



National Energy and Climate Plans (NECPs)

Eurelectric review

January 2024

Eurelectric represents the interests of the electricity industry in Europe. Our work covers all major issues affecting our sector. Our members represent the electricity industry in over 30 European countries.

We cover the entire industry from electricity generation and markets to distribution networks and customer issues. We also have affiliates active on several other continents and business associates from a wide variety of sectors with a direct interest in the electricity industry.

We stand for

The vision of the European power sector is to enable and sustain:

- A vibrant competitive European economy, reliably powered by clean, carbon-neutral energy
- A smart, energy efficient and truly sustainable society for all citizens of Europe

We are committed to lead a cost-effective energy transition by:

investing in clean power generation and transition-enabling solutions, to reduce emissions and actively pursue efforts to become carbon-neutral well before mid-century, taking into account different starting points and commercial availability of key transition technologies;

transforming the energy system to make it more responsive, resilient and efficient. This includes increased use of renewable energy, digitalisation, demand side response and reinforcement of grids so they can function as platforms and enablers for customers, cities and communities;

accelerating the energy transition in other economic sectors by offering competitive electricity as a transformation tool for transport, heating and industry;

embedding sustainability in all parts of our value chain and take measures to support the transformation of existing assets towards a zero carbon society;

innovating to discover the cutting-edge business models and develop the breakthrough technologies that are indispensable to allow our industry to lead this transition.

Dépôt légal: D/2024/12.105/

WG Climate Change & Decarbonisation
WG RES & Storage
WG Hydro
WG Industrial Competitiveness & Innovation
WG Electrification & Energy Efficiency
WG E-mobility

Contact:
Blanche Cartier – Trainee Energy Policy, Climate and Sustainability
– bcartier@eurelectric.org - ipetcu@eurelectric.org

National Energy and Climate Plans (NECPs)

A Eurelectric review paper

January 2024

KEY MESSAGES

- Eurelectric welcomes the publication of the draft updated National Energy and Climate Plans (NECPs) published by 24 Member States. We urge Member States to deliver their final NECPs within the agreed deadlines to ensure a timely assessment and provide visibility to the business community.
- Eurelectric welcomes the high ambition in renewable energy shares in gross final consumption in electricity, industry, transport and the buildings sector. Specifically, many countries have made strong pledges for renewable electricity, some even targeting a 100% renewable energy source (RES) share by 2030.
- Eurelectric would like to call more attention to overall electrification rates and encourages Member States to include electrification rate indicators consistently in all NECPs.
- Eurelectric is disappointed with the lack of reference to grid development in most NECPs. We urge the Commission, as well as Member States, for due consideration, in particular on distribution grids, in these plans. European grids need modernisation efforts and adequate planning to integrate more renewables in a cost-efficient manner, in line with the recommendations stated in the *Eurelectric Action Plan on Grids* (see also [here](#)).
- Eurelectric appreciates the depth and clarity of several NECPs but stresses that the plans must follow a harmonised structure, addressing all key points and sections. Such standardisation will ensure that the assessment is done in an equal manner for all countries and will guarantee that all five dimensions of the Energy Union are dealt with in each Member State.
- While the ambition of these updated NECPs has improved since the 2019 ones, it is urgent that Member States implement policies and measures that will help them reach the new 2030 targets. The wide range of ambition between countries has shown that some will most likely miss their targets which will therefore affect the EU's ability to fulfil its goals. The EU is striving to be a climate leader but can only do so if all its members deliver on their promises by implementing adequate national decarbonisation policies.

Eurelectric review of National Energy and Climate Plans

1. Introduction and recommendations	1
2. Greenhouse gas emission (GHG) reduction targets	3
3. Renewable energy targets and RES share in electricity targets	6
4. Building, heating and cooling targets	10
5. Transport targets	14
6. Industry targets	19
7. Energy efficiency targets	24
Annex: renewable and storage targets by technology	28

1. Introduction and recommendations

The national energy and climate plans (NECPs) were introduced by the Regulation on the Governance of the Energy Union and Climate Action, agreed as part of the Clean Energy for All Europeans package (2019).

Under this Regulation, Member States (MS) had to submit their NECPs for the period 2021-2030 to the Commission by 31 December 2019, and submit progress reports every two years. The Commission had set 30 June 2023 as the deadline for the first draft of updated NECPs, but many MS failed to meet it. As of January 2024, three countries still need to publish their updated draft, and several major countries published theirs more than four months late. The Commission has analysed 21 draft NECPs and delivered an [overall assessment](#) with [country-specific recommendations](#). Considering the delay, it was only able to include plans that were published before 15 November.

Worthwhile noting in this assessment is that the share of renewable energy in final energy consumption will likely fall short of the binding target of 42.5% established under the revamp of the Renewable Energy Directive (RED). Also, the EU Member States are not on track to meet their energy efficiency targets, with EU-wide cuts in final energy consumption expected to amount to around 5.8% by 2030 which is below the agreed 11.7%.

The content of the draft NECPs is also problematic.

It is time for robust and detailed policy frameworks with concrete and comparable measures. Unfortunately, these updates rehash European legislations and key targets without going into enough detail about what their own countries need to do. The policies and measures (PAM) sections are often repeating those that have already been announced, highlighting a need for more ambition and innovation in their policies. There is a heavy inconsistency between countries with regards to this. Some detail numerous new measures, whereas others stick to existing ones. This issue is demonstrated further when it comes to scenario building. Some countries only have one scenario whereas others have With Additional Measures (WAM) and With Existing Measures (WEM) scenarios.

While the NECPs comply with minimum EU climate and energy requirements, the plans fail to align with the 1.5° C Paris agreement target.

On electrification and energy, most countries have published detailed plans on how renewable energy sources (RES) will increase overall and by sector. Yet, there is not enough focus on grid infrastructure, which will enable the RES deployment. Most plans vaguely mention the development of the grid, but few detail explicit measures, and none set key targets. Even the Commission's assessment crucially lacks initiative on grid infrastructure.

It is important that the next NECP updates have more grid consideration. NECPs need to highlight that investments in distribution grids must at least double to reach a yearly investment level of €65 billion per year until 2050. Additionally, Europe's ageing grids must benefit from modernisation plans that will include smarter functionalities and thereby empower customers (allowing them to follow and adjust their consumption and actively take part in the energy market) and foster flexibility. These modernisation plans need to include resilience strategies to climate events and cyberthreats. Plans should also include measures that will allow permitting to be streamlined and digitalised. Some countries already have enhanced administrative measures to address this issue, a step that we welcome. Lastly, the EC's Action Plan for Grids published in

November 2023 should be included in the NECPs, as well as the recommendations stated in the *Eurelectric Action Plan on Grids* published just before (see also [here](#)).

In addition to the lack of grid measures and policies, there is not enough focus on electrification as very few countries explicitly set a target electrification rate for 2030. Electrification is the fastest and most secure way to integrate renewables into our energy consumptions. It is therefore important for this to be considered.

Lastly, on the phase out of fossil fuels and related subsidies, we notice that many countries have delayed their coal shutdowns which could contribute to the EU missing its 2030 target. Some countries do not lay out their fossil fuel phase out plans at all. In addition, fossil fuel subsidies were supposed to be tackled by all MS in the plans, but several plans are missing this specific section, indicating a lack of information or commitment.

Overall, the level of ambition has not significantly risen in terms of policies. These NECP updates are a crucial opportunity for MS to realign themselves with the EU's updated 2030 targets but also design policies even more ambitious than what the EU requires. Only a handful of countries sufficiently detail their plans with credible emission reduction projects and new policies and measures.

2. Greenhouse gas emission (GHG) reduction targets

Regarding GHG emission reductions, countries have chosen to communicate on non-ETS targets, economy wide targets or ETS alone targets, with some countries choosing to announce more than one. This inconsistency between countries' plans makes it hard to compare across categories and difficult to assess whether European targets will be met. In addition to this, different baselines are used. Some countries refer to 1990 levels, some to 2005 and some to later years making it harder to assess the progress of countries over others.

For non-ETS targets, the minimum EU requirements for 2030 are set in the Effort-Sharing Regulation (ESR). The ESR mandates each Member State to meet a specific level of emission reductions with the aim of achieving an overall EU target of -40% emission reduction in those sectors by 2030 (compared to 2005 levels). Most countries have announced a target for these sectors. For 18 countries with 2030 targets and using a 2005 baseline, the average falls to a -35.18% reduction. In general, the ESR targets fall short, even with additional measures. Some countries explicitly mention that the planned levels of action are not in line with the ESR obligations (Cyprus, Denmark, Finland, Italy, the Netherlands). In contrast, four countries expect to exceed their ESR target for 2030 (Luxembourg, Spain, Slovenia, Sweden).

Targets by country

1. Belgium

Belgium's plan is divided into 4 parts based on each region (Federal, Wallonia, Flanders, and Brussels). The federal state has set a 47% reduction target by 2030 compared to 2005 for the ESR sectors. The Flemish Region has set 40%, Walloon Region 47% and Brussels Capital Region 47% too (all 2005 baseline). Based on these contributions from individual entities, Belgium achieves, in the scenario with additional measures (WAM), an emission reduction for the ESR sectors of 42.6 % in 2030 compared to 2005. The Belgian plan details the trajectory of emissions reductions. In the WAM scenario, there is a steady decrease between 2021 and 2030.

2. Croatia

Croatia has set a target of -16.7% by 2030 in GHG emissions reductions for non ETS sectors (compared to 2005 levels). The scenarios available in the draft show that Croatia does not fulfil its 2030 target for non-ETS sectors with existing measures (leading to a reduction of -6.7%), but it does with additional measures (-17.1%). For ETS sectors, Croatia aims to have a reduction of -50.2 % by 2030.

3. Cyprus

The objective of the National Energy and Climate Plan is to achieve a 32 % reduction in greenhouse gas (GHG) emissions by 2030 compared to 2005.

4. Czechia

Czechia's objective is to have a 26 % reduction in greenhouse gas emissions in non-EU ETS sectors compared to 2005. By 2030, the draft projects an economy-wide emission reduction of -63% (compared to 1990).

5. Denmark

Denmark has set an economy wide GHG emission reduction target of – 70% compared to 1990 levels. Regarding non-ETS sectors, Denmark wants to reduce total emissions by at least 50% or – 15.8 MT CO₂-eq over the period 2021-2030.

6. Estonia

Estonia has set a target for non-ETS sectors of –24% compared to 2005 levels.

7. Finland

Finland aims to reduce GHG emissions in the non ETS sectors by –50% compared to 2005 levels and has set an economy wide reductions target of –60% compared to 1990 levels.

8. France

France has set its reduction targets in net and gross terms. The GHG emissions reduction target, excluding LULUCF in gross terms GHG is set at –50% compared to 1990 levels. In net terms, this amounts to -55% GHG emissions by 2030. For non- ETS sectors, the target is set at –47.5% in 2030 compared to 2005 levels.

9. Germany

Germany sets its GHG emissions reduction target to at least –65 % by 2030 compared to 1990, at least -88 % by 2040, and aims to reach carbon neutrality by 2045. The German target for the ESR sectors is -50 % by 2030 compared to 2005.

10. Greece

The Greek NECP sets the GHG emissions reduction target (excluding LULUCF) at –54% (1990 baseline). The reduction can reach -57 % if a higher contribution from LULUCF is achieved by then. The plan details the trajectory these emissions reductions will have. Cumulative GHG emissions are predicted to continue slowly increasing until 2040, thereafter they stabilise and the curve flattens at 4.558 Mt CO₂ equivalent.

11. Hungary

The economy wide GHG emission reduction target is set at - 50% compared to 1990 levels. Regarding non ETS sectors, the target is set at - 18.7% compared to 2005 level.

12. Italy

The additional measures scenario projects Italy to achieve an economy wide emissions reduction of –40.3% compared to 1990 levels. This scenario also predicts a –35.3-37.1% reduction for non ETS sectors (baseline 2005). For ETS sectors, Italy is expected to decrease emissions by 62% (baseline 2005).

13. Latvia

Latvia sets an emissions reduction target of -65% compared to 1990 levels. For Non-ETS sectors, the country aims for a 17% drop in emissions compared to 2005 levels.

14. Lithuania

Lithuania sets an emissions reduction target of –21% for non ETS sectors compared to 2005 levels.

15. Luxembourg

The GHG emissions reduction target for Luxembourg is set at –55% for non ETS sectors compared to 2005 levels.

16. Malta

Malta has set a national target of GHG emissions reduction of -19% under the Effort Sharing Regulation (ESR) compared to the 2005 levels. This translates to a maximum emission level of 826.7 kilotonnes CO₂eq in 2030. There are no ETS or economy wide targets. The plan just mentions that Malta will contribute to the European goals.

17. Netherlands

The economy wide GHG emissions reduction target is set at - 55% compared to 1990 levels. However, the government intends to focus on about 60% emission reductions when drawing up climate policy, so that even in the case of shortfalls the 55 % is not at stake. Regarding non ETS sectors, the target is –48% compared to 2005 levels.

18. Portugal

Portugal aims to reach an emissions reduction of –28.7% for non ETS sectors (baseline 2005). For the economy-wide sector, the target is set at -55% compared to 2005 levels.

19. Romania

The economy wide GHG emission reduction target for Romania is 78% in 2030 compared to the reference of 1990.

20. Slovakia

The GHG emissions reduction target for non ETS sectors is – 22.7% (baseline 2005).

21. Slovenia

The Slovenian GHG emissions reduction target for non ETS sectors is –28-31 % compared to 2005 levels. The economy wide target is –37-40 % compared to 2005 levels.

22. Spain

The GHG emissions reduction target for non ETS sectors is - 43% compared to 2005 levels. The economy wide one is - 32% compared to 1990 levels.

23. Sweden

Sweden sets an emissions reduction target for non ETS sectors of - 63% compared to 1990 levels. Sweden intends economy wide emissions to be net 0 by 2045.

3. Renewable energy targets and RES share in electricity targets

Regarding renewables, the RED revision has increased the EU 2030 renewable energy target. The binding target was increased from 32% to 42.5%. Most NECPs therefore also announced an increase in their RES share targets. Some countries, such as the Netherlands and Sweden, indicated they would include updated national renewable energy contributions in their final updated NECPs (when the RED revision process will have come to an end). Acknowledging this and as not all NECPs have been published, it is hard to assess whether the EU will reach its 42.5% goal.

For the ones that have published a target RES share in gross final consumption, there is a wide range of ambition. The targets range from 21.7% to 71%. For 18 countries with clear RES targets, the average falls at a rate of 42.8%.

With regards to the share of RES in electricity, many countries have made ambitious pledges. Some MS even aim for 100% renewable electricity by 2030. If all pledges are fulfilled, renewable energy will account for the majority of electricity generation in the EU by 2030. However, [Ember's projection](#) is that by 2030, renewable energy sources will account for 66% of EU power generation, falling just short of the 69% REPowerEU target.

In comparison to the goals established in 2019, nearly every MS sees a greater role for renewable energy.

While most countries have shared the target rate for renewables in electricity, they have not all shared an overall electrification rate. This is an important aspect that we urge MS to investigate as electrification is the fastest way to decarbonise our activities.

With regards to achievability of these targets, it seems that many MS might come short. In the past, several European countries such as France, Netherlands or Ireland failed to deliver on their 2020 or 2021 targets. And once again, it appears that some policies and measures supporting the updated national renewable energy contribution in the NECPs lack ambition and concrete proposals. Some plans provide inadequate projections with additional measures that do not align with national renewable energy contribution. Other plans lack clear timeframes or binding measures.

Targets by country

1. Belgium

The Belgian contribution to the European target, based on the compilation of individual entity projections (WAM scenario), amounts to a renewable energy share of 21.7 % in 2030 (up from 12.8% in 2022). The trajectory should be a relatively slow build up till 2026 (15.2%). After that the Belgian government will have to increase the renewables share by 6.5% in 4 years. This is over twice as much as what it must achieve for the 2022-2026 period.

The sectoral projection for the renewable electricity share is 48.5 % in 2030 (compared to 26 % in 2020).

2. Croatia

Croatia aims to have an RES target share of 42.5% by 2030. Regarding RES share in final consumption of electricity, it aims for 73.6% by that same year.

3. Cyprus

Cyprus sets a renewable energy contribution of 24.3% in the scenario with existing measures and 26.5% with additional measures by 2030 (up from 18.4% in 2021). The trajectory for both scenarios entails a slow build with the majority of work coming from increasing RES shares in electricity.

4. Czechia

The Czech RES target share in gross final consumption is set at 30%.

The share of renewable and secondary energy sources in gross electricity production 2040 target is close to 37%.

5. Denmark

Denmark expects to reach a renewable energy share of 71% by 2030. The trajectory to reach this target is detailed in the plan. The increase is especially steep for the year 2029, where projections indicate an 8% increase in one year to reach the 2030 target. In comparison, the projection indicates a 10% increase over 3 years (2024-2027).

Under the Danish Energy Agreement, Denmark needs to achieve a renewable energy share in electricity consumption of more than 100 % and that at least 90 % of district heating use is based on forms of energy other than coal, oil and gas in 2030.

6. Estonia

The RES target share in gross final consumption is 65%. Electricity consumption is to be guaranteed by 100 % renewable electricity by 2030.

7. Finland

Finland aims to have a renewable energy share of final energy consumption of at least 60% by 2030. Regarding electricity, 57% of final consumption should be from RES.

8. France

France aims to have 58% decarbonised energy in the energy mix by 2030. There is no specific target regarding electricity.

9. Germany

Germany aims to achieve 40 % share of renewable energy in gross final energy consumption in 2030 and at least 80% of gross electricity consumption should come from renewables.

10. Greece

The renewable percentage of gross final energy consumption will be 44% in 2030 for Greece. RES will cover 80% of electricity generation by 2030 (or earlier) – with a balanced mix between solar and wind energy. Greece states that: “Priority is therefore given to the energy transformation in the electricity generation sector for which we aim for the share of RES generation in gross electricity consumption to reach 80% in 2030”.

11. Hungary

Hungary would like to achieve a share of at least 29% of renewable energy sources in gross final consumption of energy (the share should reach 31.2%). The share of renewable energy production in electricity consumption could reach 31 % by 2030.

12. Italy

In the additional measures scenario, Italy reaches a 40.5% share of RES energy in gross final energy consumption. The share of RES energy in final consumption in the electricity sector should be 65%.

13. Latvia

Latvia aims to reach a 57% share of renewable energy in final energy consumption. There is no mention of electrification as national internal discussions are ongoing.

14. Lithuania

Lithuania aims to have a 55% RES share in gross final consumption of energy. The RES share of final energy consumption in the electricity sector should be 100% by 2030.

15. Luxembourg

The RES target share in general for Luxembourg is 37%. The RES target share for the electricity sector is 37.3% in 2030.

16. Malta

There is no specific target for 2030. The plan states Malta wants to increase ambition beyond the set national renewable energy target of 11.5% and wants to contribute to the EU 2030 target.

17. Netherlands

The Netherlands's NECP does not include renewable targets for the following reason: "At this point in time, the RED III trajectory has not yet been completed. Once the trajectory is completed, the exact indicative national contribution for the Netherlands will be elaborated."

On the basis of May 2022 policies, the renewable energy share could be 30.5% by 2030. Netherlands aims to have CO2 free electricity production by 2035.

18. Portugal

Portugal's RES in gross final consumption of energy target is set at 49%. The renewable energy share in final energy consumption of electricity should be 85%.

19. Romania

Romania's objective is to reach at least 34% of renewable energy in gross final energy consumption by 2030. Projections indicate that by 2025, this percentage will reach 32%. Notably, increased wind and solar energy generation capacities, along with heat pumps for heating and cooling, will contribute significantly. Romania aims to have an 87% GHG emission reduction in the energy sector (mainly through the gradual decommissioning of coal and lignite fired power plants and building RES capacities).

20. Slovakia

Slovakia's RES target share in gross final consumption is 23%. The renewable target share in electricity generation is set at 29.5% by 2030.

21. Slovenia

Slovenia aims to achieve a share of at least 30-35% of RES in final energy use by 2030. The plan also states the ambitions of at least a 52% share of RES in electricity.

22. Spain

Spain aims to have a 48% renewable share in final energy use and an 81% renewable energy share in electricity generation.

The Spanish NECP also highlights the electrification rate: "Electrification of the economy is increasing over the decade as one of the key drivers of decarbonisation, increasing to 34 % in 2030." (P.21)). However, this recognition has not been materialised in a significant increase in electricity demand.

23. Sweden

Sweden shares no share of RES in gross final consumption in its draft due to the RED III process not being over at the time it was published. There is a mention of 75% by 2030 but no official target. It however states that Sweden will have 100 % fossil-free electricity production by 2040.

4. Building, heating and cooling targets

The heating and cooling sector's decarbonisation is pivotal to the EU's climate goals, accounting for 51% of energy demand and 27% of CO₂ emissions in Europe. The heating and cooling sectoral targets in the NECPs vary widely in ambition. It is difficult to say at this stage whether the EU will be able to deliver on its goals based on MS contributions. However, based on the NECP and its presented measures it is clear that additional work is needed.

Heat pumps have been proven to be one of the most effective ways to integrate renewable energy in the system and improve energy efficiency as well. However, not enough plans make direct references to them. There are not enough concrete measures aimed at improving the deployment of heat pumps, whether that be financial measures or accessibility ones. The European Heat Pump Association also shares this assessment in its [paper](#) that analyses seven NECPs. Indeed, several plans lack commitments, targets in numbers and specifically dedicated budgets, making the announced measures very vague.

Renovations of buildings are also extremely prominent and popular measures in the plans. Countries ought to develop more robust policies that define the exact funding and include a very high level of detail.

Targets by country

1. Belgium

The renewable heat share target is 15.4 % in 2030 (compared to 9.2 % in 2021).

2. Croatia

Croatia aims to renovate 30 839 buildings. It also aims to have a renewables share of 47.1% in final consumption of energy for heating and cooling. This will mainly be achieved through biomass and RES heat. Efforts to achieve these targets include replacing natural gas boilers with water/water heat pumps, high-efficiency natural gas cogeneration, industrial waste heat exploitation, energy utilisation of waste, solar energy utilisation, high-efficiency biomass cogeneration, biomass boiler rooms and geothermal energy utilisation.

3. Cyprus

In the scenario with existing measures, Cyprus has a renewables share of 45.2% in heating and cooling. In the scenario with additional measures, the country reaches 48.2%. Cyprus has already achieved a 41.34% rate of RES share in this sector. Most of the RES share in the heating and cooling sector is due to solar energy through the widespread use of solar thermal systems for water heating. Also important is the contribution from the use of heat pumps and the use of biomass (wood products) for heating purposes and the use of waste-based biomass in industry (cement factory). Cyprus will continue developing solar thermal systems for hot water use and heat pumps in buildings.

4. Czechia

No clear target has been stated for this sector but a higher degree of diversification of heat sources is expected in the future due to the gradual substitution of coal (as one of the primary fuels in the heating sector for larger sources) with so-called alternative fuels. This is an increase in

the proportion of use: waste for energy purposes, biomass and natural gas. Czechia wants to completely reduce the use of coal for electricity and heat generation by 2033.

5. Denmark

For the heating and cooling sector, the share of renewable energy is expected to increase from 61.1% in 2022 to 77.3% in 2030. This is expected to be achieved mainly using biomass and heat pumps. Heat pumps will rise from 3% in 2022 to 28.8% in 2030.

6. Estonia

Estonia aims to achieve a 63% share of renewable energy in the heat economy. It aims to heavily renovate public, commercial and residential buildings as well as street lighting.

7. Finland

Finland would like to see its renewable energy share of final energy consumption in heating and cooling reach 71%. This will mainly be achieved through heat pumps (13 TWh) and bioenergy (93 TWh).

8. France

France aims to have a share of renewable heating and cooling of 45% in 2030 and 55% in 2035. France's plan states that the development of district heating networks will be key. They will be constructing nearly zero-energy buildings and will be renovating many buildings through plans such as MaPrimeRénov'.

9. Germany

Germany sets an indicative target of 49% of RES in final energy consumption in the buildings sector by 2030. This path essentially relates to the polluter pays principle and thus also includes the share of renewable energy in the electricity mix and district heating, but also energy production near-building. The German heating and cooling target for networks is set at 50% of grid-bound renewable heat and/or unavoidable waste heat by 2030. The Heat Planning Act will be taking care of this aspect of decarbonisation.

10. Greece

The binding RES development target specifically for heating and cooling is set at 46% for 2030. Heat pumps will contribute mainly to this objective. There is no provision for extending the use of biomass for combustion in city buildings to avoid pollution of air from particulate matter.

11. Hungary

For heating and cooling, the plan outlines a strategy to increase the share of renewables by 1 percentage point between 2021 and 2025, followed by at least 1.3 percentage points per year between 2026 and 2030. Additionally, there's a specific goal to raise the share of renewable energy, residual heat, and waste cooling in district heating by 2.2 percentage points annually.

In district heating, the Hungarian target is to reduce the share of natural gas to 50% by 2030 with renewable and municipal solid waste-based technologies and waste heat technologies. The NECP of Hungary underscores the importance of heat pumps in individual heating and advocates for their expansion.

12. Italy

The Italian NECP sets a target share of renewables in gross final consumption for heating and cooling of 27% in the reference scenario and 36.7% in the scenario with additional measures. Heat pumps are anticipated to have a major impact because of their excellent performance. Additionally, they will support renewable cooling.

13. Latvia

The share of renewable energy in heating and cooling production is set to be 66,4% in 2030. The share of renewable energy in buildings will reach 68%. Latvia intends to renovate 500 000 m2 of public building floor area. No measures are detailed in the plan as national internal discussions are ongoing.

14. Lithuania

The Lithuanian NECP states that the share of RES in heating and cooling should be 67,2%. Regarding district heating, the share of energy from renewable sources should reach 90%. Within this sector, rules are being designed to maximise the use of RES in district heating by integrating solar technology and heat storage. Additionally, sophisticated heat accounting systems and solar commuting systems are being utilised to optimise heat production.

15. Luxembourg

Luxembourg aims to achieve a 40% share of renewables in the heat sector. It intends to do so through nearly zero-energy buildings, ambitious renovations of the existing building stock, as well as decarbonisation of existing residential buildings through heat pumps with a fossil phase-out based on a voluntary approach with significant financial incentives.

16. Malta

Malta has not set a target for this sector. The planned deployment of RES until 2030 will be presented in the final NECP. However, Malta's heating and cooling sector already heavily relies on heat pumps. The current share of RES-H&C is made up of different technologies, including heat generated by the bio-digesters, solar water heaters, heat pump water heaters, air-to-air heat pumps and biomass imports. The Government plans to extend existing support schemes and is also considering new opportunities for support to RES generation.

17. Netherlands

There is no target yet for this sector. Once the REDIII has been completed, the Netherlands will proceed to a national target. The government is considering raising the binding heat target from 1.1% to 1.3% through the utilisation of waste heat. Additionally, the Netherlands plan to make 500,000 new connections to heat networks in 2030 (approximately doubling compared to 2020). With regards to natural gas, the goals are as follows: In 2030, 200,000 existing dwellings/year have moved away from natural gas; 1.5 million houses and 15 % of u-building and social property are natural gas free by 2030.

18. Portugal

Portugal aims to reach a renewable energy share in final energy consumption of heating and catering of 47%. It also aims to reduce national CO₂eq emissions in the residential sector by 35% compared to 2005 levels. The plans states that it will do so by reducing carbon intensity of the

building stock, they will rehabilitate buildings with sustainable construction techniques to make buildings more efficient and they will pursue heavy electrification of the building stock.

19. Romania

In the buildings sector, Romania intends to have a 2% GHG emission reduction. This will mainly be by improving the buildings performance and increasing the share of heat pumps and solar thermal collectors.

20. Slovakia

The Slovakian buildings sector, excluding emissions covered by the EU ETS, aims to reduce carbon dioxide emissions by 12 % by 2030. Renewable energy will account for 28.3% of heating and cooling. The total share of renewables in heating should reach 34.1%. Renewable energy from heat pumps, including aerothermal, geothermal, and hydrothermal, are projected to contribute to these goals.

21. Slovenia

The Slovenian NECP announces a 41% renewables share in the heat and cooling sector. It commits to reducing GHG emissions in buildings by at least 70% by 2030 compared to 2005 and to reducing final energy consumption in buildings by 20% by 2030 compared to 2020. The plan sets out that there will be an annual increase of at least 3% in the share of RES in heating and cooling in industry, including waste heat and cold (exploitation priority). Regarding district heating, it announces that there will be an annual increase of at least 2-3% in the share of RES and waste heat and cold.

22. Spain

The Spanish government aims to renovate 1,377,000 dwellings by 2030. It also aims to have 73% of final energy from renewables in buildings. To reach this goal, there should be an annual increase in renewable percentage of heating and cooling of 1.27% for the period 2021-2025 and 2.07% for the period 2026-2030.

23. Sweden

Sweden has not set sectoral targets yet. The current share of RES in heating and cooling was 68.6% in 2021.

5. Transport targets

While most MS have announced a target share for the transport sector, some have chosen to focus on GHG emission reductions in the sector. In general, ambition has been raised since the previous NECPs. For 16 countries with a specific RES in transport target share, they range from 14 to 51%. The average falls to around 26% (with the use of additional measures scenarios). It is unclear whether this will be enough to fulfill the EU's general targets.

With regards to the electrification of transport, this is the most sought-after measure. All NECPs agree that it is the best way to decarbonise the sector. Other key measures include increasing the accessibility and use of public transport through urban planning and education campaigns. These measures are key for larger cities to decarbonise their transportation methods.

Targets by country

1. Belgium

The share for renewable transport (electricity and biofuels) is 28.2 % in 2030 (compared to 10.3 % in 2021). Measures to decarbonise the transport sector in Belgium are announced by the separate regions. The future of the transport sector in Belgium will be based on renewable electricity, combined with renewable and climate-neutral molecules. The federal government will continue to take measures to introduce, monitor and control the sustainable blending rate for road fuel.

2. Croatia

Croatia aims to have a 21.6% RES share in the final consumption of energy in transport. To decarbonise the sector, Croatia wants to implement regulatory instruments for encouraging a cleaner transport system, programs of co-financing the purchase of new vehicles on alternative fuels and develop infrastructure for alternative fuels in road transport. It wants to improve the public transport system and encourage all types of energy efficient transport. Lastly, it wants to develop a low carbon fuel market.

3. Cyprus

In the scenario with existing measures, Cyprus has a renewables share of 11.9% in transport. In the scenario with additional measures, the country reaches 14.6%. To reduce the consumption of energy by the transport sector, Cyprus aims to promote alternative fuels, incentivise the purchase of low/zero emission vehicles, deploy charging infrastructure as well as implement measures to promote urban cycling and public transport.

4. Czechia

Czechia opted for a 14.5 % reduction in GHG emissions which should lead to 24 % RES share in transport.

The Czech Republic intends to decarbonise the transport sector and reduce fossil fuel dependence by increasing the number of H2 charging and refueling points as well as the number of battery and hydrogen cars.

5. Denmark

The Danish NECP states that the RES share for transport is expected to increase from 5.6% in 2022 to 41.3% in 2030. Additionally, the share of electricity road transport is expected to move from 8% in 2024 to 158% in 2040. Electrifying rail and road transport are therefore expected to be key contributors to the targets.

6. Estonia

Estonia aims to have a 14% share of renewable transport fuels by 2030. Additionally, Estonia's 2035 action plan aims for a net greenhouse gas emission target for 2035 in the transport sector of 1 700 kt CO₂eq.

The NECP states that Estonia will deploy safe, green, competitive, needs-based and sustainable transport and energy infrastructure. The plan focuses on measures aimed at greening transport. They include the following: increasing the use of electro-mobility, light mobility and biofuels, increasing vehicle economy, energy and fuel efficiency, developing public transport and railway infrastructure as well as electrifying railways and ferries.

7. Finland

Finland's transport targets are detailed. They aim to have a 51% RES share of final energy consumption in road transport. This target will be reached through the following distribution: 11 TWh of liquid biofuels, 0.9TWh of biogas and 2.6 TWh of renewable electricity. The NECP states that they will increase the share of transport biofuels in road transport fuels consumed in Finland to 34% by 2030. Finland aims to improve energy efficiency of the transport system and to heavily renew the car fleet. Indeed, the objective is to bring the number of electricity-powered cars in Finland to at least 750,000 and the number of gas-powered cars to 130,000 by 2030.

8. France

France's plan aims to reduce GHG emissions in the transport sector by 14.6% in 2030 and 25% by 2035. The plan does not set a RES transport share. It however details the ways the sector will decarbonise. This will happen through making rail and public transport a priority. France aims to increase public transport traffic by 25% by 2030 (35 % by 2035), sharply increase cycling and triple car-sharing by 2027. Additionally, it has made producing 2 million zero-emission vehicles in France by 2030 and developing low, sovereign and resilient mobility a strategic priority. It has set specific targets for the sale of commercial and heavy-duty vehicles. 66% of new cars sold in 2030 will be electric and 50 % of new heavy-duty vehicles sold in 2030 will be electric or hydrogen fueled.

9. Germany

Germany's plan states that 30% of gross final energy consumption in the transport sector will come from renewables (according to RED II methodology). Key measures in the transport sector include the revision and updating of the EU CO₂ emission standards for new cars and vans, the increase and extension of the national GHG quota and, at national level, the Fuel Emissions Trading Act (BEHG), and the CO₂ differentiation of Heavy Goods Vehicle tolls.

10. Greece

Greece aims to have a 29% share of renewables in the transport sector. The gradual decarbonisation of the transport sector in 2030 is projected to rely mainly on the penetration of

biofuels (doubling compared to 2021) and electricity in road transport (3% share of total consumption in road transport compared to 0.3% in 2021). The penetration of biofuels and electricity is driven by policies such as the revised RED targets and policies imposing maximum limits on the final emissions of the new vehicle fleet. Greece expects that, for the land transport sector, there will be a reduction in emissions of more than 15% in 2030 compared to 2021.

11. Hungary

Hungary aims to have a reduction in greenhouse gas intensity of at least 14.5% in the transport sector by 2030. It intends to do so through increasing the utilisation of public transport and increasing the competitiveness of rail freight transport. It has several strategies in place such as the Green Bus Programme, the National Hydrogen Strategy, the Budapest Agglomeration Railway Strategy or even the National Cyclist Strategy. The NECP does not set an RES share in transport target.

12. Italy

Italy's target share of RES energy in gross final consumption of energy in transport is 13% for the reference case and 31% in the policy scenario with additional measures. This target will be reached through a mix of biofuels and RES electricity consumed in the road and rail sector.

13. Latvia

There is no target share of renewable energy in transport. However, Latvia sets other targets. The share of advanced biofuels and renewable fuels of nonbiological origin in transport will be 5.5%. The share of renewable fuels of non-biological origin in transport will be 1%. And the GHG intensity reduction target for transport is 15%. No measures are detailed in the plan as national internal discussions are ongoing.

14. Lithuania

Lithuania aims to increase the use of renewable energy sources in transport from 6.69% in 2021 to 15% in 2030. Targets have also been set for the use of electricity in the transport sector, with a minimum of 50% of annual purchases of electric vehicles registered for the first time by 2030. The share of biogas and gaseous fuels of non-biological origin from RES compared to the final energy consumption of the transport sector is envisaged to be at least 5.2% in 2030.

15. Luxembourg

The RES share in transport is set at 18% by 2030. This will be achieved through the use of sustainable and renewable hydrogen biofuels and its derivatives. The plan also aims to reduce traffic through the massive expansion of public transport and a 49% share of electro-mobility by 2030. Accelerated development of electromobility through aid schemes for the acquisition of zero-emission vehicles and the installation of charging points complemented by tax incentives for electric cars will be implemented. Lastly, there will be a reduction of the sale of fuel to non-residents through the gradual increase of CO₂tax.

16. Malta

Malta has not set a specific target but it will be making significant investments in transport; from infrastructure, to public transport, modal shift, EV grants and increased efficiency of the current network, to feasibility studies on hydrogen use in transport. It aims to heavily boost zero CO₂ emissions for new passenger cars and light commercial vehicles by 2035.

17. Netherlands

There is no RES share in transport target. The plan mentions that 1/3 of energy consumption in mobility will be renewable. The Dutch plan calls for a phase out of new fossil vehicles by 2030. It is committed to timely deployment of recharging infrastructure. There will be 1,9 million electric transport vehicles by 2030. The plan also calls for the government to work on more active and sustainably mobility policies. It wants to reduce business (car) use kilometres by 8 billion. Moreover, the Netherlands is committed to blending biofuels with a prioritisation for heavy road transport, shipping and aviation. Sustainable fuels will play a key role in the decarbonisation of this sector. It also sets a renewable fuel in aviation target: 14% in 2030 and 100% by 2050.

18. Portugal

Portugal has set a 23% target share of renewables in the transport sector. It has set a -40% nation CO₂eq emission reduction target in transport compared to 2005 levels. Key measures include focusing on e-mobility through the promotion and support of electric vehicles, strengthening charging infrastructure at the various levels, and promoting bidirectionality and smart charging. Additionally, the plan calls for a focus on sustainable fuels and the promotion of collective transport.

19. Romania

Romania aims to have 62% of renewable electricity in the road transport, 11% renewable electricity in rail transport and 19% of compliant biofuels. In total, the RES share in transport is supposed to be 29.8% in 2030. This will mainly be achieved by increasing the share of hybrid, plug-in hybrid and electric vehicles, as well as the use of advanced biofuels. However, the plan states that the transport sector is still expected to see a 41% GHG emission increase.

20. Slovakia

Slovakia's NECP sets a 14% target share of RES in transport. Additionally, the road transport sector has the objective of no more than a 29 % increase in emissions by 2030 compared to the reference year 2005. Key measures for the transport sector include: promoting the use of alternative fuels, construction of related infrastructure for road transport and waterborne transport, remotorisation of obsolete propulsion units of ships, replacement of the fleet by new vehicles by encouraging citizens through direct financial support from the State and lastly tax instruments or, in the case of alternatively fuelled trucks, exemption from payment of tolls.

21. Slovenia

Slovenia aims to have a 26% share of renewables in transport. Slovenia plans on upgrading existing railway infrastructure, developing cycling and walking infrastructure, developing integrated public transport, promoting sustainable modes of transport, improving the integration of spatial and transport planning, and developing a supportive environment for increased efficiency and use of alternative fuels in transport.

22. Spain

Spain's share of renewables in the transport sector will reach 25% in 2030. The NECP also states an aimed reduction of transport GHG emissions intensity by -16.6% and having at least 5.5 million electric vehicles by 2030. The combined percentage of RFNBO will be 11%. The NECP focuses on modal shift, decarbonisation and transformation of rail and maritime transport, reduction of

traffic, use of collective public transport, sustainable mobility and electrification in terms of energy consumption of the transport sector.

23. Sweden

Sweden aims to have a 70% reduction in transport emission by 2030. Key measures to get there include emission requirements for new vehicles, CO2 taxes, urban environment agreements, deployment of charging infrastructure and hydrogen refuelling, procurement rules as well as reduction obligations.

6. Industry targets

Industry targets and measures differ widely from plan to plan. Some countries have decided to include dedicated sections to this sector while others make references to it through other dimensions. Not all countries set specific targets. Some choose to set RES targets, others GHG emission reduction targets.

The majority of the plans have recurring measures and messages for the industry sector. There is a focus on electrification and when this is not possible for hard to abate industries, countries set strong hydrogen and Carbon Capture and Storage (CCS) plans. Another key measure for this sector is energy efficiency. Almost all countries refer to the energy intensity of these activities and the need to improve it. Lastly, the main concern for the industrial sector is the use of F-gases. Most countries want to find substitutes, but not enough countries set strict targets in this regard.

Targets by country

1. Belgium

The Brussels Capital region expects a reduction of emissions from industrial processes of 58% compared to 2005 by 2030. In Flanders, the industry sector covered by the ESR has seen an 8% increase in emissions between 2005 and 2021. The additional measures scenario expects this trend to reverse with a 35% decrease by 2030 compared to 2005. In Wallonia, the non-ETS industry GHG emissions are expected to reduce by –80%. The federal state will be striving to achieve a high level of energy efficiency within its competence in industry. Additionally, the Federal Hydrogen Strategy aims to use hydrogen and renewable molecules to make certain applications climate-neutral when electrification is not economically viable or technically possible. This will heavily concern industry.

2. Croatia

Croatia's plan does not have an industry section with specific targets and measures. Instead, the measures related to industry are woven into other dimensions of the plan. Croatia aims to increase energy efficiency and use of RES in manufacturing industries. The aim is to have a reduction in the consumption of delivered energy in production facilities by at least 20%. It will do so by using available funds from the ESIF and from auctions of emission units in the EU ETS. Funds will also come from the Modernisation Fund, the NRRP and the ERDF. Croatia has also set specific goals for industrial processes relating to substances, emissions of volatile organic compounds and F-gases.

3. Cyprus

The share of energy from RES in total energy consumption in industry is estimated to reach 30.15% in 2030, in the scenario with existing measures. This will be mainly due to the use of biomass and waste energy for industrial heat production combined with an increase in the use of electricity from photovoltaic systems. With additional measures, it is estimated that in the five years from 2021 to 2025, the RES share will increase annually by an average of 1.71 % and in the five years from 2026 to 2030 the RES rate will increase by 5.34%.

4. Czechia

Emissions from the industrial processes sector are projected to slightly decrease in the next decade. These emission reductions are mainly driven by legislation on the use of fluorinated greenhouse gases, which requires manufacturers/importers/exporters to switch gradually to alternative refrigerants. Additionally, Czechia wants hydrogen to play a role in the decarbonisation of the industry sector. The Government also wants to use CCUS in hard-to-decarbonise sectors such as industrial processes. However, in practice, both hydrogen and CCUS will seem to play a limited role in the 2030 horizon.

5. Denmark

Trends show that the share of renewable energy in industry increases from 29% in 2022 to 70% in 2030. To achieve this, Denmark aims to decarbonise the industry sector through methods such as electrification, CCUS, biofuels and bioenergy.

6. Estonia

Estonia sets targets for the industrial processes. GHG emissions reductions are set to decrease by –71.4% in 2030 compared to 2005 levels. It will reduce emissions of fluorinated greenhouse gases and replace them with alternative substances. It will do so by creating a flexible and secure economic environment conducive to innovative and responsible business and fair competition.

Energy efficiency in industry can be achieved through the introduction of more efficient appliances, e.g. replacement of electric motors and drives, process automation.

7. Finland

The industry sector in Finland is highly energy intensive. In 2019 the government announced its intention to prepare sectoral low-carbon roadmaps for key industrial energy sectors in co-operation with companies and organisations in each sector. The main conclusions from these roadmaps included a recognised need for investments in research and new technologies, including energy and materials efficiency; alternative energy sources (biofuels, hydrogen and electrification); the increased exploitation of waste heat; and the implementation of CCUS. Finland will continue to financially support the decarbonisation of the industry sector through support schemes and energy aid.

8. France

Regarding the industry sector, France has made it a strategic priority to reduce greenhouse gas emissions in this sector by 35% between 2015 and 2030. RES consumption in the industry sector will be increasing to 37% by 2030, with increased use of electrification and biomass.

9. Germany

In the area of industrial processes, Germany is pursuing several strategies. First, Germany promotes research. This includes increasing energy efficiency, integrating renewable energy into the energy system and developing alternative industrial processes with reduced or zero greenhouse gas emissions. It also aims to increase energy efficiency through reduced energy use which leads to a permanent reduction in energy-related CO₂ emissions in the industrial sector. Lastly, technologies to close the carbon cycle are being developed for certain industrial processes where the production of CO₂ is difficult or impossible to avoid due to the process.

10. Greece

Greece doesn't set specific targets for the industry sector. It aims to improve energy efficiency. Additionally, the reduction of CO₂ emissions from industrial processes, where 2/3 are due to the production of building materials, will be facilitated in the medium term by the capture of the released CO₂, its use to produce synthetic fuels (by 2040) and geological storage. However, the complete elimination of emissions by 2050 seems difficult and needs to be further processed.

Hydrogen will also play an important role in the decarbonisation of industry: in the field of industrial applications that cannot be electrified directly, relevant applied research into hydrogen-based solutions will be encouraged.

11. Hungary

Hungary's industry strategy does not include specific targets. The plan states that decarbonisation of the sector will rely on investments in energy efficiency and switching to cleaner fuels, including cleaner technology. The main instrument is switching to electricity. Where this is not possible for technical or economic reasons, it may be justified to use carbon capture or hydrogen-based technologies. Indeed, carbon capture, storage and valorisation technologies will play an important role in the future of industrial processes that are difficult to decarbonise.

The plan also includes the reduction of emissions from the largest CO₂-emitting industries by reducing energy use and increasing manufacturing efficiency, and research into technologies for the wider deployment of renewable and natural energy sources in energy-intensive sectors and residential use. Lastly, hydrogen will play an important role in decarbonising this sector.

12. Italy

With regard to emissions reduction in the industry sector, the replacement of fossil fuels, especially through electrification and the use of hydrogen, is a priority. Energy efficiency measures are followed. Indeed, Italy aims to have a 42% share of RES hydrogen in total hydrogen used in industry by 2030 (with additional measures). Italy will be promoting industrial decarbonisation measures through tax incentives and other instruments, mainly focused on process innovation and the adoption of certified energy management systems. Lastly, CCUS emission abatement technology will be used primarily for the hard-to-abate industry.

13. Latvia

The share of renewable energy in industry (including ICT) will be 64.9% in 2030. No measures are detailed in the plan as national internal discussions are ongoing.

14. Lithuania

The Lithuanian industry sector aims to achieve a 19% reduction in GHG emissions by 2030 compared to 2005. It will promptly develop low-energy-intensive industries and industries increasing energy efficiency, deploy and acquire the most up-to-date and environmentally friendly technologies and equipment. Hydrogen will also be used to support the industry's transition. Lithuania also wants a 79% reduction in the use of fluorinated greenhouse gases in the internal market, replacing them with substitutes, tightening controls on imports and uses. Another goal is to improve energy efficiency by achieving energy savings of 5.45 TWh and the use of RES and alternative fuels in industry.

15. Luxembourg

Luxembourg does not set industry specific targets. It sets one regarding energy efficiency: The industry sector aims to have a 17% reduction in final energy consumption in 2030 (compared to 2007). Luxembourg will also be developing renewable hydrogen transport and storage infrastructure and use of hydrogen in industry sectors that are difficult to electrify. Indeed, Luxembourg's hydrogen strategy had set as a national target the substitution of 100% of fossil hydrogen currently used in industry with renewable hydrogen by 2030 at the latest.

16. Malta

Malta is primarily a service-based economy. The country lacks energy-intensive industries, so this sector is not set as a priority in the plan. Few measures are developed other than basic ones such as increased RES shares, and energy efficiency.

17. Netherlands

The Netherlands have set the goal that in 2050, industrial raw materials, products and processes are net climate neutral and 80% circular. The emissions target in 2030 is 34.8 Mton CO₂ equivalent. GHG emissions from production process and the waste sector are targeted to be 36 Mton CO₂ equivalent by 2030. Other targets include: the sustainability of the industrial heat system increased to 300°C; electrification and CO/CO₂ reuse; CSS to be deployed in a cost-effective manner. Hydrogen will also play a major role in the decarbonisation of the industrial sector. Lastly, energy savings and circularity are indispensable in any development path, and certainly for a successful industrial transition.

18. Portugal

Portugal's measures to decarbonise the industry include the promotion of renewable and electrification in industry, the promotion of clean alternative fuels and CCUS. The government wants to support business investment in decarbonisation and promote circular and low carbon economy in industry.

19. Romania

The industry sector will see a 77% GHG emission reduction that will mainly be achieved by reduction of usage of fossil fuels, and their replacement with electricity and RES and improvement of the efficiency of the technologies.

20. Slovakia

The industrial processes and solvent use sector, including fluorinated greenhouse gases, excluding emissions covered by the emissions trading system, has the objective not to exceed an emissions increase of 40% by 2030 compared to the reference year 2005. Slovakia has made it a priority to promote the production and use of zero- and low-carbon hydrogen in industry. Additionally, it wants to bring the energy intensity of Slovakia's industry close to the EU average. Slovakia will be utilising two EU Aid schemes (Recovery and Resilience Plan and the Modernisation Fund). The aim of the schemes is to contribute to the reduction of greenhouse gas emissions by supporting projects to decarbonise industry under the greenhouse gas emissions trading system (EU ETS)

21. Slovenia

Slovenia wants to achieve a –55% reduction in industry (only non-ETS covered parts) GHG emissions. There will be at least a 30% share of RES (including waste heat) in industry in 2030. Slovenia will be pursuing progressive decarbonisation of energy-intensive industries and hard to abate sectors. It will provide financial incentives for the restructuring of production processes through the deployment of green technologies, green gases including hydrogen and green fuels and technologies for CO2 capture and storage.

22. Spain

Spain aims to annually increase renewable energy in industry by 5.1%. The decarbonisation of industry will be brought by energy efficiency, technological innovation, electrification, self-consumption and green hydrogen. Among others, industry challenges the replacement of natural gas and fossil-based hydrogen for high-temperature thermal uses or as feedstock. The target for hydrogen is to have close to 11 GW of electrolyzers by 2030 which will be mainly for industrial uses. In 2030, it wants to have a share of RFNBO (renewable liquid and gaseous fuels of non-biological origin) on hydrogen in industry of 74%.

23. Sweden

Key measures listed in the plan for the Swedish industry include, energy and CO2 taxes, the EU ETS, energy mapping, energy efficiency networks, environmental codes, and regulations on F-gases.

7. Energy efficiency targets

There are several inconsistencies in the energy efficiency sections of the NECPs as many countries have failed to indicate their national contributions. Some, simply do not indicate a contribution for both primary and final energy consumption. Others choose to focus solely on one over the other. And some announce only energy savings. These differences in the plans will make it hard for the Commission to assess the overall energy efficiency targets of the MS.

The level of ambition for energy savings is insufficient in the NECPs. As per the recently updated 2023 Energy Efficiency Directive (EED), a minimum decrease of 11.7% in energy usage must be achieved by 2030. But to keep under 1.5°C of global warming, more energy efficiency is needed, but at the very least, national energy efficiency contributions should add up to reach this new EU target. By 2030, energy usage must be reduced by at least 20% in order to meet the targets set forth in the Paris Agreement. There is therefore work to do as it seems that MS are not on track to achieve the EU 2030 energy efficiency target.

Targets by country

1. Belgium

According to projections (WAM scenario), primary energy consumption in 2030 will be 36.5 Mtoe and final energy consumption of 29.9 Mtoe. Compared to the 2020 reference scenario, which projects primary energy consumption of 38.3 Mtoe in 2030 and final energy consumption of 33.1 Mtoe in 2030, this means an energy saving of 1.8 Mtoe or 4.7% on primary energy consumption compared to the 2020 reference scenario in 2030 and converted into a saving of 3.1 Mtoe or 9.5% in final consumption compared to the 2020 baseline in 2030.

2. Croatia

Croatia aims to have a primary energy consumption of 340.9 PJ or 8.14 Mtoe. Its final energy consumption should be 274.2 PJ, 6.55 Mtoe.

3. Cyprus

Cyprus divides its energy efficiency targets based on the Fit For 55 (FF55) scenario and the additional measures scenario. Primary energy consumption (PEC) under FF55 is set to be 2.03 Mtoe and under the scenario with additional measures 2.28 Mtoe. For final energy consumption (FEC), it will be 1.8 Mtoe under FF55 and 1.88 Mtoe in the additional measure's scenario.

4. Czechia

For Czechia, the quantification of the overall end-use energy savings target implies a decrease from 1 064 PJ (latest 2021 data) to 846 PJ in 2030. The NECP however admits that this target will be hard to reach for Czechia: "This is the target set by Czechia, but the modelled scenario shows the problem of achieving it. Even with the adoption of ambitious policies and measures, including the implementation of a progressive building renovation scenario, the evolution of final consumption leads to 945 PJ by 2030. While this is a very significant reduction of consumption of about 120 PJ, the target is not reached, and consumption is reduced by only 1 % compared to the reference scenario" (P.3).

The primary energy consumption target is set at 1206 PJ and the annual savings obligations in 2030 is 145 PJ.

5. Denmark

The Danish projections of energy consumption show that primary energy consumption decreases by 18 % from 2019 to 2030 and 22% from 2019 to 2040. Final energy consumption declines by 5% from 2019 to 2030 and 12% from 2019 to 2040. The ratio between primary and final energy consumption increases by 15% from 2019 to 2030 and 11% from 2019 to 2040.

6. Estonia

The Estonian NECP states that final energy consumption needs to remain at up to 30.19 TWh/y until 2030, with an overall energy savings obligation of up to 21.28 TWh for the period 2021-2030. This will help to maintain the same level of final energy consumption. The plan states an aim to reduce primary energy consumption by up to 14 %.

7. Finland

Finland does not include any details on energy efficiency plans.

8. France

France wants to achieve a primary energy consumption of 157.3Mtoe (or 1830 TWh) by 2030. Regarding final energy consumption, France has set a national reduction target of 30% in 2030 compared to 2012 equating to 1209TWh or 104.1 Mtoe.

9. Germany

Germany's primary energy consumption is to be reduced by 39.3% or to 2252 TWh. Its final energy consumption is to be reduced by 26.5% compared to 2008 to 1867 TWh by at least 2030.

10. Greece

The Greek NECP sets a target of no more than 15.4 Mtoe final energy consumption in 2030. Primary energy consumption is expected to reach 18.2 Mtoe in 2030.

11. Hungary

Hungary's main energy efficiency target is that the country's final energy consumption in 2030 does not exceed 750 PJ. The plan sets a target of 336 PJ of cumulative final energy savings by 2030.

12. Italy

Italy's goals for energy efficiency are as follows: The primary energy consumption should be 122 Mtoe (policy scenario with additional measures) or 130 Mtoe (reference case). For final energy consumption, it should be 100 Mtoe (policy scenario) or 109 Mtoe (reference case).

13. Latvia

Latvia sets the following goals for energy efficiency: The volume of total energy consumption will be 45 470 GWh. Final energy consumption will be 39 775 GWh. The cumulative end-use energy savings will be 29 522 GWh. And finally, the annual reduction of public authorities energy

consumption will be -1.9%. No measures are detailed in the plan as national internal discussions are ongoing.

14. Lithuania

Lithuania's primary energy consumption in 2030 should be 5.2 Mtoe and 4.2 Mtoe for final energy consumption. To implement these objectives, Lithuania has set priority axes, i.e.: promote the complex renovation of multi-apartment residential and public buildings (priority for renovation of residential areas) and energy savings of 10-11 TWh by 2030 and promptly develop low-energy-intensive industries and industries increasing energy efficiency, deploy and acquire the most up-to-date and environmentally friendly technologies and equipment.

15. Luxembourg

Luxembourg has set its energy efficiency improvement target by 2030 at -44%.

16. Malta

Malta's indicative targets for primary energy consumption and for final energy consumption are 835 Ktoe and 687 Ktoe respectively.

17. Netherlands

The Netherlands aims to achieve a primary energy use of 1.950 petajoules in 2030, which translates into a final energy use of 1.837 petajoules.

18. Portugal

Portugal aims to have a primary energy reduction of 35% compared to 2007 and final energy savings of 6.74 Mtoe.

19. Romania

The anticipated energy consumption projections indicate a targeted reduction of 5% in primary energy consumption by 2030 compared to 2019, reaching an absolute value of 31,448 ktoe. Similarly, final energy consumption is expected to experience a slight decrease of 2%, achieving an absolute value of 23,140 ktoe in 2030.

Compared to the reference 2030 projections established by the Primes model, Romania's energy efficiency goal by 2030 is to achieve a remarkable 46% reduction in primary energy consumption and a corresponding 45% reduction in final energy consumption

For the 2021-2030 period, the cumulative energy savings are estimated to reach 10 116.5 ktoe.

20. Slovakia

The Slovakian NECP states that energy efficiency will improve by 30.3%. It does not fully state a national contribution for final energy consumption. It mentions 8.46 Mtoe for final energy consumption in 2030 but then mentions 8.25 Mtoe or 8.675 Mtoe later in the plan.

21. Slovenia

Slovenia's plan wants to ensure that the policies and measures adopted are systematically implemented so that final energy consumption does not exceed 51 TWh (4.426 Ktoe). Calculated to the level of primary energy, the use would not exceed 70 TWh (6.026 Ktoe) in 2030. The plan

aims to reduce final energy consumption in buildings by 20% by 2030 compared to 2020 and ensure a reduction in GHG emissions in buildings of at least 70% by 2030 compared to 2005.

22. Spain

Spain aims to have a reduction of primary energy efficiency of - 42%. It also targets a 44% improvement in energy efficiency in terms of final energy.

23. Sweden

As the Swedish target for 2030 is an energy intensity target, there is no fixed level of input (primary) and final energy consumption when meeting the target. Assuming annual economic growth of 2%, primary energy consumption at target achievement in 2030 is estimated to be 470 TWh. Final energy consumption at target achievement in 2030 is estimated to be 347 TWh. These levels are not target levels. Sweden is estimated to have a primary energy use – in practice the same as supplied energy – of 523 TWh and an end use of 392 TWh in 2030.

Annex: renewable and storage targets by technology

1. Belgium

Federal:

- By 2030, the contribution of offshore wind to Belgium's renewable energy mix will be between 5.4 and 5.8 GW in terms of installed capacity.

Flanders:

- Flanders is committed to producing 31.974 GWh of renewable energy by 2030.
- The Flemish Government aims to increase installed solar energy capacity to 6.7 GW by 2030.
- The Flemish Government aims to increase installed onshore wind energy capacity to 2.642 GW by 2030

Wallonia:

- Wallonia aims to double renewable energy production by 2030.
- The target for renewable electricity generation by 2030 is estimated at just under 14 TWh, a growth of 250 % compared to the current situation.
- For wind, the envisaged increase is proportional to the increase in the overall climate target, reaching 6 200 GWh in 2030.
- For photovoltaic, the target is 5 100 GWh.
- The hydro target is 480 GWh.
- The biomass (electricity only) target is 90 GWh
- Geothermal: 40 GWh

Brussels Capital:

- Brussels Capital Region: Reach the 1 250 GWh renewable threshold in 2030 by combining intra-Brussels and extramuros efforts.

In electricity (with additional measures):

- Wind will contribute 0.0037 GWh
- Solar PV will contribute 334.48 GWh
- Municipal waste will contribute 70.69 GWh
- Biogas will contribute 14.52 GWh

Other:

Storage:

- At the end of 2022, Belgium had an electricity storage capacity of 1 427 MW (1 307 MW in pumping and 120 MW of batteries).
- Flexible capacity is projected to increase to 1 305 MW for storage pumping turbine, 2 271 MW for large-scale storage, 477 MW for small scale storage and 2 848 MW for Demand Side Response potential by 2029-2030.

2. Croatia

Hydropower:

- No hydropower target for gross final consumption of energy
- Estimated contribution of hydropower in electricity: 529.2 Mtoe

Wind:

- No wind target for gross final consumption of energy
- Estimated contribution of wind technologies in electricity: 529.2 Mtoe

Solar:

- Estimated contribution of solar technologies to gross final consumption of energy: 38.3 Mtoe
- Estimated contribution of solar in electricity: 86.8 Mtoe

Biomass:

- Estimated contribution of solid biomass to gross final consumption of energy: 915.8 Mtoe
- Estimated contribution of gaseous + liquid biofuels to gross final consumption: 206.2 Mtoe
- Estimated contribution of solid and gaseous biofuels in electricity: 152.9 Mtoe

Geothermal:

- No estimated contribution of geothermal to gross final consumption
- Estimated contribution of geothermal in electricity: 56.7 Mtoe

Other:

Nuclear:

- Nuclear phase out by 2050
- Until 2040: 348 MW of estimated powerplant capacity in the scenario with additional measures

Hydrogen:

- Estimated contribution of hydrogen to gross final consumption: 39.2 Mtoe

Storage:

- Pumped storage: 80 MW in 2030 (WAM)
- Lithium-ion batteries: 50 MW in 2030 (WAM)

3. Cyprus

Cyprus does not detail its renewables plan encompassing all sectors. It mentions the following in terms of RES targets by technology:

- The percentage of RES and H will continue to come from photovoltaic systems, wind farms and biomass/biogas plants. However, it is expected that the further increase in the

RES/H ratio in the coming years will come almost exclusively from the increased installation of photovoltaic systems, which is the most competitive technology from the other available RES technologies in Cyprus. By 2026, PV systems 39 with a total capacity of at least 732 MW are expected to be in operation.

- The total installed capacity of the PV systems is expected to reach, in 2030, at least 889 MW.
- As regards wind farms, a new 12 MW park is expected to be installed in 2024, which has already been licensed and the connection conditions have been met, increasing the total capacity of wind farms to 169.5 MW. Also in 2030, the installed capacity of biomass/biogas plants for electricity generation purposes increases to 27 MW with the installation of new plants in the end of the decade.

4. Czechia

By 2030, Czechia's model estimates that there will be an installed capacity of 10.1 GW of photovoltaic power plants involved in the grid and 1.5 GW of wind farms. The development of nuclear energy is an important element of the decarbonisation strategy. Another important tool for achieving the decarbonisation objectives is the use of biomethane and hydrogen (and other low-emission gases). Czechia aims to phase out coal by 2035.

Solar:

- Photovoltaic plants estimated installed capacity in the progressive scenario: 11 406 MW

Wind:

- Wind plants estimated installed capacity in the progressive scenario: 958 MW

Other RES:

- Installed capacity in the progressive scenario: 655 MW

Battery accumulation:

- 637 MW in 2030 in the progressive scenario

Hydro and pumped storage:

- 2 241 MW in the progressive scenario

Other:

Nuclear:

- 4 047 MW

Gas sources:

- 3 381 MW

Coal:

- 5 747 MW

5. Denmark

Hydropower:

- Estimated electricity generation capacity: 7 MW

Wind:

Estimated electricity generation capacity:

- Offshore: 8 985 MW
- Onshore: 5 905 MW

Solar:

- Estimated electricity generation capacity: 11 740 MW

Biomass:

- Biomass Estimated electricity generation capacity: 1 648 MW
- Biogas estimated electricity generation capacity: 133 MW

Other:

Hydrogen:

- The Agreement on the Development and Promotion of Hydrogen and Green Fuels aims to build a Danish capacity of 4-6 GW in 2030.

Storage:

- Denmark has no specific targets for storage capacity.

6. Estonia

Hydropower:

- Renewable electricity production: 25 GWh/ 8MW

Wind:

- Wind energy in the electricity economy: By 2030, we set a target for a total increase of 2 GW of capacity both on land and at sea.
- Renewable electricity production: 6 840 GWh/ 2 310 MW (up from 664 GWh in 2022)

Solar:

- The target solar production target reached in 2019 at the NECP 2030 (415 GWh) has been met as of 2022. Further growth is seen, in particular, in the form of solar parks created as a result of lower bids, but the actual growth may turn out to be higher.
- Renewable electricity production: 1000 GWh/ 1 200 MW

Biomass:

- Renewable electricity production: 1 540 GWh / 1 100 MW

Other:

Hydrogen:

- To meet the resulting requirements, it is estimated that 1095 tonnes of green hydrogen will be needed annually by 2030.

Storage:

- No specific targets, but the plans states that energy storage (pump hydroelectric power stations and batteries) will be increased.

7. Finland (WEM scenario)

Hydropower:

- RES overall: 15 TWh in 2030
- RES- E: 15 TWh

Wind:

- RES overall wind energy: 23 TWh in 2030
- RES-E: 23 TWh

Solar:

- RES overall Solar: 2.5 TWh
- RES-E: 2.4 TWh

Bioenergy:

- RES overall bioenergy: 120 TWh
- RES-E: 14 TWh

Other:

Storage:

- There are no specific targets for energy storage capacity, but the government aims to increase the deployment of energy storage.

8. France

Wind:

Onshore wind:

- Installed capacity : 33-35 GW 2030, 40-45 GW 2035
- Energy produced in TWh: 64 in 2030, 80 in 2035

Offshore wind:

- Installed capacity 3.6 GW in 2030, 18GW in 2035
- Energy produced offshore wind in TWh: 14 in 2030, 70 in 2035
- By 2030, 7 offshore wind farms from calls for tenders 1 to 3 will be put into operation

Solar:

- Installed electric solar capacity: 54-60 GW in 2030, 75-100 GW in 2035
- Energy produced PV in TWh: 65 in 2030, 93 in 2035
- For photovoltaic: double the annual rate of development of new capacity by working towards a balanced distribution between ground power stations (65 %), large roofs (25 %), and residential (10 %);
- Increase the rate of solar development to at least 5.5 GW/year with a target of 7 GW/year

Hydropower:

- Installed electric hydropower capacity: 26.3 GW in 2030
- Energy produced: 54 TWh 2030

Biomass :

- In 2030, it is proposed to set a target of 50 TWh of annual biogas production, of which 44 TWh in the gas network distributed in France (which would lead to a fraction of at least 15 % of biogas injected into gas networks)
- The national biofuel production expected in 2030 and 2035 will be around 50 TWh

Other:

Nuclear:

- 9.9 GWh of new capacities committed by 2026
- Strategic priority: --> Encourage the emergence of a French supply of small modular reactors (SMR) by 2035 and support disruptive innovation in the sector

Hydrogen:

- Objective: install 6.5 GW of electrolysers in 2030 and meet a need for 10 GW in 2035.
- Aim to become the leader in decarbonised hydrogen

Storage:

- developing demand flexibility as a whole and electricity storage batteries is a priority axis for France.

9. Germany

Hydropower:

- No specific legally defined hydropower targets

Wind:

- Onshore wind: 115 GW by 2030, 160 GW by 2040
- Offshore wind: at least 30 GW by 2030, 40 GW by 2035 and 70 GW by 2045

Solar:

- 215 GW to 2030. 400 GW by 2040

Biomass:

- 8.4 GW by 2030

Other :**Hydrogen:**

- The target for domestic electrolysis capacity in 2030 will be increased from 5 GW to at least 10 GW.
- By 2027/2028, IPCEI support will construct a hydrogen start-up network with more than 1 800 km of newly built hydrogen pipelines in Germany; around 4.500 km are added across Europe (European Hydrogen Backbone).

Storage:

- Stationary storage technologies in the form of batteries and hydrogen will drive the German market even more in the future. The expected annual growth by 2030 is 8.5 % higher than the industry average.

10. Greece**Wind and solar:**

- The installed capacity of onshore wind and photovoltaic parks is projected to increase by 12 GW by 2030 (from 9 GW in 2021 to 21 GW in 2030).
- The installed capacity of offshore wind farms is expected to reach 1.9 GW by 2030.

Hydropower:

- The total installed capacity of hydropower projects (hydropower projects) is expected to reach 3.800 MW by 2030, from 3.100 MW installed so far.

Geothermal:

- The objective by 2030 is to broaden research into geothermal fields and achieve the development of a potential of at least 100 MWh.

Other:**Storage:**

- Greece intends to deploy sufficient capacity of energy storage systems (batteries and pumped storage).
- Electricity storage capacity is projected to be 5.3 GW in 2030 (3.1 GW in batteries and 2.2 GW with pumped storage).

11. Hungary

Hungary intends to have its electricity production coming from 2 sources: nuclear and renewables (mainly solar).

Wind:

- Increase wind capacity from 330 MW to 1000 MW
- Renewable electricity consumption: 209 Ktoe
- Renewable electricity generation capacity: 1 080 MW

Solar:

- Renewable electricity consumption: 1 135 Ktoe
- Renewable electricity generation capacity: 12 000 MW

Biomass:

- Renewable electricity consumption biogas: 28 Ktoe
- Renewable electricity generation capacity biomass: 91 MW
- Renewable electricity generation capacity Biogas: 124 MW

Geothermal:

- In view of the circumstances of our country, the aim is to increase the use of geothermal thermal energy for a wider and wider use.

Other:

Storage:

- The Government intends to build energy storage facilities in Hungary with a total capacity of around 500-600 MW by 2026, which could increase to 1 GW by 2030.

12. Italy

Hydropower:

- Electricity sector: Renewable power growth target in 2030 for water (pure and mixed pumping equipment is excluded): 19 172 MW

Wind:

- Electricity sector renewable power growth target in 2030: 28 140 MW, of which 2 100 MW will be offshore wind.

Solar:

- Electricity sector renewable power growth target in 2030 for solar: 79 921 MW
- Heat sector solar power growth target: 829 Ktoe

Biomass:

- Electricity sector renewable power growth target in 2030 for bioenergy: 3 052 MW
- Heat sector: the biomethane target is 3 724 Ktoe. For other bioenergy, it is 6 155 Ktoe.

Geothermal:

- Electricity sector energy target: 1 000 MW in 2030
- Heat sector geothermal growth target: 213 Ktoe

Other:**Hydrogen:**

- Share of RES hydrogen in total hydrogen used in industry: 3% (ref case) vs 42% (policy scenario / WAM)
- the obligations to use renewable hydrogen by 2030 would lead to consumption of around 0.25 Mton/year, 80% would be produced in Italy.

Storage:

- One of Italy's objectives is to increase electricity storage capacity to ensure the integration of renewables into the electricity market and to manage overgeneration efficiently.
- There are no specific targets in the plan.

13. Latvia

Latvia has not published detailed targets by technology as national internal discussions are ongoing. There are no storage targets either.

14. Lithuania**Hydropower:**

- Projected RES-E production trajectory with planned policies and measures: 32.2 Ktoe

Wind:

- Projected RES-E production trajectory with planned policies and measures for wind: 1 719 Ktoe
- New RES-E electricity generation capacity wind power plants: 2 240 MW

Solar:

- Projected RES-E production trajectory with planned policies and measures for solar: 427 Ktoe
- New RES-E electricity generation capacity solar power plants: 360 MW

Biomass:

- Projected RES-E production trajectory with planned policies and measures for biofuel: 65 Ktoe
- Biogas: 14 Ktoe
- New RES-E electricity generation capacity biogas power plant: 30 MW

Other:

Storage:

- Lithuania will be developing flexible solutions such as demand response and storage. Notably, it wants to encourage the deployment of energy storage facilities in house holds with 3.291 million euros in grants for which household will deploy 20 MWh of electricity storage solutions.

15. Luxembourg

Hydropower:

- target: 100 GWh by 2030

Wind:

- Wind target: 1 043 GWh

Solar:

- Photovoltaic target: 1 112 GWh

Biomass:

- Biogas target: 100 GWh
- Biomass Target: 624 GWh

Other:

Hydrogen:

- Projected evolution of the production of total hydrogen consumption: 230 GWh in 2030 (130 GWh for industry, 100 for road transport)

Storage:

- No measures and no targets. Brief mention of deploying storage infrastructure.

16. Malta

“The Government plans to extend existing support schemes and is also considering new opportunities for support to RES generation. Malta’s planned deployment of RES until 2030 will be presented in the final NECP” (P.78). For storage: Malta intends to install utility scale battery storage systems. The government will incentivise renewable energy generation and storage on land. There are no specific targets.

17. Netherlands

The Netherlands have not set individual targets and trajectories for renewable technologies.

However, these targets are set: In 2030: at least 35 TWh of electricity generated on land from wind and solar energy > 15 kW shall be generated annually; and at least 49 TWh of electricity shall be generated from offshore wind.

For storage, the government is focusing on electricity storage by investing in battery innovations and making batteries mandatory in large-scale solar park. It will also pursue large scale hydrogen storage. There are no specific flexibility targets.

18. Portugal

Hydropower:

- Installed capacity for electricity generation by water: 8.1 GW

Wind:

- Installed capacity for electricity generation by wind: 12.4 GW
- 36% of Portuguese electricity generation will come from wind

Solar:

- Installed capacity for electricity generation by solar: 20.4 GW
- 39% of Portuguese electricity generation will come from solar

Biomass:

- Installed capacity for electricity generation by biomass/biogas and waste: 1.4 GW

Other:

Storage:

- The target for battery storage in 2030 is 1 GW. For pumping is it 3.9 GW.

19. Romania

Wind:

- For the electricity sector, wind is expected to contribute 37.4% of the gross final consumption.
- The trajectory of the installed capacity for electricity production from wind is expected to be 7.6 GW.

Solar:

- For the electricity sector, solar is expected to contribute 23.5% of the gross final consumption.
- The trajectory of the installed capacity for electricity production from solar PV is expected to be 8.3 GW.

Hydropower:

- For the electricity sector, hydro is expected to contribute 35.1% of the gross final consumption.
- The trajectory of the installed capacity for electricity production from hydro is expected to be 6.9 GW.

Other:**Storage:**

- In Romania's vision for the energy system by 2030 and after, energy storage in batteries plays a pivotal role in enhancing system flexibility.
- The country is working on energy storage solutions, particularly power battery storage with a target of at least 240 MW or 480 MWh by 2025.

20. Slovakia**Hydropower:**

- Estimation of the total expected contribution (installed capacity, gross amount of electricity produced) of hydroelectric plants: 4 822 GWh.
- Pumped hydroelectric power plants: 500 GWh.

Wind:

- Estimation of the total expected contribution (installed capacity, gross amount of electricity produced) of wind: 1 500 GWh.

Solar:

- Estimation of the total expected contribution (installed capacity, gross amount of electricity produced) of solar: 1 470 GWh.

Biomass:

- Estimation of the total expected contribution (installed capacity, gross amount of electricity produced) of solid biomass: 1 100 GWh.
- Biogas/biomethane: 1 440 GWh

Geothermal:

- Estimation of the total expected contribution (installed capacity, gross amount of electricity produced) of geothermal: 30 GWh.

Other:**Storage:**

- For Slovakia, the deployment of smart energy and electricity storage systems is very important but there is no specific target.

21. Slovenia

Hydropower:

- Estimated trajectories for renewable energy for 2030, including expected gross final energy consumption for hydropower: 4.716 GWh

Wind:

- Estimated trajectories for renewable energy for 2030, including expected gross final energy consumption for wind: 356 GWh

Solar:

- Estimated trajectories for renewable energy for 2030, including expected gross final energy consumption for solar: 3.861 GWh.

Biomass:

- Estimated trajectories for renewable energy for 2030, including expected gross final energy consumption for biogas: 139 GWh.
- For bioliquids: 2.213 GWh
- For Woody Biomass: 5.009 GWh

Other:

Hydrogen:

- Increasing the share of gaseous RES fuels (hydrogen, biomethane and other gases) to reach at least 10 % to 30 % of the share of gaseous RES fuels in the total gas supply by 2030

22. Spain

Wind:

- Evolution of gross installed electricity power for wind: 62 044 MW

Solar:

- Evolution of gross installed electricity power for solar photovoltaic including self-consumption: 76 387 MW
- For Solar thermoelectric: 4 800 MW

Hydropower:

- Evolution of gross installed electricity power for hydraulic: 14 511 MW

Biomass:

- Evolution of gross installed electricity power for biogas: 440 MW
- Biomass: 1 409 MW
- Other renewable sources: 80 MW

Other:

Nuclear:

- Evolution of gross installed electricity power for Nuclear: 3 181 MW (down for 7 399 MW in 2020).

Storage:

- The focus on storage is strengthened in the Spanish NECP to ensure the integration of renewables into the electricity mix. The Energy Storage Strategy provided for 20 GW of energy storage by 2030. With the 2023-2030 NECP, these forecasts are exceeded, rising to 22 GW in 2030.

23. Sweden

The Government has not taken a position on the specific types of energy to be used and the extent to which each technology is to be used to achieve the trajectory for renewable energy. There are no storage targets either.

Eurelectric pursues in all its activities the application of the following sustainable development values:

Economic Development

- Growth, added-value, efficiency

Environmental Leadership

- Commitment, innovation, pro-activeness

Social Responsibility

- Transparency, ethics, accountability



Union of the Electricity Industry - Eurelectric aisbl
Boulevard de l'Impératrice, 66 – bte 2 - 1000 Brussels, Belgium
Tel: + 32 2 515 10 00 - VAT: BE 0462 679 112 • www.eurelectric.org
EU Transparency Register number: [4271427696-87](https://ec.europa.eu/transparency/regexp1/index.cfm?do=entity.entityDetail&entityId=4271427696-87)