchased by corporate entities. Proposal for a Regulation on clean corporate vehicles COM(2025)994.

Commission encourages: Belgium did so in 2021 and the EV share in new corporate car registration reached 54% in 2025⁵⁵. Other Member States are encouraged to follow suit.

Member States can direct Social Climate Fund and ETS revenues to finance social leasing schemes for EVs for lower and middle-income households, or toll exemptions. Fiscal incentives, subsidies or low-interest loans, including for second-hand EVs, are also effective tools for Member States to increase EV affordability. The Commission also encourages Member States to exempt zero-emission lorries from tolls and apply reduced toll rates for EVs, in line with the Eurovignette Directive⁵⁶.

Beyond road transport, the electrification potential of maritime transport is also growing and the framework to enable the necessary investments deserves attention. Finally, in the decarbonisation of the aviation sector, electrification can play a growing role alongside sustainable aviation fuels (SAF).

Action 6

- *By Q4 2027, the Commission will review the Clean Vehicles Directive to assess possible further strengthening the targets with regards to zero emission vehicles in public procurement.*
- *By Q4 2026, the Commission will put forward a recommendation on Fiscal and Non-fiscal demand-side incentives for zero-emission vehicles.*
- *The Commission proposes including support to electrification as part of the ETS SAF support scheme for aviation and in the Sustainable Maritime Propulsion Mechanism, which will also support the uptake of electric propulsion technologies.*
- *[Extension of ETS to more maritime transport]*

3. Buildings

Commercial and residential buildings account for half of the EU's gas consumption and progress towards renovation and electrification remains slow. In residential buildings and collective heating systems, heat pumps can fully cover space heating, cooling and hot water needs; about 80% of energy use. The EU renewable energy framework foresees simplified permitting rules for their installation. Electrifying energy consumption in buildings and improving their energy performance leads to multiple benefits for consumers, from lower bills to a healthier indoor environment. The switch from gas boilers to heat pumps can cut the average EU household's heating bill by up to 60%⁵⁷. The benefits of heat pumps can also increase if combined with solar photovoltaic, solar thermal, ambient or waste heat and cold and other clean energy or storage solutions such as batteries, including through local heat networks. An efficient and decarbonised building stock would also cut peak demand, thus helping to lower costs across the wider energy system. With longer and more intensive heat waves, heat pumps have the additional advantage, on top of heating, of providing cooling capabilities, with a high efficiency contributing to improve EU climate resilience. Shifting cooling demand from peak hours to hours with high renewable production would decrease

⁵⁵ Transport and Environment - Weak corporate car taxes risk intensifying the EU's oil dependency, 31 May 2026

⁵⁶ [Directive - 1999/62 - EN - EUR-Lex](#)

⁵⁷ "5 things you should know about heat pumps", DG ENER article of 5 Dec. 2025

the overall costs of the energy system while maintaining thermal comfort. However, the cost of acquiring and installing a heat pump can vary widely across and even within Member States. Social leasing and other support measures, including subsidies, zero- or low-interest loans, and on-bill financing schemes for heat pumps and other clean energy and heating products, can facilitate the transition of low- and middle-income households away from fossil-based heating systems. Cohesion Policy funds, Social Climate Fund, the Modernisation Fund and Recovery and Resilience Plans can support the electrification of buildings, such as in Belgium, where some social housing units are being equipped with a combination of solar panels and heat pumps.

The Commission will explore ways to mobilise public demand for heat pumps, including under the upcoming Public Procurement rules, for example by bringing public buyers into a community of practice to coordinate and consolidate their demand while strengthening the value chain through Made in Europe requirements.

To deliver meaningful cost savings and other benefits for consumers, deployment of these technologies should be coordinated with building insulation and renovation, prioritising the worst-performing buildings. Member States have an opportunity to structurally transform their building stock into zero-emission buildings, with their National Building Renovation Plans. The Energy Efficiency Financing Coalition can help scale up private financing for renovations, as well as the good use of revenues generated by ETS2.

Action 7

- *By 2027, the Commission will explore the possibility to introduce a clean heat market mechanism to incentivise rising share of heat pump sales from manufacturers, redirect installers and manufacturers to clean heating and cooling solutions and boost competition, narrowing the upfront costs difference for heat pumps.*
- *The Commission will examine mandating heat pumps in public buildings through a revision of the Public Procurement rules.*
- *To ensure heat pump cost transparency, the Commission will facilitate the rollout of national online comparison tools allowing consumers to easily secure a tailored, transparent and comparable “heat pump quote” from different brands and installers.*
- *Through the Better Homes Partnerships, the Commission will promote innovative financing and business models for heat pumps within integrated packages of renovation and adaptation works in residential buildings in order to accelerate their uptake, replication and access to finance.*
- *The Commission will mobilise the Heat Pump Accelerator platform and the Energy Efficiency Financing Accelerator to derisk and finance investment in heat pumps.*

KPI: double installation rate of heat pumps in 2030 compared to 2025

3. Access to infrastructure

Enhance grids productivity

Difficulties in connection and access to the electricity grid, linked to delays in grids build-out, is another clear constraint on electrification. The EU has already taken action to address this: with transparency in grid hosting capacity, flexible connection agreements and grid connection regimes, including prioritisation frameworks or anticipatory investments. In

addition, the Grids Package proposed new measures on grid planning and productivity through grid-enhancing technologies and smart solutions. As part of the package, measures on electricity grids and renewables permitting, storage or recharging points are also under negotiation by co-legislators.

Member States should boost investment in grids and streamline permitting in the acceleration areas created by EU legislation. System operators are encouraged to involve in their network planning and grid capacity expansion processes the key actors in electrification investments, including industrial sites and parks, data centres, district heating operators, charging point operators, airports and ports. The mid-term review of Cohesion Policy resulted in additional resources allocated by Member States to investments in electricity grids and interconnectors (1.2 billion EUR)⁵⁸. With a consistent application of the energy efficiency first principle across all infrastructure planning processes, these developments will help lower system costs and improve grid productivity and access. In the context of the Clean Energy Investment Strategy⁵⁹, the European Investment Bank intends to deliver over €75 billion of financing over the 3 years, with grids as a key priority.

Interface between the electricity grid and users

As regards the expansion of **transport recharging infrastructure**, multiple measures and support have been provided; as a result, there are now more than 1.1 million publicly accessible recharging points in the EU⁶⁰.

While Europe's battery electric heavy-duty vehicle (e-HDV) fleet is growing⁶¹, scaling it up requires addressing infrastructure gaps by providing investors and operators greater certainty to unlock investments. The Alternative Fuels Infrastructure Facility is now focusing on financing recharging e-HDV stations, for which Member States can also make use of regional funds to support these investments. Nevertheless, additional financial support is needed to reassure charging point operators and convince consumers that electric mobility will rapidly become the most reliable and accessible form of transport, even in less densely populated areas.

Action 8:

- *In 2026, the Commission will review the Alternative Fuels Infrastructure Regulation (AFIR) to further support the accelerated roll-out of charging infrastructure, including for electric heavy-duty vehicles (e-HDV), while ensuring no region is left behind. It will also collect data to assess current and future needs on depots charging.*
- *Under AFIR, the Commission will update common technical specifications for publicly accessible and private recharging points to ensure technical interoperability and ensure bi-directional recharging capabilities.*
- *In 2026, as part of the whole value chain approach to e-HDV, the Commission will ensure a coordinated European deployment of HDV charging infrastructure. It will expand e-*

⁵⁸ [InfoREGIO - Results of the Mid-Term Review of cohesion policy](#)

⁵⁹ Clean Energy Investment Strategy (COM/2026/116), March 2026

⁶⁰ European Alternative Fuels Observatory

⁶¹ 29,000 vehicles as of 2026 – Source: European Alternative Fuels Observatory

HDVs Clean Transport Corridors initiative to other TEN-T corridors and facilitate financial support for the derisking of investment in e-HDV recharging stations.

- *The Commission will work with Member States and industry to identify remaining enabling conditions for the deployment of zero-emission e-HDVs, including incentives for the demand for the vehicles and agree on joint action plans for the enabling framework for the transition under the 2030 CO₂ targets for e-HDVs.*
- *Member States should consider the frontloading of credits under the RED credit mechanism to facilitate investment in recharging points, including depots charging⁶².*

Port infrastructure has great potential to facilitate the electrification of maritime transport through onshore power supply (OPS). The deployment of an adequate high-power charging infrastructure in ports remains a priority, while timely integration into grid planning processes, electricity demand forecasting, deployment of energy storage, integration into local energy systems or access to funding can all contribute to turn them into energy hubs. The EU policy framework for ports puts particular focus on the role of OPS and on the potential of ports to become energy hubs⁶³.

Transparent and non-discriminatory pricing of OPS services is also essential to support this transformation, as well as determining ports as industrial accelerator areas in line with the proposed Industrial Accelerator Act. The Commission invites relevant stakeholders, including within the European Sustainable Shipping Forum, to develop best practices on transparent and non-discriminatory pricing of OPS services, including tariff structures and cost components. If needed, the Commission will take further measures to enhance price transparency and comparability of OPS services across the EU.

[KPI: One third of the EU ferry fleet operating with battery electric propulsion by 2040.]

District heating and cooling (DHC) systems using heat pumps or e-boilers, urban heat networks and thermal storage can offer large amounts of flexibility and reduce the burden on the electricity grid. They can mobilise direct sources of clean heat (geothermal and solar thermal, waste heat⁶⁴) to complement electrification. The Commission will support investments in DHC and waste heat recovery projects, address the lack of awareness by promoting replicable approaches to match supply and demand and promote technical capacity at local level.

Action 9:

- *The Commission will launch an EU Waste Heat initiative to provide investment certainty and support business models for waste heat recovery and use in DHC*
- *The Commission will mobilise the Energy Efficiency Financing Coalition and the Energy Efficiency Financing Accelerator to derisk and finance DHC investment.*

⁶² While ensuring that the credits that have been frontloaded are cancelled if the corresponding renewable electricity is not finally supplied.

⁶³ In particular AFIR, FuelEU Maritime and the March 2026 EU Port Strategy.

⁶⁴ The Commission set the objective to supply 11% of EU heat demand from waste heat recovery by 2050

- *The Commission will support the European City Facility to fund municipal heating and cooling plans. A first pilot action of EUR 15M funding up to 180 plans launched by July 2026, with the aim to expand in order to turn 1000 local heating and cooling plans into investible business.*

KPIs: Supply 11% of EU heat demand from waste heat recovery by 2050; DHC systems to supply [15%] of total H&C supply by 2030 and DHC networks to grow [6-7%] per year by 2030;

4. Accelerating innovation in electrification solutions

With constantly improving solutions, electrification technologies cover an ever-larger spectrum of the EU's energy needs. The majority of today's fossil fuel consumption can be electrified, but there are still some energy uses and processes which require further research and innovation, in particular long-distance transport and certain industrial processes. The EU already commits [xx] billion of euros to support the development of electrification technologies, through Horizon Europe, the Modernisation Fund, the Innovation Fund or the Strategic Energy Technology (SET) Plan. For 2026-2027, Horizon Europe dedicates almost EUR 2 billion to address issues such as energy storage, new breakthrough energy technologies, renewable energy, grid technologies and energy systems, electrification of buildings and industry, heating and cooling and solutions for the transport system. The Commission also supports innovative nuclear technologies, including through small modular reactors (SMR) to deliver clean electricity to industrial consumers in a safe way, as reflected in the EU's SMR Strategy⁶⁵.

In addition, full decarbonisation of some industrial processes would require the development of other options, such as the use of biogas, hydrogen or carbon capture utilisation and storage.

Action 10:

- *The Commission will reinforce the support of the uptake of clean energy technologies central to electrification within the SET Plan, including for certain industrial processes, by developing and endorsing Common Investment and Implementation Plan for these technologies by Q1 2027*
- *The Commission will work with the European Industrial Alliance on SMRs to conclude the second call for projects in the context of the objective of first SMR projects becoming operational in Europe by early 2030s.*
- *in [2026/2027], the Commission will update the hydrogen strategy to ensure the availability of complementary decarbonisation solutions for industrial processes where direct electrification is not feasible or cost-effective.*

⁶⁵ COM/2026/117

5. Aligning value chains with the ambition: Skills and manufacturing

Reaching the EU's energy goals, increasing electrification, modernising infrastructure and ensuring the security of the growing electricity system is challenging. Delivering on the targets and KPIs requires action all along Europe's value chains; growing and diversifying access to materials, scaling up manufacturing capacities, augmenting the skilled labour supply and stimulating demand.

The workforce in the energy sector is projected to increase by 50% by 2030 to deploy renewable energy, grid and energy efficiency technologies.⁶⁶ The IEA estimates that the EU needs 500,000 skilled workers, up from 165,000 in 2024, to deliver on its heat pump installation ambitions. Under the Union of Skills, the EU provides a comprehensive framework to support skills development, including funding.⁶⁷ [placeholder for additional data on skills] Further actions can still help. The diversity of certification and permit systems across Member States also represent a barrier to the development of an EU market of installation and maintenance of electrification solutions.

Action 11:

- *The Commission will support Member States and industry on awareness raising to attract a new generation of electricians and installers which are in urgent need to drive the transition forward.*
- *The Commission will adopt an initiative to support the portability of qualifications and skills across the EU.*
- *The Commission will ensure sufficient incentives for manufactures to support training of electricians and installers through vocational and educational training partnerships between companies and technical schools to share equipment and develop real life cutting edge equipment, possibly through the Clean Heat Market Mechanism.*
- *The Commission will explore support for access to certifications for energy efficient construction and installation services and electrification by design in the upcoming Construction Services Act.*
- *The Commission will support the uptake of autonomous and collaborative robots to alleviate the workforce and skills shortage for a faster uptake and roll out of electrification assets and services.*

The EU is among the global leaders in manufacturing the technologies this electrification transition needs. Minimising cybersecurity risks for the electricity grid also needs to be addressed and requires greater use of homegrown technology and suppliers for key IT assets such as inverters.

Building on the Net-Zero Industry Act, the Commission proposal for an Industrial Accelerator Act steers public investments in electrification towards resilient and “Made in EU” products, so European manufacturers can benefit from and lead Europe's electrification

⁶⁶ Union of Skills

⁶⁷ European Social Fund Plus and Erasmus+ (including the Platform for Electrification Skills), Large-Scale Skill Partnerships on Renewable Skills and on the Digitalisation of the Energy System, battery and net-zero industry skills academies and the EU Talent Pool.

efforts. To contribute to this effort, [relevant EU funding instruments will apply the same criteria while ensuring this does not slow down energy transition efforts and] Member States are encouraged to advance their application for electrification technologies.

With this objective, the European SMR Industry Alliance is taking steps to increase the capacity of the EU SMR industry; and Italy used at least EUR 400 million from its RRP to establish the “Net Zero Technologies” Facility, mobilising private investment in clean technology manufacturing such as batteries, solar and wind and clean heating and cooling technologies. Member States also allocate resources to research, innovation, knowledge-sharing and technology transfer to other companies across clean tech value chains under the Strategic Technologies for Europe Platform (STEP) - EUR 15.2 billion under the new competitiveness priority⁶⁸. Similar actions are needed across the EU for all clean energy technologies. More generally, strengthening the single market and Energy Union will improve the competitiveness of industry and the development of dynamic and integrated markets based on harmonized rules.

Action 12:

- *The Commission will shortly adopt guidance on NZIA provisions on **public procurement procedures** for net-zero technologies.*
- *Bringing together all stakeholders, the Commission will create an Electrification Action Plan Alliance of EU and national authorities in synergy with the Energy Union Task Force, as well as private actors and associations involved in electrification decisions, from industrial consumers to electricity suppliers, electricity network operators, flexibility aggregators, as well as operators or manufacturers of electrification assets such as heat pumps or EVs and related recharging infrastructure. The Alliance will put special focus on the swift integration of electrification value chains at EU level, from manufacturing to installation.*

6. Accelerating clean electrification globally

Clean electrification globally helps to advance international climate action. IRENA estimates that “to remain on a 1.5°C-compatible pathway, electricity must account for 35% of global total final energy consumption by 2035 and more than 50% by 2050”. The European Commission, the COP30 Presidency (Brazil), the COP31 Presidency (Australia, Türkiye), the COP32 Presidency (Ethiopia), Canada, the Philippines, the Republic of Korea, the United Kingdom, the International Energy Agency and the International Renewable Energy Agency, joined forces with international partners and industry to launch ‘Electrify Now’ on 23 June 2026, a global platform to accelerate the electrification of the global economy.

Global clean electrification will be accompanied by substantial socioeconomic benefits from a massive build-out of infrastructure, the global scaling up of manufacturing capacity and cost reductions for clean technologies. It can also create export markets for European innovations and technologies, while early development and international promotion of technical standards can give European companies a head start on export markets.

⁶⁸ [Inforegio - Results of the Mid-Term Review of cohesion policy](#)

Finally, electrification helps shift the world away from a fragile energy security landscape based on fossil fuels extraction, towards a cleaner, resilient, predictable system based on technology cooperation. Especially for the energy poor nations, clean electrification can alleviate the effects of conflict and instability multipliers, such as the collapse of networks and fuel price volatility, and foster regional economic stability.

Action 13:

- *With its partners of the Electrify Now Initiative, the Commission will seek to unlock ambition across all regions of the globe by showcasing successes, identifying opportunities, securing commitments and strengthening delivery plans;*
- *The Commission will pursue global clean electrification at scale by working with existing initiatives and partners to address common policy, regulatory and investment barriers to renewable energy generation, storage, grids and electrification*
- *The Commission will seek to build a wide coalition of countries that are willing to commit to global clean electrification, rooted in the tripling of renewable energy capacity globally and the new global objectives to reach 35% of electrification by 2035 promoted by the COP31 presidency.*

Conclusion

Europe's electrification, despite all the benefits of displacing expensive, volatile fossil fuel imports using clean European power and clean tech, is not happening fast enough. This action plan addresses barriers to electrification and unlocks the potential in the key demand sectors. In industry, through targeted use of ETS funds, appropriate incentives to electrification and coordination along the value chain for the sectors with the highest potential. In transport, through better access to charging infrastructure, action to electrify heavy-duty vehicles, ports as clean power hubs and flexibility through vehicle-to-grid solutions as well as targeted use of ETS revenues. In buildings, through a strengthened market for clean heat solutions, innovative public support schemes and the mobilisation of the financing sector. These new actions, together with the extensive range of EU measures in place to make energy more affordable, will create the incentives for the EU to deliver on its new electrification target across sectors and the value chain.

On the international scene, the Commission launched in June 2026 Electrify Now, a global platform to accelerate ambition, scale up implementation, and strengthen international partnerships to boost clean electrification.

With decisive action at all levels, Europe can become the first electro-continent. This profound transformation will require investments and lead to savings and benefits well beyond the energy system, from clean tech manufacturers to the installation sector, from more and modern competitive industries to emissions and pollution reduction in European cities. By driving these actions and delivering on the electrification target, the EU will boost its competitiveness and take a leading role in growing global markets in the modern, electrified age.

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Annex I – Matrix of barriers and actions for the industry, transport and buildings sectors

(Actions are preceded by the action box number)

	Industry	Transport	Buildings
Barriers			
Unfavourable electricity-fossil price	X	X	X
High upfront	X	X	X
Long delays to access the electricity	X	X (for charging stations)	
Innovation still required for certain	X	X	
Skilled workforce	X		X
Actions			
Sector-specific actions	2. Methodology to assess industrial	2. V2G Regulatory sandbox	7. Clean Heat Market Mechanism
	2. Label with rating scheme for data centres	2. Smart charging by default in contracts	7. Facilitate the rollout of cost comparison tools
	3. GeoDep tool for energy-intensive	2. V2G requirements for new EVs	7. Better Homes Partnerships roll-out
	5. ETS Directive revision to incentivise	6. Revision of Clean Vehicles Directive	7. Derisk and finance heat pump investments
	5. ETS funds: IDB and Investment Booster	6. Recommendation on demand-side incentives	9. European City Facility
	5. Second industrial heat auction	6. Support to electrification in the ETS SAF support scheme and the	11. Skills in Construction Services Act

	Industry	Transport	Buildings
	5. Sector-specific electrification roadmaps	8. Review of AFIR on charging stations, interoperability and	
	5. Cluster-based	8. RED credit	
		8. expand e-HDV charging infrastructure clean transport corridors and	
		Annex II. Guidance on social leasing	
Cross-sector action	10. Hydrogen Strategy	6. ETS extension to	
	12. Resilience requirements under		
	9. Derisk and finance District Heating and		9. Derisk and finance District Heating and
	9. EU Waste Heat		9. EU Waste Heat
Horizontal and supply side actions	Electrification target		
	12. Electrification Action Plan Alliance		
	Legislative proposal on future-proof electricity bills		
	1. Measures on progressively phasing out fossil fuel subsidies		
	2. 2. Proposals on network codes adoption and update		
	2. Implementation of the Tripartite Agreement on Storage		
	2. High-level conference to assess barriers and solutions for storage		
	3. Support for MSs to implement the Renewable Energy Directive		
	3. Support for cross border cooperation for faster nuclear reactor licencing		
	3. Renewable energy auction design database		
	3. NZIA guidance on non price criteria for renewable energy auctions and 12.		
	4. Geothermal Stakeholder Partnership		
	10. European Industrial Alliance on SMRs second call for projects		
	10. SET Plan Common Investment and Implementation Plan for clean technologies, including innovation in industrial processes		
	11. Skills portability initiative		
	11. Awareness raising and initiatives to attract and train a new generation of		

	Industry	Transport	Buildings
	11. Support the uptake of autonomous and collaborative robots		
	13. Global clean electrification and Electrify Now Global Initiative		

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Annex II – Guidance on social leasing and support schemes for clean energy, heating and cooling products

1. Introduction

Social leasing can be an effective system to increase the uptake of clean energy, heating and cooling products. A social leasing scheme usually means a government-backed programme providing low- and middle-income households with affordable, subsidized long-term leases to help with high upfront costs of products. It can cover, for example, electric vehicles (EVs), heat pumps, photovoltaic (PV) installations, solar thermal installations and batteries. Unlike conventional leasing, social leasing schemes are publicly supported to meet broader social and environmental policy goals at the same time. They make low-emission mobility and energy-efficient solutions more accessible⁶⁹.

Switching to clean technologies implies an upfront investment, the operating costs are usually low. While most often, technologies such as EVs and heat pumps pay off over time through lower energy bills, the households that would benefit most often cannot afford the initial investment. This leaves them locked in inefficient and increasingly costly fossil-fuel system. Social leasing breaks this lock-in by replacing high upfront costs with affordable monthly payments, which can be partly offset by lower running costs, making clean technologies more accessible. Social leasing schemes can build lasting public support for the transition.

To provide suitable incentives for the uptake of clean and energy efficient energy, heating or cooling products, such as heat pumps, larger PV installations, social leasing schemes should be designed in accordance with the type of product, e.g. movable or non-movable product. To address specificities of some fixed energy assets, additional support schemes suitable for non-movable products, including subsidies, low- or zero-interest loans, standardised rent surcharge mechanisms, and on-bill financing, could be considered.

2. Social, economic and environmental benefits of social leasing and support schemes

Building on the experience of existing schemes in Member States, social leasing schemes for EVs can deliver substantial social and environmental benefits. Across the EU, more than 90% of around 5 million low and lower-middle income households in rural areas with high transport expenditures would financially benefit from a social leasing scheme for EVs⁷⁰. Receiving a monthly lease rate of approximately EUR 100 for electric mobility, households with high transport needs could save around EUR 1,800 in Spain, and EUR 1.300 in Germany. In addition, each EV, replacing an equivalent internal

⁶⁹ The Clean Industrial Deal announced guidance on social leasing for EVs, heat pumps and other clean energy and heating products, [COM\(2025\) 85 final](#). Other Initiatives including the Industrial Action Plan for the European automotive sector ([COM\(2025\) 95 final](#)), the Citizens Energy Package ([COM/2026/115 final](#)) and AccelerateEU ([COM\(2026\) 370 final](#)) refer to social leasing and similar financing support schemes.

⁷⁰ Commission estimations based on [Green EUROMOD](#).

combustion engine vehicle, could reduce direct emissions by about 2 tonnes of CO₂ in the first year and around 10 tonnes over its full use period⁷¹.

Switching to a heat pump can also deliver significant savings under the right conditions, as well as more resilience to heatwaves. A subsidy scheme⁵ covering the costs of the heat pump installation and targeting households with high energy expenditures relative to their income in the lower half of the income distribution would generate savings for around two-thirds of beneficiaries (16 out of 23 million households). Among these households, average savings could exceed 2% of disposable income, but with strong country variation. In the Netherlands, annual savings can reach around EUR 800. In Croatia, they are closer to EUR 100⁷². Benefits are higher where the ratio of electricity prices to fossil fuel prices is low. However, savings also depend on the efficiency of the heat pump system, which is influenced by factors such as the required water temperature in the heat emitters and how well the buildings are insulated. The measure would also deliver clear environmental gains: Replacing a fossil-fuel based heating system with a heat pump could cut direct emissions by around 4 tonnes of CO₂ per year per household in the target group.

French social leasing scheme

French social leasing allows most modest households to have an EV by paying a monthly rent, without being obliged to purchase it at the end of the lease. The lease must last at least 3 years. This mechanism was first introduced in 2024, and it was renewed for a third edition in July 2026.

The amount of rent to be paid depends on the car model, amounting to less than €200 per month for a mileage of at least 15,000 km/year at no additional cost (this does not include the cost of insurance, nor the price of options or additional services).

The aid granted shall be equal to 29% of the purchase cost of the vehicle up to €6,500.

This limit may reach a maximum amount of €9,000 whether the vehicle manufacturing site and the battery production site are located in the European economic area. If the electric motor was manufactured in the European Economic Area, a flat-rate surcharge

3. Designing social leasing and support schemes and financing options

Commission's action

The Commission will monitor the uptake and impact of social leasing and support schemes for clean energy, heating and cooling products. It will do so through the European Fair Transition Observatory, a flagship initiative under the Clean Industrial Deal. Monitoring may include elements moving from uptake, and socio-economic profile of beneficiaries, to potential household savings and emission reductions.

⁷¹ Commission estimations that do not account for emissions related to EV production. Estimates account for the general trend towards road transport electrification and quantify the additional potential of a social leasing scheme.

⁷² Corresponding to 4% of income in the Netherlands and 1% of income in Croatia.

The Commission will also support Member States in channelling revenues under the Social Climate Fund to social leasing schemes.

Member States' actions

Design of the scheme and financing options

Social leasing

In designing social leasing schemes for EVs, PV installations, heat pumps, solar thermal installations and batteries, Member States could promote a standardised model that offers:

- A two-part subsidy: A fixed amount for all households, plus an additional income-based top-up. This ensures lower-income households receive more support and can afford the resulting monthly payments. Monthly payments could be calibrated at the country level so that, for the typically targeted household, the lease payment combined with running costs is expected to be lower than the current expenditure on the fossil-based alternative.
- Bundled monthly payments (e.g. installation, maintenance, insurance, repair).

Social leasing type of financing for non-movable technologies

In designing support schemes beyond social leasing, Member States could consider the following options and combinations thereof:

- Subsidies to reduce upfront costs, with higher support for lower-income households.
- Low- or zero-interest loan schemes with repayments capped at an affordable share of households' incomes (e.g. $\leq 5\%$ of monthly earnings).
- On-bill financing, where installation costs are covered upfront and repaid over time through a small charge on the (lower) energy bill (pay-as-you-save). Repayment instalments could be set below the expected energy bill savings, so that beneficiaries see a net reduction in monthly expenditure from the start of the scheme. Where schemes rely on projected rather than actual energy savings, safeguards should be introduced to prevent households from bearing any shortfall⁷³.

Additional financing aspects

- Member States are encouraged to put in place measures and investments to finance social leasing and other support schemes, drawing on EU funding under the Social Climate Fund as well as to use their revenues from ETS².⁷⁴

⁷³ In Latvia, the LABEEF scheme applies a similar logic for building renovations, where costs are repaid over time through energy payments, linked to achieved savings and without upfront household investment. On-bill financing has also been recommended under [Commission Recommendation \(EU\) 2026/537](#) on unlocking private investment in energy efficiency and by the Energy Efficiency Directive ([Directive \(EU\) 2023/1791](#)).

⁷⁴ See [Regulation \(EU\) 2023/955 establishing a Social Climate Fund](#) and [AccelerateEU \(COM\(2026\) 370 final\)](#).

- Member States are encouraged to ensure long-term stability of the social leasing and other support schemes by securing multi-year funding commitments and establishing public-private partnerships for scalable, predictable delivery.
- For schemes run by private providers, Member States could reduce the risk through public guarantees and encourage the use of government-backed loan guarantees, low- or zero interest loans, and tax breaks (e.g., reduced VAT) to attract providers and lower costs.

Eligibility criteria for beneficiaries

- Member States are encouraged to target support primarily at low- and middle-income households that would otherwise be unlikely to switch to clean energy, heating and cooling products.
- The income-based targeting could be combined with additional criteria:
 - Social leasing schemes for EVs could prioritise households with high expenditure on private transport, such as those in rural or remote areas with limited public transport and high mobility needs.
 - Social leasing and support schemes for clean energy and heating products in the building sectors could target households reliant on carbon-intensive heating (e.g. oil, coal, old gas boilers) that are not within reach of an existing or planned district heating system⁷⁵. Social housing and households with obsolete heating equipment could also be prioritised.
- Member States could extend support to micro-enterprises and social economy actors with high energy or transport needs.

Technical, social and environmental requirements for clean energy, heating and cooling products

- Member States are strongly encouraged to apply Made-in-EU requirements in line with the proposed Industrial Accelerator Act, by setting local content rules to boost EU manufacturing and jobs. In this way, social leasing schemes can also provide a stable and predictable demand signal for EU manufacturers of EVs, heat pumps and PV components.
- Member States are required to apply the resilience and sustainability requirements from Article 28 of the Net-Zero Industry Act to social leasing and support schemes of net-zero technologies⁷⁶.
- As regards EVs Member States are encouraged to:

⁷⁵ Local heating and cooling plans will provide a reference in municipalities above 45,000 inhabitants.

⁷⁶ <https://eur-lex.europa.eu/eli/C/2026/123/oj>

- Support only zero-emission vehicles and prioritise support for vehicles under the Small Affordable Cars initiative, covering pure EVs with up to 4.2 metres in length⁷⁷, and grant exceptions for larger families and people with disabilities.
- Assess the inclusion of second-hand EVs to improve accessibility and cost-efficiency.
- Assess whether to link EV support to scrappage schemes which require retirement of internal combustion engine (ICE) vehicles.

Terms and conditions of social leasing and other support schemes

To ensure high uptake of social leasing and other support schemes Member States could:

- Reach and support targeted households through awareness campaigns, personalised guidance, and clear information on how schemes can be combined with other grants or incentives.
- Ensure simple application processes with minimal paperwork, supported by one-stop shops⁷⁸, and allow providers to handle applications on behalf of households to speed up access. Where possible, eligibility verification should rely on data already held by public administrations (e.g. tax or social security records) rather than documentation requirements placed on applicants.
- Develop user-friendly contracts that transparently include all costs and termination procedures. In the case of social leasing, include an option to purchase the asset at the end of the lease period at a predefined residual value.
- Include expert guidance on building technology choices (e.g., better insulation, larger heat emitters, proper size and choice of heat pumps) to ensure solutions match household needs and building efficiency.

Complementary measures

Member States could combine social leasing and support schemes for clean energy, heating and cooling products with complementary measures and investments to maximise uptake and improve affordability. For example:

- Consider preferential electricity tariffs to reduce operating costs, alongside broader efforts to lower electricity prices (e.g. by reducing taxes and levies) and remunerate flexibility.
- Consider support for shared PV installations and solar thermal, batteries, and heat pumps for households in multi-apartment buildings and small communities.
- Ensure that renters can benefit from clean energy, heating and cooling products by addressing landlord-tenant split incentives (e.g. through regulation or

⁷⁷ [European Commission \(December 2025\) – Commission takes action for clean and competitive automotive sector.](#)

⁷⁸ [European Commission - One-stop shops - renovation and energy efficiency - Energy.](#)

targeted incentives for landlords), while protecting tenants against unjustified rent increases or eviction linked to upgrades.

- Consider linking EV social leasing to subsidised home chargers and access to affordable public charging networks to reduce overall running costs.
- Where relevant, pair support for heat pumps with energy efficiency renovations and PV installations.
- Where relevant, pair support for PV installations with batteries to maximise self-consumption, reduce reliance on grid electricity, and lower energy bills, especially during peak hours.

As regards heat pumps, Member States are encouraged to consider social leasing schemes in their climate adaptation plans, as reversible heat pumps can provide affordable cooling for vulnerable households during heatwaves.

Overall implementation

In terms of implementation, Member States are encouraged to monitor and assess the impact and implications of the comprehensive set of social leasing and support measures. This is important to ensure overall consistency between the different measures, i.e. to avoid duplication and overlaps, and to ensure cost-efficient policies.

Annex III – Estimation of the benefits of electrification

[table]

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