
Romania's Integrated National Energy and Climate Plan

2021-2030 update

ANALYSIS

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Overview

In November 2023, with a four-month delay and without public consultation, Romania submitted the [first draft of the updated NECP](#) to the European Commission. The document is lacunar, backward-looking, and, in some places, unsubstantiated, failing to provide comprehensive rationales behind certain strategic choices.

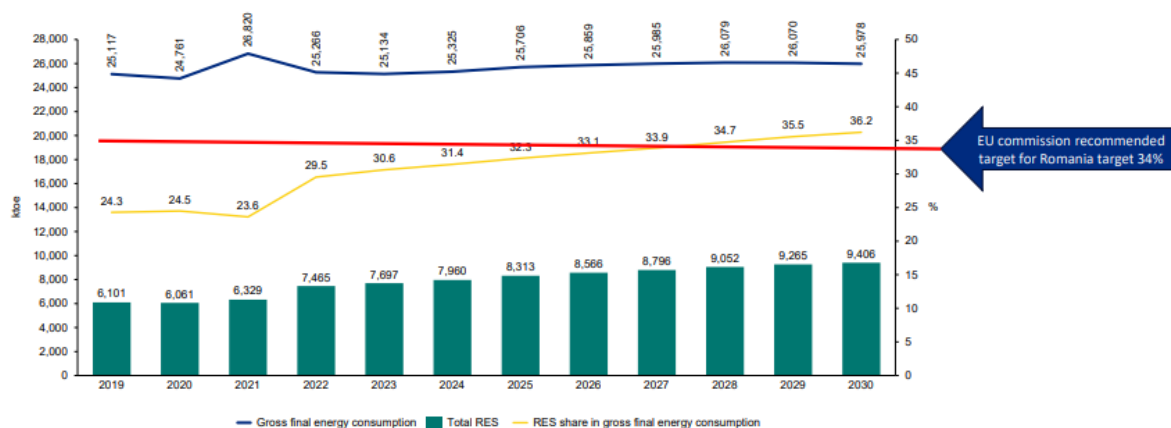
The most confounding element of the draft NECP is the provisional national target for RES, which is set at **36.2%**, under the country's potential and **significantly below the current level of European ambition**, despite renewables being a "*key player*" (p.24) in the decarbonization process. While Romania has all the necessary preconditions to become a significant regional actor in the energy transition, i.e., favorable natural factors for the development of both solar and wind (onshore and offshore) and considerable funding available, coupled with the need for clean and affordable energy, the strategic document reflects a lack of long-term vision and appears to disregard the current political and economic context. Moreover, given the lack of transparency in the drafting process, the draft NECP fails to align with the Energy Union Governance and Climate Action Regulation (EU) 2018/1999, which stipulates that Member States must ensure "*effective opportunities for public participation in the preparation of national plans and long-term strategies*," which exacerbates the discrepancy between the proposed goals and the real needs of the sector.

The Plan contains 77 policies and measures (P&Ms) in tabular form, addressing the five dimensions of the Energy Union: decarbonization, energy efficiency, energy security, internal energy market and research, innovation, and competitiveness, each with sections on relevant documents, methodology, assumptions, implementation status, implementing entity and deadlines for completion. However, the P&Ms are incomplete (ex., P&M 1, P&M 2, P&M 3, P&M 4, which do not contain data on Gg CO₂-eq emission reductions) and, in some cases, in contradiction with the information provided in the document (ex., NECP sets a target of 8.3 GW for PV (p.46), but P&M 22 and P&M 25 add up to a total of 7.8 GW; P&M 9 and P&M 14, both dedicated to agricultural PV, do not include data on the 2030 objective).

The draft NECP overlooks the central barriers, i.e., grid connection, storage, and permitting, preventing the country from contributing effectively to the European Green Deal and the Paris Agreement goals. Furthermore, the information is contradictory (ex., while the text sets a target of 2,5 GW for prosumers (p. 57) for 2030, figure 24 showcases 1 GW for the same segment), which, coupled with the incomplete and unclear policies and measures to achieve the proposed targets lead to a document lacking ambition and coherence. Without concrete actions, investments in renewable energy will continue to be blocked, which significantly affects the achievement of Romania's climate neutrality targets and energy security.

I. Analysis of Romania's 2030 RES targets

The draft NECP sets an underwhelming RES objective for 2030 of 36.2%, which reflects a lack of forward-thinking and long-term vision. While the level of European ambition increased substantially in the past year, as evidenced by the [42.5% binding target](#), Romania's strategic document continues to be anchored in the past, claiming that the revised RES goal is "*above the EU commission target set for Romania (34%)*" (p. 39), which would only be accurate in the context of 2018's 32% objective. In this sense, **it is unclear what assumptions laid the basis for the proposed target**, despite the repeated reference to the *2030 projections established by the Primes model*, **as the document does not comprise a methodological annex**, which raises questions about the credibility of the plan's ambition and its alignment with the EU's climate and energy goals. While the NECP refers to the so-called "WEM" (with existing measures) and "WAM" (with additional measures) scenarios, the draft fails to provide any further details on the market and policy drivers and constraints. For this reason, **the plan should include a comprehensive methodological annex that explains clearly the origin of the data and the scenarios and their assumptions.**

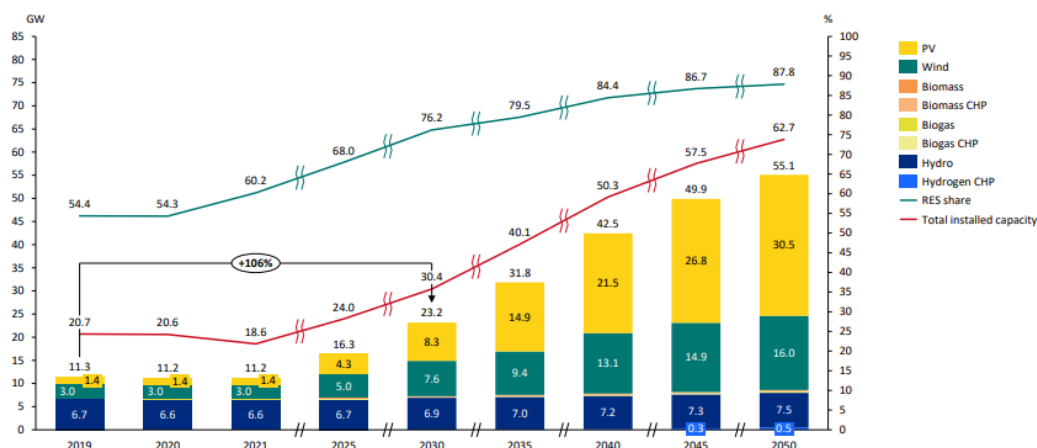


Source: INECP of Romania 2021-2030 Update – First draft version

Under the 36.2% target, Romania aims to reach a total installed capacity of 30.4 GW, out of which 76% (23.1 GW) in RES, doubling the share of renewables in a six-year period. Yet, despite the recognition of the role of clean technologies for energy transition and decarbonization, **the NECP does not include measures or policies to facilitate the development and uptake of renewable energy sources (RES)**, which is problematic given that (a) Romania has not transposed [Council Regulation 2022/2577](#) – the so-called "RES Booster," aimed at simplifying and accelerating the permitting process - into national legislation; (b) RES projects on areas exceeding 50 hectares continue to be affected by the misinterpretation of the Land Law by the Ministry of Agriculture and Rural Development; and (c) considerable delays occur at all stages, from planning and development to construction and grid connection, due to various technical and regulatory obstacles. In a ceteris paribus scenario, the country risks falling behind in its renewable

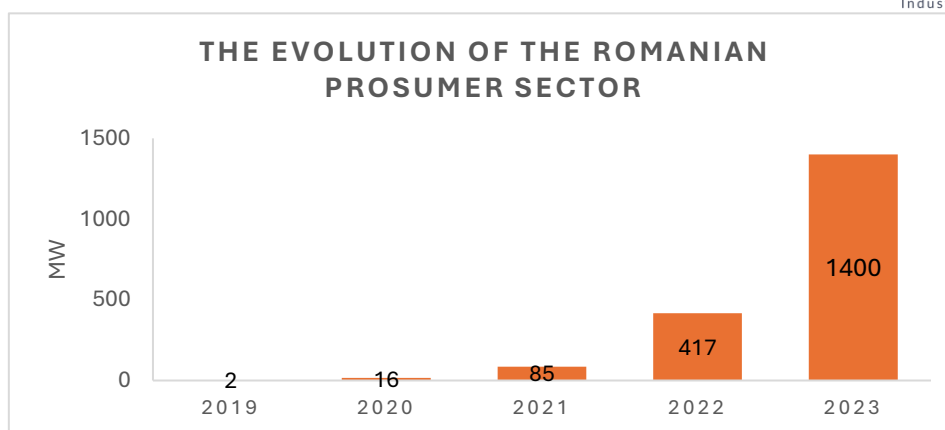
energy targets and missing the economic and environmental benefits associated with the transition to clean energy.

In terms of **RES in the electricity sector**, the draft NECP sets a target of **55.8% in 2030, which will be achieved by building new solar and wind capacity**, with wind power having the highest share - 37%, followed by hydropower (35%) and solar (24%). However, despite the "decisive" role (p. 45), the targets for each type of technology are not ambitious.



Source: INECP of Romania 2021-2030 Update – First draft version

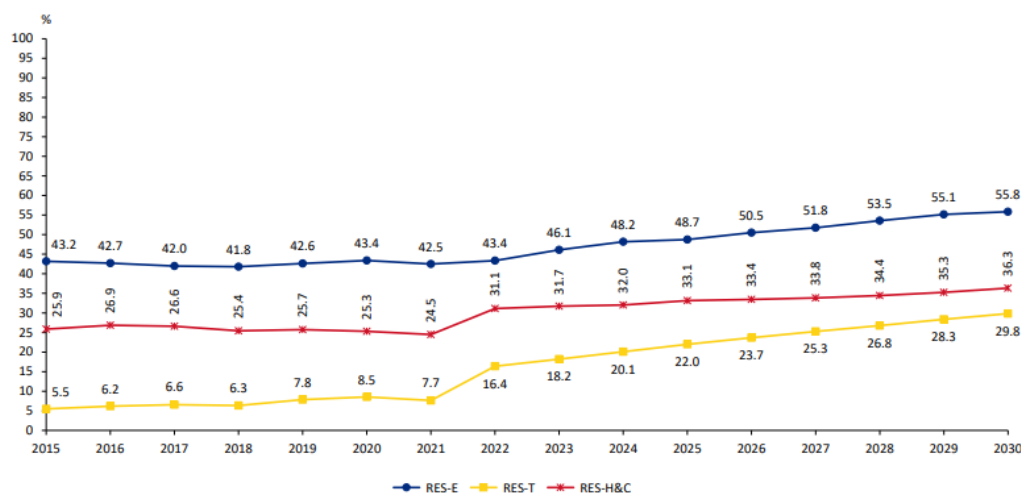
For **solar PV**, Romania's 2030 target is 8.3 GW, of which 2.5 GW in rooftop installations and 5.8 GW in utility-scale projects. Although an improvement on the previous iteration of the NECP, which projected a total of 5.1 GW, the rooftop target is not in line with observed societal trends. Even though the plan sets a target for the installation of PV systems on roofs, **no specific target for prosumers and self-consumption is detailed**. The prosumer segment, with a total installed capacity of more than 1.4 GW, has grown significantly over the last three years, tripling its size by 2023. Considering the installation rate, as well as the fact that the [provisional agreement](#) on the *Energy Performance of Buildings Directive* requires solar installations on new public and commercial buildings by 2026, non-residential buildings that undergo significant renovation by 2027, all new residential buildings by 2029, and all of the existing public buildings in a stepwise approach by 2030, **the 2.5 GW target does not align with the state of development**. Furthermore, while renewable energy communities are mentioned in the rooftop PV measure, **there is no clear recognition or support for these market players, which is surprising considering the goals assumed by the country through the recently approved [RePower EU chapter](#)**.



Source: ANRE

For **wind**, while the draft NECP stipulates that wind energy will have the largest share in the electricity sector, the 2030 target is 7.2 GW of onshore wind, of which about 300 MW for self-consumption and 6.9 GW in wind farms. Surprisingly, the plan makes no mention of offshore wind, although (1) it would contribute significantly to decarbonization targets and (2) it would play a central role in terms of energy security. According to the [European Wind Charter](#) and the [European Wind Power Package](#), Romania, as a signatory state, is committed to ensuring the creation of a robust and predictable legislative and permitting framework by updating the NECP and aligning it with the Fit-for-55 targets, which implies, among other things, promoting investments in wind energy, both onshore and offshore, supporting the development of grid and interconnection infrastructure, and stimulating regional and cross-border cooperation in the field. Given the average duration of five years for developing such a project, connecting the first offshore capacities by 2030 is not unrealistic.

In the **transport sector**, the draft NECP sets an RES-E target of 29.8% by 2030 but does not provide information on the equivalence of GHG emission reductions. Despite Romania's commitment to achieve 3.5% advanced biofuels in the sector by 2030, there are no sub-targets for non-biological renewable fuels (RNFBO), indicating a lack of consistency with the European objectives, which set a mandatory combined quota of 5.5%. Although the document mentions that RES and biofuels will be the principal RES for the sector, with shares of over 70% and 19%, the draft NECP does not provide specific strategies and measures to ensure the successful implementation of these targets, which are necessary in the context of electrification ambitions. In addition, the document does not include details on the reduction of GHG emissions from heavy road transport, commercial fleets, and the aviation sector, solely mentioning that Romania aims to increase the number of trucks using alternative fuels by 2050 (P&M 45), without a clear target and a concrete strategy. While the nearly 30% share of RES is welcomed, it is not enough to guarantee the achievement of the targets set by the NECP. Concrete and coherent measures are needed to support the decarbonization of the transport sector.



Source: INECP of Romania 2021-2030 Update – First draft version

On **heating and cooling**, the updated NECP stipulates that RES will account for 33.1% of the sector's energy use in 2025 and 36.3% in 2030. These projections fall, however, short of the mandatory target of increasing the share by 1.1% every year from 2026 to 2030 and are much lower than the indicative target of a 1.6% annual increase. Furthermore, the contribution of waste heat and cold and renewable electricity to the trajectory and their effects on the target setting and achievement is not clear. Regarding biomass, the target assumed by the NECP is contradictory; while the aim is to reduce its use (p. 46), P&M 27 foresees increasing biomass combined heat and power (CHP) capacity by installing 10 MW per year by 2050. On the other hand, P&M 37 stipulates replacing less efficient energy sources (including biomass) with heat pumps to reach the 25% share. Considering the EU targets of increasing RES for heating and cooling by 1.1% per year between 2026 and 2030, the sectoral target assumed by Romania through the NECP should reach 47.3%.

II. Storage and the electricity distribution and transmission network

While grid connection is one of the main bottlenecks faced by the RES energy sector, the main objective of the NECP is to achieve 15% interconnectivity by 2030 by strengthening HU-RO and RO-BG capacities, with the focus being on reducing losses rather than boosting flexibility or integrating RES. Moreover, the document does not contain a timetable with committed deadlines for completion of the works, despite the allocation of EUR 1 billion for investments, the capacity that can be installed as a result, or measures to prevent bottlenecks in the implementation of new projects due to the impossibility of grid connection. In this respect, the NECP, as a strategic document, should include a detailed plan for the development and strengthening of the distribution and transmission network, aligned with national targets for increasing the share of RES, which would contribute to increasing the confidence and attractiveness of the sector for investors.

While the draft NECP recognizes the importance of transitioning to net-zero sources, the approach focuses on centralized and predictable energy production. As such, on

storage, the NECP only sets a specific target of installing a 240 MW (480 MWh) capacity by 2025, which is insufficient in the context of the solar and wind development targets. As RES becomes more prevalent, flexibility solutions are crucial for maintaining grid stability, as they can help smooth out the intermittent nature of renewables, also providing ancillary services, such as frequency regulation and voltage control, to support the grid operation. Furthermore, not only is the target on battery significantly low, but also the section on demand response, dynamic pricing, and net metering is limited and does not provide any quantitative target.

To achieve its long-term energy goals, Romania needs to set ambitious targets for energy storage, which is a fundamental component for balancing the grid and accommodating the growing capacity of intermittent RES. In parallel, additional measures are needed to ensure that storage technologies can take off, such as eliminating the double taxation in line with Article 18 of the Internal Electricity Market Regulation (Regulation (EU) 2019/943), which will create a level playing field.

III. Research, innovation, competitiveness and skills dimension

Research and innovation (R&I) play a crucial role in achieving climate targets through their contribution to improving technological processes, international cooperation in the field, and knowledge transfer to decarbonize the system. Yet, the draft NECP does not adequately address the R&I dimension as it does not provide a national target for clean technologies but only refers to the National Strategy for Research, Innovation, and Smart Specialization 2022-2027. The plan does not sufficiently explain the correlation between the priorities for the energy sector and the corresponding funding sources and does not set clear short and long-term targets.

On skilled workforce, the draft NECP contains general information on measures to support the competencies needed for the energy transition. The plan mentions the EU co-funded Smart Growth, Digitalization, and Financial Instruments Program as a tool for re-skilling workers and developing the sector, and the National Strategy for Research, Development and Innovation 2021-2030, which includes measures for training researchers. However, there is a lack of specific information on the investments needed to address the gaps in the sector. A clear strategy is required to train and attract skilled personnel to install, operate, and maintain new RES capacities, the absence of which leads to significant delays in the implementation of renewable energy projects even where all other barriers are addressed.

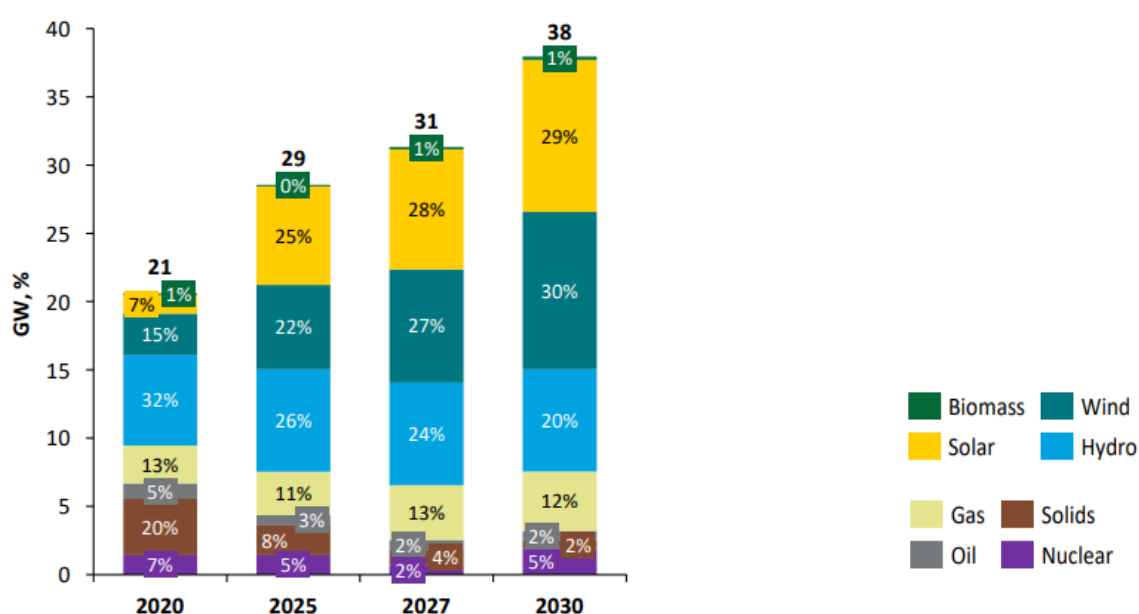
Another area of concern is the lack of targets for the development of value chains and the resilience of supply chains for components and equipment needed for clean technologies, which are fundamental to energy security. Even though Romania has a budget of €259 million to support investments in batteries and photovoltaic cells and panels and the Ministry of Energy has initiated - and canceled - calls for funding, there is a need for a national production target and the development of an attractive investment ecosystem for RES.

IV. Recommendations

The NECP must align with the current European level of ambition. For this reason, it is necessary to increase the RES share of RES to at least 44.4% and introduce P&M that facilitates the uptake of renewables.

In the context of the significant increase in the European ambition, Romania must step up its national objectives for RES. As per the formula in Annex II of the Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action, the 36.2% target set through the NECP falls short of the required contribution, given the binding objective of 42.5%. The [EU wide assessment](#) of the draft updated National Energy and Climate Plans stipulates that Romania's RES share should be at least 41%.

The study commissioned by the Romanian Photovoltaic Industry Association (RPIA) and the Romanian Wind Energy Association (RWEA), *Renewable Energy in Romania, Roadmap to 2030* that uses E3M's PRIME's model, accounting also for our country's strategic objectives shows that the RES aim should reach 44.4%. This would not only significantly increase Romania's energy security, lowering thus the imports as per the Ministry of Energy's objective, but also bring socio-economic benefits, as every 1 € increases the economic output of the economy by 1.3 €, i.e., a net gain of 0.3 €. Furthermore, every 1 million € invested in power generation creates 6.1 jobs (FTE), and, considering that a 44.4% target entails 30.5 GW of RES alone, over 150 000 jobs would be created by 2030 in the clean energy sector.



Source: Renewable Energy in Romania, Roadmap to 2030

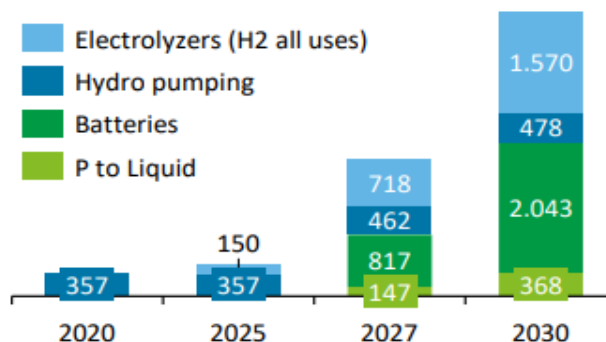
A 44.4% target for RES will not only enhance Romania's energy security and economic development but also strengthen its role as a regional leader in the energy transition. By increasing its RES target, the country can show its support for the European Green Deal and its solidarity with its neighboring countries, especially Ukraine, which will require energy for its post-war reconstruction, and Moldova, which needs to replace the power supplies previously provided by Ukraine. Thus, a higher RES target is a decision of strategic importance that can create multiple benefits for Romania and the region.

However, an increased level of ambition is insufficient in the absence of a framework that would facilitate the uptake of RES. As such, it is necessary to integrate the provisions of the REPowerEU plan and Regulation 2022/2577 into national practice and legislation to facilitate the permitting process for RES projects, namely: (i) tacit approval of permits - if no comments are received from the institutions involved in the permitting/approval process by an internally set deadline, it is deemed to have been approved; (ii) creation of a one-stop-shop for all permitting procedures; (iii) Identification of areas where renewable energy projects can be authorized more quickly through a single strategic environmental assessment (go-to areas); (iv) Categorization of RES projects as being in the public interest.

The NECP must include a timeline for grid modernization and extension projects, which will provide predictability and transparency. Furthermore, storage must be introduced as a means to increase the flexibility

With the increasing integration of RES into the power system, the transmission and distribution networks need to be modernized and expanded to account for the variable and distributed nature of net-zero technologies. Therefore, **the NECP must include a detailed development and reinforcement plan aligned with the RES deployment targets, which would provide a clear and transparent roadmap for modernization and expansion and increase the confidence and attractiveness of the RES sector for investors.** Furthermore, the provisions on grid must consider the [EU's Grid Action Plan](#), which includes a series of measures for speeding up the network development, such as (i) faster permitting for grid deployment; (ii) the uptake of smart grid, network efficiency and innovative technologies; (iii) grid supply chains strengthening, among others. By combining dependable and top-notch network planning with a supportive system that enables proactive investments in zones that have solid plans for the deployment of renewable energy, electric mobility, or heat pumps, alongside simplified authorization procedures for those grid projects, Romania can significantly enhance the ability of the grid to accommodate new renewable sources and increase flexibility for the system.

Installed Capacity of Storage and Fuel Production
(MW-elec or MW-output fuel)



Source: Renewable Energy in Romania, Roadmap to 2030

To mitigate the congestion of the power system, the NECP storage target should be increased from the current 240 MW (480 MWh) to 4, 46 GW, as evidenced by the *Renewable Energy in Romania, Roadmap to 2030* study, out of which 2 GW in batteries, 1.5 GW in electrolyzers for hydrogen production, and the rest in hydro pumping and various sustainable liquid fuels for the transport sector. The integration of different technologies that complement each other and optimize their performance according to the grid requirements and market signals will enhance the flexibility and resilience of the power system, as batteries can offer fast response and frequency regulation services, while electrolyzers can convert surplus renewable energy into hydrogen that can be stored for later use or utilized in other sectors – such as industry.

The NECP must comprise concrete measures for the development of a skilled workforce, both in terms of researchers and RES plants operators and management workers, through the introduction of a clear strategy. Furthermore, the plan must comprise a national production target for RES value chains

One of the most overlooked [bottlenecks](#) for RES development is the lack of a qualified workforce, which leads to significant delays even where there are no blockages in terms of permitting and grid connection, and the components are readily available. Considering that the solar PV sector alone would require [88 465 full-time employees by 2027](#), the NECP must include concrete actions on the skilling, upskilling, and reskilling of the workforce to prepare them for clean energy jobs, such as establishing national training and certification programs for renewable energy professionals that could provide standardized curricula, accreditation, and assessment for various occupations in the RES sector, like PV installers, wind technicians, biomass operators, etc. The program could also facilitate the recognition and transfer of skills across different regions and promote the quality and safety of RES projects, addressing the skills gap, enhancing the employability and mobility of workers, and fostering the development of a competitive and sustainable RES industry.

In parallel, the NECP must comprise measures and policies – such as incentives and subsidies for domestic manufacturers of RES components (like batteries, inverters, and metallic structures for PV panels) – that facilitate the development of national value and supply chains, which is fundamental for the national and regional energy security.