



A triple challenge to solve: **Decarbonisation,** **competitiveness and** **security of supply**

Fortum White Paper on the priorities for the next
European Commission

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This White Paper by Fortum proposes several key actions that the next EU Commission should take to foster the development of clean and green industries and to reduce dependency on fossil fuel supplies. The purpose of the Paper is to address Europe's immediate energy challenges while laying the groundwork for a sustainable and prosperous future, reinforcing Europe's role as a forerunner in the global clean energy transition.

The European Green Deal has been the flagship project of the current EU Commission, and the war in Ukraine and the energy crisis have further highlighted the need to reduce external dependencies. Industrial competitiveness, security of supply and energy independence are expected to be among key priorities during the next EU mandate (2024–2029). While the decarbonisation of the power sector is already advancing well, enhancing direct and indirect electrification of industries and the development of a hydrogen economy in Europe is the next task at hand.

Summary of the proposed key actions:

1. Accelerate industrial decarbonisation

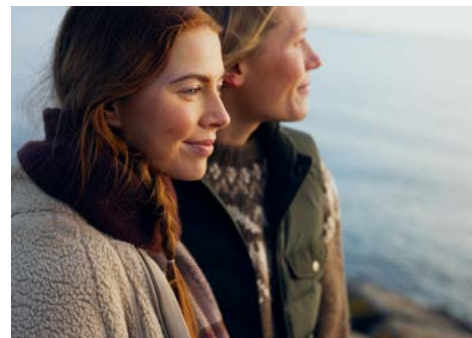
- Speed up the process to reduce Europe's reliance on fossil fuels and external supply chains for critical resources like raw materials and energy.
- Make the decarbonisation of industries and industrial processes a top priority.

► Read more on pages 4-5

2. Restore internal market principles and regulatory framework

- Ensure a stable and predictable environment for companies to operate and invest in.
- Develop regulatory frameworks that provide long-term certainty and support innovative and sustainable investments, including flexible financing instruments for risk sharing.
- Phase out various crisis-related market interventions and maintain a level playing field.

► Read more on page 5



3. Invest in electrification and hydrogen economy

- Support the large-scale electrification of societies and the development of a hydrogen economy, recognising the contribution of all CO₂-free technologies.

► Read more on page 6

4. Set and maintain ambitious climate targets

- Maintain high climate ambition (90% CO₂ reduction by 2040 and carbon budget for 2030–2050), separate targets for emissions reductions and carbon removals.
- Develop pricing mechanism for new sectors (agriculture, waste).
- Secure the efficient implementation of 2030 climate targets (FF55).

► Read more on pages 6-7

5. Promote all clean energy technologies to enable a successful energy transition

- **Develop a comprehensive strategy for hydropower:** Explore potential of existing and new hydropower as clean, reliable and flexible balancing power in the electricity system. Ensure equal treatment (support and funding) of hydropower. Balance the energy, biodiversity and environmental aspects.
- **Foster European nuclear energy:** Make nuclear visible in the EU energy strategy, promote new nuclear capacity including SMRs. Develop European nuclear supply chain, give access to EU funding. Review nuclear-related criteria in the EU Taxonomy.
- **Advance clean hydrogen:** Recognise and support the role of electrolytic low-carbon hydrogen in complementing renewable hydrogen production, as both are needed in achieving EU climate targets and industrial decarbonisation. Expand the budget for the European Hydrogen Bank.
- **Tackle the challenges in wind and solar power production:** Secure speedy implementation of the revised RES targets. Maintain and improve the competitiveness of European wind supply chain and facilitate permitting and grid investments.

► Read more on pages 7-11

Green Deal 2.0: decarbonisation of industries

The European Green Deal, the flagship programme of the Ursula von der Leyen Commission, is without doubt the most ambitious decarbonisation plan in the world, with an objective to reach carbon neutrality in Europe by 2050. Political support and commitment for this plan has survived the Covid-19 pandemic, the still ongoing war in Ukraine and the war-driven energy crisis that led to record-high energy prices during 2022. In fact, these external shocks, together with high inflation, have underlined the need to speed up the process to reduce Europe's reliance on external suppliers and supply chains, be it fossil energy supplies, critical raw materials, micro-chips, spare parts, or vaccines. The current Commission has already tabled several initiatives to strengthen European security of supply, strategic autonomy and resilience (such as the Recovery and Resilience Facility, REPowerEU Plan, Net-Zero Industry Act), but further actions are needed also from the next EU Commission.

Successful decarbonisation of our societies will indeed provide broader benefits and opportunities than outright mitigation of carbon emissions. In addition to helping Europe to reduce dependency on fossil fuels, it will create a competitive advantage for clean products (such as clean and green steel) and thereby strengthen Europe's

resilience while cleaning our industries. It will also increase energy independence and security.

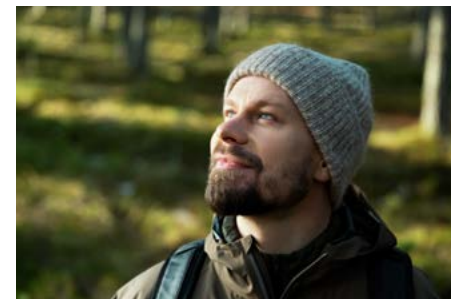
The European energy system is going through an unprecedented transformation driven by the large-scale electrification of our societies. This transformation is a massive undertaking, estimated to require the doubling of electricity production and consumption in two decades, but it won't happen on its own. Member States must take responsibility for the security of supply and provide the right kind of policies and measures to get all those needed investments to materialise, not only to energy production but also to clean industries. The current energy-only market has been a success story, but there is a growing consensus that, going forward, it will not be sufficient in providing stability, predictability and ultimately, security of supply.

Matching new electricity supply with the corresponding demand can be a challenge, including from the timing perspective. The combination of a volatile market environment and technologies that are still not commercially viable necessitates a regulatory framework that increases long-term certainty and provides adequate mechanisms to mitigate risks related to innovative and long-term investments. New types of business models and cooperation structures as well as financing instruments that are more agile are also needed to enable adequate risk sharing (e.g. guarantees).

The decarbonisation agenda has started to shift from merely the greening of energy production to cleaning industries and industrial processes. The ambition of this "Industrial Green Deal 2.0" is to advance European industrial competitiveness and value creation through decarbonisation while developing strategic supply chains. Availability of clean, reliable and affordable energy is fundamental to shortening supply chains and ensuring that industrial consumers have a future in a decarbonised Europe. Therefore, the power sector plays an important role in enabling the decarbonisation of key industrial segments. A clear example is the steel industry, which in the future is set to rely on fossil-free power and renewable hydrogen to decarbonise production processes¹.

Restoring internal market principles and regulatory framework

EU internal market principles have been challenged during the past years with the EU using temporary emergency measures to deal with energy crises. However, the internal market is the core of the European Union. Therefore, the next EU Commission should focus on phasing out various crisis-related market interventions, including the temporary relaxation of state aid rules, which are having a negative impact on the level playing field between Member States and economic operators.



A stable and predictable regulatory framework, including tax regulation, is a necessity for companies to operate and invest. Regulatory stability and predictability are best created by thorough impact assessments including legal analyses, proper public consultations and hearings, by the appropriate use of delegated and implementing acts and by providing sufficient time and support for national implementation. In addition, reducing the administrative burden by further simplifying reporting requirements, instead of adding new requirements, is of paramount importance.

Decarbonisation and competitiveness go hand in hand. Therefore, the next Commission mandate should focus on breaking silos by connecting existing climate legislation with the industrial agenda. The "industrial phase" of the Green Deal should enable Europe to transform industries into net-zero assets with a focus on a green and clean value-adding product offering, while providing targeted assistance to infant European industries, such as hydrogen, to achieve scale.

¹) [The sector will see increasing annual electricity consumption from 75 TWh today to around 160 TWh by 2030 and to 400 TWh by 2050. Eurofer, March 2023](#)

Electrification as a key solution to industrial decarbonisation

While the decarbonisation of the power sector is already advancing well, enhancing direct and indirect electrification of industries and the development of a hydrogen economy in Europe is the next task at hand. For successful electrification, all CO₂-free electricity will be needed, and from the energy system perspective, it is of paramount importance to ensure that the right balance between different electricity production forms (volatile, flexible, firm) will be found.

Together with swift implementation of the Fit for 55 Package, the next Commission will need to ensure that the EU is equipped to foster the decarbonisation of its industries. The recently announced Clean Transition Dialogues represent an important first step in the right direction. In addition to topics such as hydrogen and batteries, the future dialogues could acknowledge the contribution of all CO₂-free technologies to industrial decarbonisation. In addition, sufficient grid capacity and a strong transmission system are necessary pre-conditions for electrification.

Given the scale of investments that Europe needs to ensure decarbonisation and security of supply during the next decades,

the next EU Commission should aim to remove political and regulatory barriers from the needed clean investments.

The EU should continue with high climate ambition

For Europe to lead the clean transition, emissions reduction efforts and early action should remain a key priority. The next Commission should focus on ensuring the timely implementation of the Fit for 55 policies with a view to meet the EU's 2030 targets. Furthermore, strengthening the current climate policy architecture will be necessary to achieve an intermediate 2040 climate target, paving the way for the EU to become the first climate-neutral continent by 2050. In all climate efforts, the Commission should promote market-based carbon pricing globally while securing a level playing field until other countries have adopted similar mechanisms.

The EU should maintain its forerunner position and ambitious climate policy and set the target to around 90% emissions reduction by 2040 and the carbon budget for the period between 2030 and 2050, as recommended by the European Scientific Advisory Board on Climate Change². This will ensure investment certainty for the roll out of the most efficient emissions reduction technologies. The size of the challenge is massive: to achieve

2030 climate targets, annual low-carbon investments should quadruple compared to 2022 levels and reach up to 700-800³ billion euros a year.

Emissions reduction should be the first priority, supported by carbon sinks and removals. Therefore, separate absolute targets for greenhouse gas emissions reductions and carbon removals are needed in the 2040 framework. Separate targets would create certainty around the volumes for both emissions reduction as well as removals. The polluter-pays principle and price-based mechanisms should be developed for those sectors that are currently not included in the EU ETS for example agriculture and waste. In addition, carbon removals from the Land Use, Land Use Change, and Forestry (LULUCF) sector could be rewarded.



Technology-specific issues the next EU Commission should address to enable large-scale electrification of our societies

Hydropower

Three main characteristics make hydropower a key contributor to the EU's climate and energy ambitions: (1) it is among the cleanest sources of energy, as it uses water as input without changing its composition or quality, (2) it is a steady renewable source of power among a range of intermittent renewable sources, and (3) it provides flexibility, as any change in demand can be met by increasing water flow to generate more electricity.

With a growing share of variable renewables, such as solar and wind, hydropower is set to play a crucial and complementary role in the energy system. To put it in numbers: it has been estimated that 1 TWh of flexible hydropower enables the construction of at least 3.5 TWh of intermittent wind or solar. However, despite being the second-most important source of renewable energy in the EU, accounting for 12% of the EU's electricity and 32% of EU's renewable energy production⁴, hydropower remains lower in the EU policy agenda compared to other renewables. The production of energy from hydropower remains focused on the Nordics

2) [EU climate Advisory Board recommends ambitious 2040 climate target and urgent transitions for the European Union, European Scientific Advisory Board on Climate Change, June 2023](#)

3) [EU Strategic Foresight report, 2023](#)

4) https://energy.ec.europa.eu/topics/renewable-energy/hydropower_en

and is less common in continental Europe, where the few investments that have been undertaken in the past years⁵ have mostly been directed to refurbishing and upgrading existing plants⁶.

Hydropower is a key contributor for a clean, reliable and affordable energy mix, and there is room for hydropower expansion in Europe. The next EU Commission should foster the discussion on hydropower and address the question of how its deployment could be scaled up:

- **Energy system perspective** – move the focus from restricting hydropower to exploring the still existing potential for hydropower expansion in Europe, without compromising the need to improve the state of natural and aquatic environments. A balanced approach that takes into account both the energy system's need for more flexible power and environmental and biodiversity considerations is needed.
- **More strategic approach towards flexible hydropower** – develop an EU-wide hydropower strategy similar to the EU Solar Energy Strategy (2022). This would be an important step towards ensuring a stable legislative environment. Decision-makers need to create an appropriate, reliable and sustainable economic, political and legal framework that values the assets and benefits of hydropower and encourages further investment. Furthermore, alignment with existing policy frameworks, such as the EU Biodiversity Strategy and Nature

Restoration Regulation, could contribute to improving the regulatory framework for hydropower in Europe.

- **Investments** – provide necessary incentives for investments and policies supporting the refurbishment and repowering of existing plants, or the construction of new plants. Hydropower should not be excluded from any support and funding instruments targeted to renewable energy.

Nuclear

With the energy crisis still looming, securing clean, reliable and affordable energy for the decarbonisation of European industries is essential. The scale of the challenge is significant and can be met only if Europe leverages all types of clean, domestic electricity production from a range of fossil-free energy sources. In this context, there is growing attention on nuclear power ("nuclear renaissance"). Today, nuclear produces almost half of the CO₂-free power in the EU; given the magnitude, sustaining the 2050 decarbonisation ambition without nuclear in the European energy mix would pose significant challenges. As a CO₂-free technology, nuclear should also be acknowledged as a key contributor to European energy security and strategic autonomy.

Driven by climate concerns and the energy crisis, there have been encouraging signals of broader political acceptance and understanding of the critical role of nuclear for Europe. For instance, under the umbrella

of the "European Nuclear Alliance" more countries have started discussing avenues for cooperation in the field of nuclear energy to achieve Europe's decarbonisation goals. This includes fostering the role of nuclear power within the larger European energy strategy and promoting the development and deployment of new nuclear power capacity, including Small Modular Reactors (SMRs). Even more recently, 22 nations, half of which are EU countries, pledged at COP28 to triple the global nuclear generation capacity by 2050.

The nuclear debate in the EU is not without challenges. While nuclear is not a preferred choice for all Member States, for many it is both a preferred choice and a necessity. It is important that the next Commission is able to balance this debate, acknowledging nuclear's contribution to the EU climate objectives and strategic autonomy.

Fortum recommends that the new Commission's work programme includes an evidence-based, proactive approach on nuclear:

- **A stronger regulatory framework for the future** – develop EU-wide policies supporting new nuclear power plants and strive to secure a good operating environment for the existing nuclear fleet in Europe as well as life-time extensions of the ageing fleet. In this context, support the target proposed by the Nuclear Alliance of 150 GW of installed nuclear capacity by 2050, which together with de-risking instruments, would provide investment incentives for

lifetime extensions and newbuilds in the EU. This would also contribute to the pledge made by 11 EU Member States and 11 other nations in COP28 to triple the global nuclear generation capacity by 2050. Nuclear projects should be able to benefit from EU financing instruments, like all other projects contributing to decarbonisation; providing nuclear projects with access to EU Funds, beyond Euratom Funds, should be envisaged.

- **Stronger supply chain** – take an active role in developing a European nuclear supply chain, including fuel and components to enable lifetime extensions of the current nuclear fleet. The EU should allocate funding for this process that is of strategic interest to Europe.



- **Adaptation of existing policies** – review existing frameworks, such as the EU Taxonomy, to ensure a more comprehensive approach to nuclear, in particular relating to the existing fleet. There is no objective reason to treat existing and new nuclear technologies differently; both contribute to climate change mitigation and security of supply.

⁵) <https://hydropower-europe.eu/about-hydropower-europe/hydropower-energy/>
⁶) <https://balkangreenenergynews.com/ten-european-energy-giants-establish-hydropower-alliance/>

Clean hydrogen

Electrification will play a pivotal role in fostering the decarbonisation of European industry, but it is also clear that not all production processes can be electrified. This is especially the case for hard-to-abate sectors such as the steel, cement and chemical industry that rely on high-temperature thermal processes. Here, hydrogen is seen as a promising option for eliminating greenhouse gas emissions. Fortum believes that fostering the clean hydrogen economy in Europe is pivotal to unleash the decarbonisation potential of European industries. To enable this, in countries where the power system is essentially decarbonised, electrolytic low-carbon hydrogen should be able to complement renewable hydrogen production.

To ensure that clean hydrogen can effectively contribute to the decarbonisation of energy-intensive sectors, maintaining a steady energy flow to industry is paramount. The rising potential of renewable power generation opens the way for increased production of renewable hydrogen via electrolysis. In this context, hydrogen will also play a role in providing flexibility to the system. On the other hand, to maintain the rapid scaling up of wind and solar power production, it is absolutely critical that investments in electrolysis and other electricity-intensive industries start materialising.

While the focus so far has been on promoting the development of a European hydrogen economy based on renewable

energy, it is important to acknowledge the limitations relating to variable renewable energy sources. In most cases, industries need a steady, 24/7 supply of hydrogen. Until a sufficient hydrogen transmission infrastructure and hydrogen market, including storage, are in place, a pragmatic approach to hydrogen is needed. Generation of electrolytic hydrogen using low-carbon electricity is therefore needed to complement RES-only hydrogen production to ensure reliable decarbonisation solutions for industrial customers.

Accordingly, the European Commission should maintain high ambitions with regards to hydrogen deployment during the next mandate:

- **Definitions** – recognise the crucial contribution of electrolytic low-carbon hydrogen in achieving the EU's climate targets and in advancing its industrial decarbonisation agenda.
- **Funding** – strengthen and increase the budget for the European Hydrogen Bank as a support mechanism both for hydrogen producers and hydrogen consumers in Europe. Expand the Hydrogen Bank to low-carbon hydrogen made in Europe. However, consider the different cost drivers of RFNBO and low-carbon hydrogen when organising auctions.

Wind and solar power

Growing onshore wind, solar power and, in the future, offshore wind will play a key role in Europe's electrification. Thus, one of the top priorities of the next Commission



should be to ensure a successful and speedy implementation of the revised Renewable Energy Directive and its main targets and to facilitate permitting and grid investments.

Wind and solar power production continues to increase in the EU as the deployment of new capacity accelerates rapidly. Maintaining and improving the competitiveness of the European wind supply chain for building, operating and maintaining the increasing wind fleet requires special attention – especially now as the rising costs of materials and supply chain bottlenecks have led the sectors to report significant difficulties in the operation and installation of new projects. The EU's capability to solve these challenges largely relies in achieving an ambitious Net-Zero Industry Act, well-functioning market design and the Member States' ability to implement them. Thus, the recently announced Wind Power Package is also a welcomed initiative, as it addresses the difficulties that the European wind supply chain is facing, including the way the permitting and the auctioning system work.⁷

Conclusions

Large-scale electrification of European societies is the key to Europe's transformative journey towards decarbonisation and climate neutrality. It requires a synergistic approach, combining innovative policy frameworks, stable regulatory environments and forward-thinking investment strategies. This White Paper emphasises the pivotal role of the power sector in enabling this transition, especially in key industrial segments, underlining the importance of providing secure and competitive clean electricity for decarbonisation efforts of European industries. It highlights the potential of renewable energy sources, the strategic importance of hydropower and nuclear power, and the vital role of clean hydrogen in decarbonising hard-to-abate sectors. These efforts are underpinned by a commitment to maintaining a robust and fair EU internal market, ensuring regulatory stability, and setting ambitious, science-based climate targets.

7) [President von der Leyen is right: wind energy must continue to be made in Europe, WindEurope, September 2023](#)

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About Fortum

Fortum is a Nordic energy company. Our purpose is to power a world where people, businesses and nature thrive together. We are one of the cleanest energy producers in Europe and our actions are guided by our ambitious environmental targets. We generate and deliver clean energy reliably and help industries to decarbonise their processes and grow. Our core operations in the Nordics comprise of efficient, CO₂-free power generation as well as reliable supply of electricity and district heat to private and business customers.

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