

Joint recommendations of the European Technology and Innovation Platforms on the draft revised National Energy & Climate Plans (NECPs)

The European Technology and Innovation Platforms (ETIPs) support the implementation of the EU's Strategic Energy Technology (SET) Plan by bringing together industry and researchers in key areas and promoting the market uptake of key energy technologies.

The following ETIPs: ETIP Bioenergy, ETIP Geothermal, ETIP Hydropower, ETIP Ocean, ETIP Photovoltaics, ETIP Renewable Heating and Cooling, ETIP SNET, BATTERIES EUROPE and ETIP Wind, have analysed the draft revised NECPs submitted by Member States to the European Commission and defined recommendations in six key areas in which Research & Innovation (R&I) can play a significant role for the deployment of renewables.

Implementing these recommendations in the updated NECPs will boost the development and deployment of renewables, reinvigorating the EU's position as a global leader in renewables innovation.

We recommend Member States to:

- Set a dedicated R&I budget in the NECPs to secure the EU's technology leadership in renewables
- Strengthen Europe's clean energy supply chains through the development of clean energy manufacturing
- Support the development of a skilled workforce
- Simplify permitting processes to accelerate deployments and cost reduction
- Accelerate the deployment and optimisation of the European grid
- Develop and harmonise policy measures to facilitate renewable energy data access

1. Set a dedicated R&I budget in the NECPs to secure the EU's technology leadership in renewables

Delivering the 42.5% renewable energy target by 2030 will require significant investments – both from the Member States and the private sector – to overcome the challenges that the renewable sectors still face today. R&I can have a great impact in developing the right solutions to speed up cost-reduction, support the competitiveness of the supply chains or accelerate the deployment of renewables in Europe. Member States should therefore strive to increase their national R&I budget for renewables.

As per the revised Renewable Energy Directive, Member States are individually subject to the indicative target that 5 % of the new renewable energy capacity they install must be of 'innovative' technology. This target should be included in the NECPs and translated into policy measures. Measures such as deployment targets for individual innovative technologies and earmarked revenue support give market visibility and attract private investors to enter these sectors. This will promote the production and use of efficient and reliable renewable energy and will safeguard the EU's industrial competitiveness.

Finally, instead of competing against each other in technology-neutral funding programmes, Member States should make sure that each renewable energy source gets dedicated R&I funding. Those investments will help create competitive supply chains for renewables and secure Europe's clean energy technology leadership.

2. Strengthen Europe's clean energy supply chains through the development of clean energy manufacturing

According to the European Commission's Net Zero Industry Act, the EU needs to massively expand renewables and strengthen Europe's clean energy supply chains to ensure its energy security. Renewable supply chains however face a lot of bottlenecks. Some segments of the PV and heat pump industries are missing in Europe, notably on the upstream of the value chain, and the sector is challenged by capital flowing to regions with a more attractive support framework. European manufacturers, lacking scale, cannot keep up with global leaders in innovation despite the robustness of the EU R&I environment on PV and heat pumps. Offshore wind foundation manufacturers and installation vessels are fully booked for several years. The wind industry is having to buy power cables, gearboxes and even steel towers from China. Some new factories are being built but not enough to keep up with the massive expansion of European renewable energy deployment rates in recent years – and expected to continue accelerating in the future.

There is an urgent need to prevent the renewable supply chain from becoming a barrier to achieving the EU's renewable energy target. Massive investments are needed now to address bottlenecks in the European renewable energy value chain. We must unlock the potential of the EU's internal supply of critical raw materials through the recognition of strategic resources. R&I plays a significant role in expanding clean energy manufacturing capacity, as renewable energy technologies are improving at a tremendous pace. Automation, robotisation, optimisation of manufacturing processes, optimisation of logistics, new installation methods, etc. are many areas where R&I helps structure the competitiveness of the European renewable energy value chain.

The NECPs should therefore include a clear strategy, including a detailed investment plan, to support clean energy manufacturing, in particular through R&I.

3. Support the development of a skilled workforce

Education and training are fundamental for expanding several of Europe's energy sectors and ensuring the competitiveness of the entire value chain. Member States must prioritise training individuals for the manufacturing and deployment of renewable energy over the next 5 to 7 years, covering diverse technical, data science, IT, and business profiles. Addressing the skills gap requires a focus on attractiveness, accessibility, and timing to nurture a skilled workforce. The "Train-the-Trainers" concept should be swiftly developed to ensure that competent individuals educate future workers. Certified and recognised training quality by relevant organisations is essential.

EU-based renewable energy companies (i.e. manufacturing and operators) should emphasise technological advancement through increased R&I investments, necessitating a doubling of researchers working on high TRL technologies. To bridge education gaps, Member States should establish adaptable educational standards, cross-border courses, and hands-on training with input from manufacturers. Specialised Masters and PhD programs are required to cater to the expanding professional segment in technology value chains.

The workforce shortage is not just for posts requiring degree-holders. Technicians are vitally important to the industry and are currently lacking and retiring without being replaced. Campaigns are needed to attract young people to join apprenticeships and learn hands-on skills such as welding and basic plant operation. Some Member States, like Spain, have acknowledged the need for training blue-collar or mid-level workers in the NECPs.

Supporting these measures involves significant investments in training centres and mutual recognition of qualifications, enhancing worker mobility. The workforce shortage extends to technicians, making apprenticeship campaigns crucial. Member States should combine financial support, regulatory mandates, and education incentives to address the current skills shortage and bolster the renewable energy workforce. Recommendations include promoting researcher mobility, EU-wide educational networks, lifelong learning initiatives, and dedicated funding programs to adapt and expand educational systems.

4. Simplify permitting processes to accelerate deployments and cost reduction

Simplifying permits for renewable energy projects will drastically accelerate the deployment of renewables. Reducing the permitting time will allow Member States not only to reach their renewables target faster, but also to reduce the costs of renewables. Efficient permitting processes will be instrumental in boosting market attractiveness and seizing economic opportunities in the rapidly growing renewable energy market.

Member States must translate the permitting requirements agreed in the recast of the Renewable Energy Directive into national legislation. The NECPS should include measures such as tailor-made processes for different technologies, setting time limits for lead times, appointing a one-stop-shop with adequate resources responsible for the whole process, and establishing deployment areas for the different renewables. The NECPs should also spell out how the Member States will establish renewable energy sources as being in the overriding public interest in their national legislation.

Lastly, simplifying permitting must also translate into digitalised procedures in electronic format to facilitate the permitting process and in favour of easy access from the stakeholders involved.

5. Accelerate the deployment and the optimisation of the European grid

Grids are the backbone of the digital and energy transition, as they ensure a continuous and reliable electricity flow, integrate most renewable energy sources, and enable new customer services.

Massive investments are needed in physical and digital infrastructure for grids. The cost-effectiveness of the required investment is very much dependent on the capacity to upgrade the grids and fully digitalise them and their interaction with connecting devices.

While many technologies (i.e. renewable generation technologies and grid technologies) are already very advanced, the regulatory framework often hinders their implementation. Thus, dedicated funds on one side, and R&I programmes, including regulatory experimentation (regulatory sandboxes) on the other, are needed to roll out and accelerate the implementation pace of already existing technologies, and test new applications and services in the power grid.

6. Develop and harmonise policy measures to facilitate renewable energy data access

Some Member States report activities in harnessing digitalisation to manage energy flows across their networks, but in the AI- and Big Data- age, ambition should go beyond that. Specifically, Member States should recognise the potential of these technologies when applied to clean energy operating plants.

Access to plant operational data is critical for researchers to optimise O&M, enable cost savings, optimise productivity or provide flexibility services to the grid. However, it is critical to enable data access based on industry-wide agreed data classification. The latter should restrict access to information relevant to trade secrets or confidential due to security reasons. A sector-specific approach should be taken to aggregating data.

In their NECPs, Member States should include measures that facilitate access to the data space for their researchers or engineers for any legitimate purpose, while protecting trade secrets and data relevant to the security of infrastructure and equipment. They should also commit to using the Common European Energy Data Space to manage access to the data from renewable energy assets.

