EUROPE'S GREEN TECH REVOLUTION:

POWERING THE WORLD'S FIRST ELECTRO-CONTINENT

THE GREENS/EFA
in the European Parliament

Our vision

The Green Deal is guiding Europe towards climate neutrality, with climate action now powering our economy. Clean Tech and renewables are the new drivers of economic prosperity in Europe, contributing 30% of EU growth in 2023[1] and creating millions of green collar jobs[2]. **Europe has a unique opportunity to provide more economic prosperity, security and employment, while safeguarding the environment it depends on.**

To maximize benefits, Europe has to become a world-leader, not only in deployment, but in Clean Tech manufacturing. This is however not a given. China is becoming the world's first 'electrostate'[3], exporting its ever growing production[4] at the expense of European producers. The EU is increasingly, and for some technologies fully, dependent on imports. On top of that, Russian aggression and American extortion show the need to stop relying on massive fossil fuel imports. **For Europe to ensure its energy independence, it has to become the first 'electrocontinent'.**

Where China has taken a conscious decision to massively invest in a few strategic technologies and their supply chain, industrial policy has been absent in Europe for decades. The Net Zero Industry Act, Europe's first attempt to remedy this, has been a fragmented response, relying on national action. **Industrial nationalism cannot compete with coordinated, stable and long-term planning.**

Europe needs to fundamentally reverse course. In 1952, in building the European Coal and Steel Community, visionaries rightfully identified common industrial policy as the key to security and prosperity in Europe. As Europe is facing new challenges, it must step up action in tomorrow's industries to meet them. **Europe will have to do whatever it takes to create a Union of wind and sun, of cables and batteries; a European Renewables and Clean Tech Community.**

Our call for a European Clean Tech Action Plan

European industrial policy is more than a plan, it's a shift in mentality. The Commission has to take a central role in developing and expanding the Clean Tech industrial base. Similar to the new approach in defence policy - identifying common capability gaps, fostering research and development, driving joint investments, and strengthening manufacturing capacity - **our agenda should be driven by the same sense of urgency and political determination.**

The Commission should start by setting up a Clean Tech Dialogue with sectoral sub-dialogues, building on existing industrial alliances and action plans, notably for batteries, wind, solar PV, energy efficiency technologies, electrolysers, heat pumps, oceans, and electricity grid equipment. This should result in a **European Clean Tech Action Plan and sectoral 10-year roadmaps** in line with National Energy and Climate Plans for quantification, planning and implementation of the actions along the full supply chain.

The Commission should present a European Clean Tech Action Plan, building on the following principles:

1. **Build European:** develop, scale and expand the European Clean Tech manufacturing base
2. **Buy European:** ensure demand for Clean Tech made in Europe
3. **Secure European:** enable European Clean Tech to stand global competition

1. Build European

As Europe has traditionally focused on Clean Tech deployment, while investments in building a strong manufacturing base were lacking. More than three-quarters[5] of global new investments into Clean Tech manufacturing was in China last year, supported by subsidies three to nine times higher than those of most OECD countries[6]. On top of this, EU support is less targeted and bankable than under for instance the US Inflation Reduction Act. The same is true for research and innovation, as China is increasingly leading in research outputs on clean technologies.

For Europe to protect or build a dominant position in Clean Tech it needs to speed up, coordinate and facilitate investments in Clean Tech research & innovation and manufacturing. If the EU would domestically supply 100% of its own demand, capital investments in Clean Tech manufacturing would need to reach at least 116 billion euros[7] over 2023-2030 (public and private). The biggest challenge however is bridging the gap in operational expenditure, which potentially requires several hundreds of billions in additional support, depending on the cost gap with third countries and policy mix chosen[8].

Next to investments, Europe also needs the skilled workers to be able to take on this mission, which could create almost half a million of additional direct jobs[9]. As job positions related to Clean Tech manufacturing and deployment will surge to meet the EU's climate targets, Clean Tech companies increasingly experience labor market bottlenecks, such as skills shortages. **To address these challenges, Europe must ensure green collar jobs are also high quality jobs.**

Priority actions:

1 ***Clean Tech Manufacturing Bank:*** *the EU should publicly support manufacturing in key sectors like next-gen solar panels, batteries, grid technology, and wind turbines. The Bank should provide capex and output-based aid—such as €/kWh for battery cells—modeled after the IRA. This approach would enhance predictability and bankability for companies, reward efficiency, and enforce Union-wide social and resilience conditions. The output-based model should also apply to the new Clean Tech State Aid Framework (CISAF). Additionally, public support should be complemented by tools to de-risk private investments, including CfDs and counter guarantees. To fund the build-up of a strong domestic Clean Tech manufacturing industry, the EU should jointly borrow at least 150 billion euros.*

2 ***Clean Tech Innovation and Development Fund:*** *to secure leadership in the next generation Clean Tech, it has to be a common mission to invest in the development and commercialisation of these technologies on a European scale.*

If the EU wants to become a manufacturing continent again, it needs to facilitate risk-taking. A significant share of the Competitiveness Fund and of EU R&I policy tools should support it, notably to facilitate development and first industrialisation of newly developed clean technologies, building on the existing Innovation Fund's clean tech manufacturing.

3 ***Clean Tech Quality Job Roadmap:*** *Clean Tech needs to be the most attractive place to work, but in reality, it's not always the case. In many cases, fossil companies offer higher wages and job security. The EU should therefore support the Clean Tech sector in Europe to get to a high level of unionisation to ensure collective bargaining and enhance the right to individual training during working hours. Social conditionalities should be included in the context of public procurement and public support requirements. The EU should also increase financial investments into up-skilling and re-skilling programmes to ensure we have the skilled workers we need for our ambitions.*

2. Buy European

To improve the business case for Clean Tech in Europe and nurture new technological development, Europe must ensure a stable and predictable market demand, even at higher prices than third country alternatives. Therefore, Europe needs to create lead markets for green, circular and toxic-free materials and products, delivering jobs and investments in Europe. For instance, securing 80% of the wind market for EU manufacturers, would generate 50,000 additional jobs by 2035[10] and would safeguard cutting-edge knowhow for decades to come.

While Net Zero Industry Act was a first attempt to diversify Clean Tech supply chains, it does not stimulate production in Europe, nor offers long-term investment certainty to European industry. To close the international Clean Tech competitiveness gap, this has to change. Public- and private procurement, together with subsidies provide three crucial levers to require EU-wide, mandatory action to secure Clean Tech manufacturing in Europe.

Moreover, Clean Tech demand and deployment is dependent on the operating costs, which are heavily influenced by the electricity price. This, and the large scale use of fossil fuel subsidies, makes it harder to compete with fossil alternatives. **It is therefore crucial to get rid of fossil fuel subsidies and accelerate electrification.**

Priority actions:

1 ***Buy European Act:*** *set common and mandatory "Made in EU" criteria for Clean Tech supported by national and European public support, such as local ownership, content and use. For instance by setting minimum EU content requirements which increase over a certain period of time, in line with the 10-year sectoral roadmaps. To further boost uptake of EU manufactured Clean Tech, support for industrial decarbonisation projects deploying Clean Tech, including the Industrial Decarbonisation Bank, should also be included in the scope.*

2 ***Clean Tech Leadmarkets Act:*** *the EU has to incentivise or even mandate the uptake of European Clean Tech by the private sector. A first example of this, is the initiative to green corporate fleets, to incentivise the uptake of EU produced electric vehicles powered by EU batteries. EU demand can also be stimulated by incentive schemes like the French eco-bonus or social leasing scheme for electric cars. The same should be done for instance for heat pumps and solar panels. That's why the Commission should work on common schemes that can incentivise uptake of EU Clean Tech on a European level.*

3 ***European Renewable Electrification and Grids Package:*** *the Commission has to swiftly present a legislative package which lowers electricity prices and promotes fair tariffs, boosts grid efficiency and accelerates expansion and incentivises renewable based electrification and demand side response. Taxes should shift from electricity to gas and fossil fuel subsidies should be phased out. At the same time, the Commission has to take action on grid financing, across borders and over time (amortisation) and by massively increasing investments in CEF-E. Along with a well coordinated and long-term European planning approach, including independent EU decision making on infrastructure investments plans. And finally, to expand and standardize grid equipment manufacturing.*

3. Secure European

The international race for clean technologies is in full swing, putting the EU's manufacturing base under extreme pressure. After Trump's victory in the US, the trade wars unfold, and due to China's export of overcapacities, the international trade environment is set for even more instability. **This will require the EU to clearly establish the Union interest when identifying strategic sectors and to legitimately defend such interest.**

Furthermore, the development of Clean Tech sectors is heavily dependent upon access to critical raw materials. The EU has major strategic dependencies. Electrolyser production, for instance, requires at least 40 raw materials and the EU currently only produces 1% to 5% of these materials. The EU's share of production in all required raw materials for wind is only 2%, while China holds 43%[11].

Increasing the EU's strategic autonomy requires a value chain approach, considering specific components and materials of clean technologies, from access to raw materials and their processing, to the development and design of products to substitute materials and reduce dependencies. The EU could potentially meet more than half to three quarters of its metal requirements for clean technologies in 2050 through local recycling[12]. **It is therefore crucial that Europe increases the circularity of production in order to limit strategic dependencies.**

Priority actions:

1 ***Foreign Direct Investment Screening Regulation:*** *foreign investors are often 'forum shopping', targeting the most lucrative entry to the single market, without any market access requirements.*

Chinese companies are for instance heavily investing in battery manufacturing, supported by EU or national subsidies without any strings attached. In Clean Tech sectors, the EU should require knowledge transfers, foreign ownership caps and joint ventures - which is even more crucial when public money is involved - to make sure such investments benefit European industrial development and truly contribute to the European social model. In case of takeovers of critical assets, foreign ownership could be prohibited.

2 ***Anti Dumping Package:*** *the EU should act strongly on unfair trade practices, such as it has already done for electric vehicles. Besides tariffs, tariff rate quotas may become a necessary instrument to regulate access to the European market. Trade defence instruments should be strengthened by shortening investigation periods, levying provisional anti-dumping or countervailing duties and generalising the ex-officio launch of investigations. Moreover, ambitious reforms are urgent, such as the scrapping of the lesser-duty rule which would allow higher levels of duties.*

3 ***Sustainable Resource Management Framework:*** *given the limited supply of CRMs and the lack of diversification of certain CRM suppliers, the EU should put in place measures to prioritize the use of CRMs for Clean Tech production, resource efficiency and sufficiency policies to conserve energy use as well as CRMs and resources in general, which will boost EU competitiveness, and maximize circularity from the get-go, by significantly improving collection, creating circular design criteria such as disassembly requirements, and setting high quality recycling objectives for Clean Tech (and other products). This should be part of the Framework for Sustainable Resource Management requested by Council in June 2024 and in line with the objective of demand moderation under the Critical Raw Materials Act.*

Sectoral Roadmap: securing offshore wind leadership

Europe aims to expand its offshore wind capacity to around 360 GW by 2050[13]—an 17-fold increase from today—making it a central part of the continent's future energy system. This growth could create 100,000 new jobs in manufacturing and deployment by 2030[14].

However, the business case for many projects is under pressure due to economic challenges such as inflation, high capital costs, and uncertain electricity demand. While European industry shows leadership in wind turbine production—supplying 85% of its domestic demand and exporting globally[15]—its market share is declining. This is mainly due to fierce competition from China.

Despite strong demand prospects, Europe faces significant hurdles: accelerating growth strains such as skilled labor, manufacturing capacity and installation capabilities. Additionally, it must compete with China's economies of scale amid an increasingly unstable investment environment.

If we want Europe to live up to its ambition, we will have to address these challenges head on, providing a new deal for offshore wind:

Build European:

- **European planning:** start coordinating commissioning on a European level, as countries now all compete over the same ships, harbors and suppliers, in the same years[16]. The EU should also increase investments in manufacturing capacity and infrastructure.
- **Economies of scale:** adopt a European standard for turbine size to address the race for larger turbine sizes, which makes it difficult for companies to secure a return on investment, as facilities need to be upgraded constantly.
- **Increase public support:** commit to auction at least 100GW of two-sided Contracts for Difference, providing certainty and bankability for manufacturers and investors. The EU should also provide guarantees for PPAs. In addition, ensure communities engagement mechanisms with benefit sharings/ownership sharing and energy communities participation in projects.

Buy European:

- **European leadmarkets:** to ensure a demand for wind turbines and foundations manufactured in Europe, the EU should set local content requirements in a way that is non-discriminatory towards EU-owned operators. These should increase over time and should include private PPAs.
- **Accelerate renewable based electrification:** the wind industry is experiencing uncertainty in demand due to the hampering electrification of industry and grid congestion. Among other things, the EU should massively increase grid investments through CEF-E, incentivise flexible demand and lower grid costs, for instance by cost-sharing.

Secure European:

- **Fair market access:** until now, China has had limited access to the European offshore wind market, this is however changing. Just as with electric cars, the EU should ensure that market access is not supported by unfair subsidies.
- **Digital security**: throughout the EU, access of third country operators to critical infrastructure and data should be limited.
- **Strengthen circularity**: next to setting circular design criteria and investing in R&D, as part of the CRMA, the EU needs to invest in the extraction of CRMs from the first decommissioning wave of wind turbines this decade and ensure its circular use.

Notes

[1] IEA, Clean energy is boosting economic growth (2024)
[2] Cedefop, The green transition creates more jobs than it destroys (2023)
[3] Financial Times, How we made it: will China be the first electrostate? (2025)
[4] IEA, Energy Technology Perspectives 2024 (2024)
[5] BloombergNEF, Energy Transition Supply Chains (2025)
[6] Ifw-Kiel Institute for the World Economy, China's Massive Subsidies for Green Technologies (2024)
[7] European Commission, Staff Working Document - Investment needs assessment and funding NZIA (2023)
[8] Agora Energiewende, EU Clean Tech Industry (2023)
[9] European Commission, Staff Working Document - Investment needs assessment and funding NZIA (2023)
[10] Strategic Perspectives, Lead Markets: Driving Net-Zero Industries Made in Europe (2025)
[11] Mario Draghi, The Future of European Competitiveness - Part B (2024)
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[13] European Commission, Member States agree new ambition for expanding offshore renewable energy (2024)
[14] Hertie School - Jacques Delors Institute, When Europe talks climate, it needs to think jobs (2023)
[15] European Commission, The Net-Zero manufacturing industry landscape across the Member States (2024)
[16] Arcadis, Bottlenecks in the offshore wind supply chain (2025)

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