SMAFIN expanded
Smart Financing Implementation

SMAFIN D.2.4 Review of National Energy Efficiency Policies

October – 2024

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The Report at a Glance

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EXECUTIVE SUMMARY

The European Union (EU) has set ambitious carbon neutrality targets for 2050, requiring Member States to align and support these goals. The **EU Green Deal**[1] serves as the overarching strategy to make Europe climate-neutral by 2050, setting the framework for sustainable growth across all sectors. The **Fit for 55**[2] package is a key component of this strategy, focusing on reducing greenhouse gas emissions by at least 55% by 2030. Complementing these efforts, the **REPowerEU**[3] plan accelerates the transition to clean energy by reducing reliance on Russian fossil fuels and enhancing energy security, reinforcing the Green Deal's climate and energy objectives. While the EU Green Deal represents a general action plan to fight climate change, the Fit for 55 package offers the preparatory path to meet the targets. More specifically, Fit for 55 focuses on specific topics that need particular attention.

The Fit for 55 legislative packages, unveiled in July 2021, aims to align the EU with ambitious climate targets, including a 55% reduction in greenhouse gas emissions by 2030 and introducing a legislative framework that includes interlinked proposals to revise existing EU climate and energy laws, and six new legislative proposals.

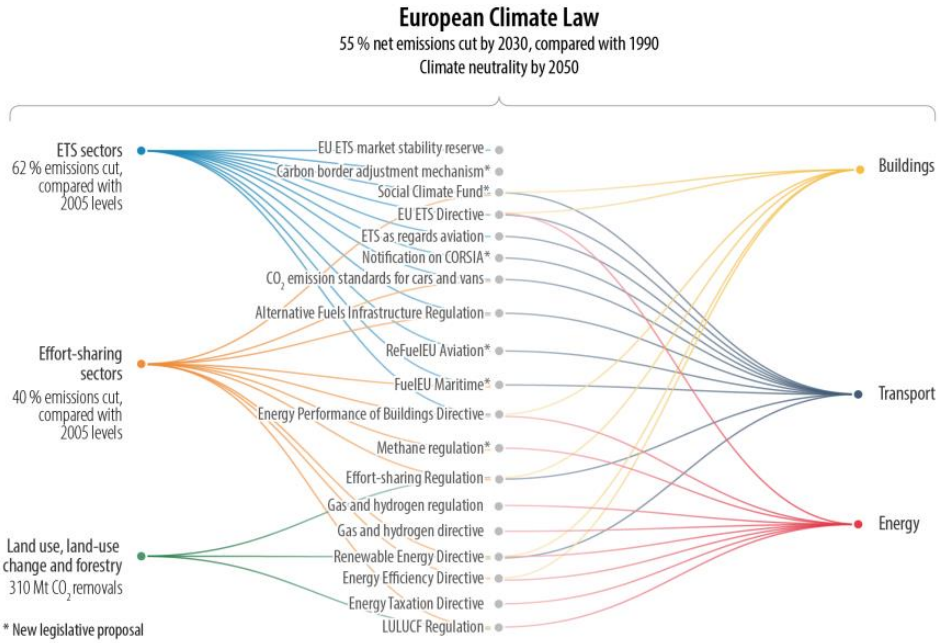

Figure 1: Fit for 55 legislatives. Source: EPRS, link: https://epthinktank.eu/2024/08/01/fit-for-55-package/sankey-fit-for-55-p1-gw-2/

Three (3) key legislative proposals related to buildings are: revised Renewable Energy Directive: RED II ((EU) 2023/2413) [4] , revised Energy Efficiency Directive: EED

[1] European Green Deal, December 2019. Available at: The European Green Deal - European Commission (europa.eu)
[2] European Green Deal, Fit for 55, July 2021. European Commission. Available at: Fit-for-55/#what
[3] European Commission, REPowerEU, May 2022. Available at: REPowerEU (europa.eu)
[4] European Commission, RED II. Available at: Directive - EU - 2023/2413 - EN - Renewable Energy Directive - EUR-Lex (europa.eu)

(EU/2023/1791) [5] and revised Energy Performance of Buildings Directive: EPBD (EU/2024/1275) [6].

The revised Energy Efficiency Directive (EED)[7] establishes for the first time an EU legally binding target to reduce the EU **final energy consumption by 11.7% by 2030**, increase **annual energy savings** to at least 1.3% in 2024-2025, then 1.5% in 2026-2027 and 1.9% in 2028-2030. It introduced an annual **energy consumption savings target of 1.9%** for the public sector, extended the annual 3% building renovation obligation to all levels of public administration and prioritized energy poverty programmes.

The revised Renewable Energy Directive (REDII) [8] drives the EU's ambition to **increase the share of renewable energy across sectors**, with a particular emphasis on achieving climate neutrality in buildings. It sets a binding target to increase the EU-wide share of **renewables to at least 42.5% by 2030**, with an indicative target of 45%. The directive outlines specific sectoral targets, including renewable energy in heating and cooling and transport, and introduces measures to accelerate the deployment of renewable energy systems in buildings**.** It sets a target for a 1.1 percentage point annual increase in renewable energy use in heating and cooling, with a focus on transitioning away from fossil fuels, aiming to replace fossil-fuel-based systems with renewable alternatives. To foster local and decentralized energy generation, the directive encourages the establishment of Renewable Energy Communities (REC). These allow citizens, businesses, and local governments to produce, consume, and share renewable energy, thereby empowering communities to participate in the energy transition actively.

The revised Energy Performance of Buildings Directive (EPBD) sets a clear path for Europe to achieve a fully decarbonized building stock by 2050, emphasizing the **renovation of the worst-performing buildings**. It builds on the existing regulatory framework to reflect higher climate ambitions and social action while allowing flexibility for Member States to address their unique building stocks. Revised EPBD has taken differentiated approach for **residential and non-residential buildings**, focusing on four (**4) pillars**: **Renovation, Decarbonisation, Enabling framework and Modernisation & system integration**[9]. The renovation pillar is focused on: Minimum Energy Performance Standards (**MEPS**)[10] where each Member State must develop a **national trajectory of residential buildings**, to reduce primary energy use by 16% by 2030 and 20-22% by 2035. At least 55% of these reductions should come from renovating the worst-performing buildings. For **non-residential** buildings MEPS apply to renovate the 16% worst-performing buildings by 2030 and the 26% worst-performing buildings by 2033, with certain exemptions allowed. Second pillar is liked to Decarbonisation and Zero-Emission Standards (**ZEB**)[11] for new buildings. New buildings must have zero on-site emissions from fossil fuels by 2028 for public buildings

[5] European Parliament, Regulation (EU) 2023/1791, September 2023. Available at: Directive - 2023/1791 - EN - EUR-Lex (europa.eu)
[6] European Parliament, Regulation (EU) 2024/1275, April 2024. Available at: Directive - EU - 2024/1275 - EN - EUR-Lex (europa.eu)
[7] European Commission, Energy efficiency - targets, directive and rules. Available at: Energy Efficiency Directive (europa.eu)
[8] European Commission, Energy efficiency - targets, directive and rules. Available at: Renewable Energy Directive (europa.eu)
[9] European Commission, DG Energy presentation, Delivering on the European Green Deal and Fit for 5, Energy Performance of Buildings Directive (EPBD) recast (2024/1275). Available at: PowerPoint Presentation (crosscert.eu).pdf
[10] Minimum Energy Performance Standards. Available at:
[11] European Commission, nZEB. Available at: Nearly-zero energy and zero-emission buildings (europa.eu)

and by 2030 for all other buildings, with specific exemptions. The enabling framework pillar introduces **Building Renovation Passports**[12], Energy Performance Certificates **(EPC),** One-stop-shops **(OSS),** National energy performance databases, deep renovation standards [13] next to deep renovation definitions in the Long-Term Renovation Strategies **(LTRS)**[14]. The last pillar Modernisation & system integration addresses Infrastructure, Smart Readiness Indicator (SRI)[15], and Technical Building Systems **(TBS).**

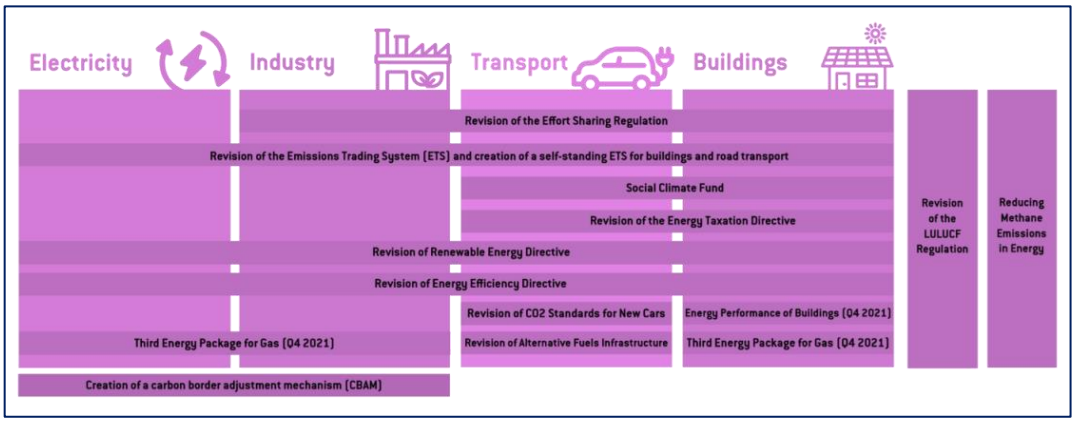

Figure 2: Fit for 55 a transformative package. Source: Fit for 55 marks Europe's climate moment of truth (bruegel.org)

[12] European Commission, BRP and EPC. Available at: Directive - EU - 2024/1275 - EN - EUR-Lex (europa.eu)
[13] Buildings Performance Institute Europe(BPIE), Deep Renovation Standard, December 2021. Publication available at: BPIE_Deep-Renovation-Briefing_Final.pdf
[14] European Commission, Long-term renovation strategies by country. Available at: Long-term renovation strategies (europa.eu)
[15] European Commission, SRI. Available at: Directive - EU - 2024/1275 - EN - EUR-Lex (europa.eu)

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LIST OF ABBREVIATIONS AND ACRONYMS

Abbreviation	Full name
EE	Energy Efficiency
EED	Energy Efficiency Directive 2012/27/EU
EPBD	Energy Performance of Buildings Directive (revised 2024/1275/EU)
EPC	Energy Performance Certificate
FEC	Final Energy Consumption
LTRS	Long Term Renovation Strategy
NECP	National Energy and Climate Plans
NGO	Non-governmental organizations
NPOO	National Recovery and Resilience Plan Croatia
NRRP	National Recovery and Resilience Plan
nZEB	Nearly Zero Energy (Emission) Buildings
OG	Official Gazette
OP	Operational Programmes
OSS	One-Stop-Shop
ZEB	Zero Emission Buildings
RES	Renewable energy sources
SME	Small and medium enterprises

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1. INTRODUCTION

1.1. SMAFIN EXPANDED PROJECT

The SMAFIN Expanded project aims to enhance energy efficiency investments and initiatives building upon successful SEIF initiative and National Roundtables established in Bulgaria, Croatia, Greece, and Romania under the SMAFIN Horizon 2020 project and extends them to include Slovenia. Building on previous experience, the SMAFIN Expanded project addresses challenges in financing energy efficiency projects in the private and public buildings, SME and tertiary sector. By fostering structured dialogue among stakeholders, including government, financial sectors, ESCOs, and SMEs, SMAFIN Expanded seeks to upgrade policy measures, develop or upgrade financial instruments, and support the development of large-scale investment programmes that mobilise private finance for energy efficiency.

This deliverable offers insight into the national policies and plans of **Bulgaria (BG), Croatia (HR), Greece (GR), Romania (RO), and Slovenia (SI)** which aim to implement the EU plan for a green transition and will serve as **a baseline for future National Roundtables and Working Group discussions**.

1.1. PURPOSE OF NRRPS IN ACHIEVING FIT FOR 55

The **National Recovery and Resilience Plans (NRRPs)**[16] are national strategies developed by EU member states under the framework of the Recovery and Resilience Facility (RRF), which is the core component of the NextGenerationEU[17] fund. The RRF allocates €672.5 billion in grants and loans to support reforms and investments that drive a green and digital recovery from the COVID-19 pandemic. One of the key priorities of the NRRPs is climate action, reflecting the EU broader commitment to the European Green Deal and each national recovery and resilience plan should address climate change and advance decarbonization. The European Commission requires that *at least 37%* of each NRRP's budget be **dedicated to climate-related investments and reforms**. These include transitioning to renewable energy, improving energy efficiency in buildings, promoting sustainable transportation, and advancing new technologies that reduce emissions, such as hydrogen and carbon capture and storage (CCS). The focus on decarbonization aligns with the EU's overarching climate goals, notably reducing greenhouse gas emissions by 55% by 2030 and achieving climate neutrality by 2050. Member states are encouraged to design their national recovery plans in a way that supports the implementation of Fit for 55.

The REPowerEU plan, introduced in response to the energy crisis exacerbated by Russia's invasion of Ukraine, aims to reduce the EU dependence on Russian fossil fuels and accelerate the clean energy transition. It complements the climate goals of the NRRPs by **prioritizing investments in energy efficiency, renewable energy deployment, and infrastructure development**.

[16] European Commission, Recovery and Resilience Plans. Available at: Recovery and Resilience Plans - European Commission (europa.eu)
[17] European Commission, NextGenerationEU. Available at: NextGenerationEU - European Union (europa.eu)

The **NRRPs and NECPs are interconnected**, as both serve to implement the EU climate and energy policies at the national level. While **NECPs set the long-term vision and targets**, **NRRPs provide the immediate funding and policy framework** to achieve these goals.

The National Recovery and Resilience Plan (NRRP) was a requirement for accessing EU Recovery and Resilience Mechanism (RRF) funds from 2021 to 2023 and will terminate at the **end of 2026**. The RRF forms the core of NextGenerationEU— the EU's economic recovery plan in response to the COVID-19 pandemic and a significant portion of the funds is directed toward the green transition, aligning with the Fit for 55 objectives. Each **national plan must allocate** (at least 37%) of the **funding to climate-related projects**, integrating reforms and investments to **reduce emissions**, increase **energy efficiency**, and support the **transition to renewable energy**. Through the European Semester, the European Commission monitors the implementation of the national plans, ensuring that the funding and projects are aligned with both recovery objectives and climate goals, such as those outlined in Fit for 55.

1.2. Purpose of NECPs in Achieving Fit for 55

National Energy and Climate Plans (NECPs) for 2021-2030, mandated under the EU Governance Regulation (EU 2018/1999)[18], are crucial in outlining how EU Member States will achieve their 2030 energy and climate targets. NECPs ensure that national actions are integrated with the broader **"Fit for 55"** objectives, helping the EU achieve a 55% reduction in emissions by 2030. These fundamental documents combine the **targets, policies and measures** planned by EU Member States to achieve their climate and energy commitments. Member States had to first submit these ten-year plans by the end of 2019 – as mandated by the Governance Regulation (EU 2018/1999).

The European Commission expects NECPs to be ambitious and realistic, with clear pathways. NECPs must detail how EU countries plan to address **energy efficiency, renewable energy expansion, greenhouse gas emissions reductions, interconnections, and research and innovation**.

The NECPs serve as **monitoring and reporting mechanisms**, allowing the European Commission to assess progress towards the 2030 targets. Member States must report on their progress regularly, providing data and updates on the implementation of their plans.

By the end of June 2024, the NECPs needed to be **revised** and required **updates** to align with revised EU legislation under the "Fit for 55" package and the REPowerEU plan, reflecting the EU's increased climate ambition. Furthermore, Member States had to ensure early public participation in the development of their NECPs through **public consultations** and multilevel climate and energy dialogue and encourage **regional cooperation** in elaborating and finalising integrated National Energy and Climate plans.

[18] European Parliament, December 2018. Available at: Regulation - 2018/1999 - EN - EUR-Lex (europa.eu)

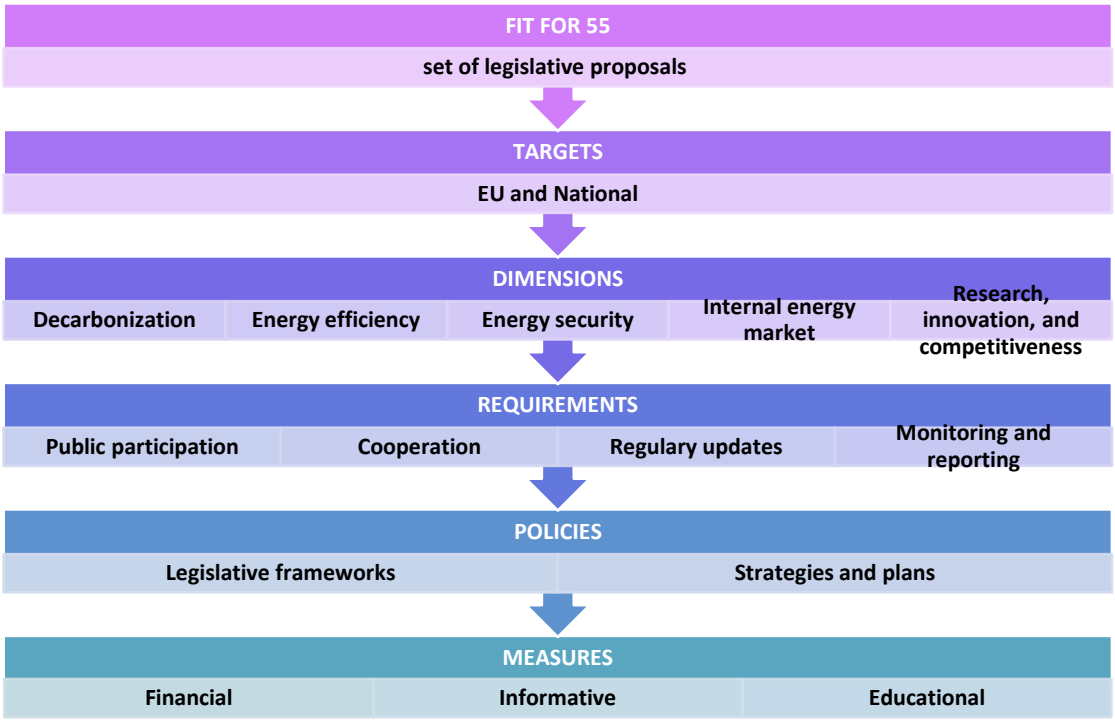

Figure 3: Fit for 55 package schemes

Member States are required to involve stakeholders, including local authorities, businesses, and civil society, in the development and implementation of their NECPs. These plans are dynamic and must be regularly updated to reflect new developments, technologies, and changing circumstances.

2. NATIONAL RECOVERY AND RESILIENCE PLANS

The **implementation of the Recovery and Resilience Facility (RRF)**, introduced by the EU in 2021, **will conclude in 2026**. Each country developed a National Recovery and Resilience Plan (NRRP), outlining resources, investments, and reforms with clear milestones and targets. While countries had flexibility in allocating funds across sectors, a strong emphasis on the environment and green transition was mandatory, aligning with the EU's broader goals, such as the European Green Deal.

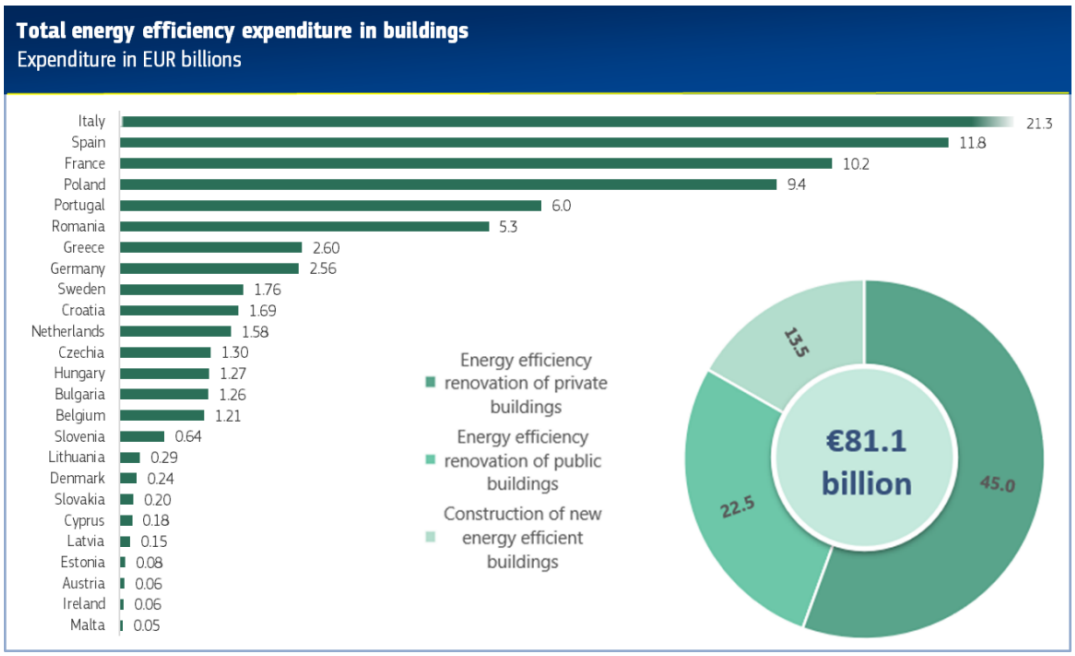

Figure 4: RRF and EE in buildings. Source: scoreboard_thematic_analysis_efficiency.pdf (europa.eu)

2.1 BULGARIA NATIONAL RECOVERY AND RESILIENCE PLAN

The Bulgarian National Recovery and Resilience Plan[19] aims to tackle key challenges and systemic weaknesses in the country's economy, aligning with the national development strategy "BULGARIA 2030". This plan sets strategic goals for medium-term growth, including accelerated economic development, demographic improvement, and reduced inequalities. Bulgaria is a significant beneficiary of EU funds for the 2021-2027 period, with a focus on complementarity between these funds and the Recovery and Resilience Facility. Notably, 57.5% of NRRP [20] support targets climate objectives, making it **one of the greenest plans**, while 23.1% is directed towards digital goals, exceeding RRF spending targets. The European Parliament engages in forums to oversee and discuss the NRRP's implementation and monitor the Commission's activities.

On October 15, 2021, Bulgaria submitted its **original National Recovery and Resilience Plan**[21] to the European Commission, which approved it on April 7, 2022. On 16 December 2022, Bulgaria received the first payment worth €1 369 million in grants (around a quarter of its total allocation) based on the achievement of the 21 milestones and one target.

[19] Bulgaria Recovery and Resilience Plan. Available at: Национален план за възстановяване и устойчивост (nextgeneration.bg)
[20] Bulgaria's Recovery and Resilience Plan, Country Snapshot. Available at: EC NRRP Country page Bulgaria
[21] National Recovery and Resilience Plan of Bulgaria, 2021. Available at: https://nextgeneration.bg/14

In the 2022 spring package, Bulgaria was advised[22] to adjust spending in light of the evolving economic situation, utilizing EU funds like the **RRF** and **REPowerEU**, continue implementing the NRRP, reduce fossil fuel dependency, and enhance energy efficiency. These recommendations were reiterated in the 2023 Semester, emphasizing a reduction in energy support measures by the end of 2023 and the need for a prudent fiscal policy.

In September 2023, **Bulgaria revised the plan**[23] by removing six investment measures and scaling back eight others, which received Council approval in December 2023. A 2023 study for the European Parliament indicated that Bulgaria's adjustments were influenced by anticipated inflation until 2026, leading to the cancellation and reduction of certain projects deemed unfeasible. On 9 October 2023, Bulgaria requested the second instalment for the amount of €724 million, based on the original annex.

The amended NRRP includes 98 measures (47 reforms and 51 investments) aimed at addressing the economy's structural challenges. The reforms focus on overcoming obstacles to sustainable growth, while investments target common EU issues by promoting green and digital transitions and enhancing economic and social resilience along with single market cohesion. Nearly all components of the plan align with multiple pillars of the Recovery and Resilience Facility (RRF). Additionally, Bulgaria's plan features projects across all seven European flagship areas identified by the Commission in the 2021 annual sustainable growth strategy, which tackles challenges faced by all EU Member States. The NRRP is organized into 12 components grouped within four policy pillars.

The second pillar, '**Green Bulgaria**', includes reforms and investment focusing on the transition to a low-carbon economy, the sustainable management of natural resources, biodiversity, and sustainable agriculture.

'**Low-carbon economy**' addresses the energy sector's main challenges, aiming to speed up its decarbonisation, facilitating deployment of renewables and alternative energy sources (e.g. green hydrogen and biogas), setting ambitious targets for expanded storage capacity for solar and geothermal electricity, and liberalising the wholesale and retail electricity markets. Other measures relate to the renovation of the building stock.

The second Pillar “Green Bulgaria” includes reforms and investment focusing on the transition to a low-carbon economy:

- *C4.R1. Establishment of national fund for decarbonisation*
- *C4.R2. Facilitating investment in energy efficiency renovations in residential buildings*
- *C4.R3. Definition and criteria for 'energy poverty' of households*
- *C4.R4. Boosting energy efficiency and renewable-energy projects through energy bills*
- *C4.R5. One-stop shop for renovations*
- *C4.R6. Boosting electricity generation from renewable sources*
- *C4.R7. Unleashing the potential of hydrogen technologies and hydrogen production and supply*

[22] Bulgaria's National Recovery and Resilience Plan: Latest state of play, 2024. Available at: EPRS
[23] National Recovery and Resilience Plan of Bulgaria. Available at: https://nextgeneration.bg/14

- *C4.R8. Liberalisation of electricity market*
- *C4.R9. Roadmap to climate neutrality*
- *C4.R10. Decarbonisation of energy sector*

Energy efficiency of building stock is supported with alternative measures:

- *BG-RRP-4.020 "Support for sustainable energy renovation of public building stock for administrative services, culture and sport"*
- *BG-RRP-4.021 "Support for energy renovation of buildings in the production, trade and service sectors"*
  - Component 1:
    - Target: 616 Renovated buildings
  - Component 2:
    - Target: 250 Renovated buildings
    - Reduction of annual primary energy consumption - 379 GWh/y
    - Reduce greenhouse gas emissions - 208 ktoe
- *BG-RRP-4.023 - Support for sustainable energy renovation of the housing stock - phase I*
- *BG-RRP-4.024 - Support for sustainable energy renovation of the housing stock - phase II*
    - Target: 3 688 900 sq.m. renovated
    - Primary energy saved 405 GWh/y
    - Greenhouse gas emissions saved 79 ktCO2/y

The programmes were also supported by several calls for technical assistance under the NRRP and additional programmes related to energy efficiency and RES:

- *BG-RRP-4.025 - SUPPORT FOR ENERGY EFFICIENT STREET LIGHTING SYSTEMS - CALL 1*
- *BG-RRP-4.026 - Support for renewable energy for households - Call 1*
- *EN-RRP-4.028 - SUPPORT FOR ENERGY EFFICIENT STREET LIGHTING SYSTEMS - CALL 2*
- *EN-RRP-4.032 - "Support for new capacities for electricity production from renewable sources and electricity storage with an installed capacity of 200 kW to 2 MW" (Call 1)*
- *BG-RRP-4.033 - "Support for new capacities for electricity production from renewable sources and electricity storage with installed capacity over 200 kW" (Call 2)*

Commission estimates, by 2040, Bulgaria's GDP is projected to be 1.1% higher due to the Recovery and Resilience Facility (RRF) funds from the National Recovery and Resilience Plan (NRRP), although these estimates consider only the effects of investments and not the benefits of reforms. The largest expenditures are planned for projects that focus on decarbonizing the energy sector, enhancing power storage capacities, improving energy efficiency in buildings, and advancing smart industry and rail transport digitalization, which contribute to both green and digital objectives.

Based on Recovery and Resilience Scoreboard[24] and Thematic Analysis, energy efficiency renovations in Bulgaria's residential sector are particularly difficult due to the **large number of multi-family apartment buildings** with **numerous individual owners**. To address this, the Bulgarian plan includes amendments to national legislation aimed at **simplifying the decision-making process** by lowering the required approval threshold for energy efficiency renovations in buildings. The Bulgarian NRRP allocates EUR 1,435 million for energy efficiency, with EUR 1,263 million specifically directed towards improving energy efficiency in buildings. Among the envisioned **reforms** are updating the **regulatory framework for green buildings**, establishing a **decarbonisation fund**, accelerating projects through **ESCOs**. The plan aims to **renovate** over 5 million m² of public and private buildings, with 23% of the **investment** ensuring at least 30% primary energy savings per project.

2.2 Croatia National Recovery and Resilience Plan

The first version of Croatia National Recovery and Resilience Plan[25] was submitted in July 2021 and adopted by the European Commission in September 2021. Same as NECPs, national Recovery and Resilience Plan combined **the targets, policies and measures** planned by EU Member States. Croatian NRRP is structured to include five (5) components and one **Initiative: Building reconstruction complemented with Reform: Decarbonisation of buildings,** with an estimated cost of € 6 295 million[26] and a deadline for investments 30. June 2026. The NRRP should be harmonized with NECP and Long-Term Renovation Strategy (LTRS) and followed by National Energy Renovation Programs for each type of building.

Energy efficiency measures from Croatian NECP for Croatia for the period from 2021-2030, are implemented as energy renovation programs of buildings for the period 2021-2030 under *Initiative: Buildings*:

- Programme of energy renovation of multi-apartment buildings for the period by 2030 (OG 143/2021)
- Programme of energy renovation of family houses is updated on an annual basis (OG 43/14, 36/15, 57/20, 83/21, 99/22)
- Programme of energy renovation of buildings with the status of cultural property for the period by 2030 (OG 143/2021)
- Programme to combat energy poverty, including the use of renewable energy sources in residential buildings in assisted areas and in areas of special state concern for the period by 2025 (OG 143/2021)
- Programme of energy renovation of public sector buildings up to 2030 (OG 41/22)

In addition, the *Reform: Decarbonisation of buildings* supports the implementation of two additional programs:

[24] European Commission, Recovery and Resilience Scoreboard, Thematic analysis. Available at: scoreboard_thematic_analysis_efficiency.pdf (europa.eu)
[25] National Recovery and Resilience Plan, Republic of Croatia, version1, July 2021. Available at: Plan oporavka i otpornosti, srpanj 2021..pdf (gov.hr)
[26] European Parliament, Croatia's National Recovery and Resilience Plan, Latest state of play. Available at: Croatia's National Recovery and Resilience Plan (europa.eu)

- Urban Green Infrastructure Development Programme for the period 2021-2030 (OG 147/2021)
- Circular management of space and buildings development programme for the period 2021-2030 (OG 143/2021)

Two years after adopting the National Recovery and Resilience Plan (NRRP) for 2021-2026, the Croatian Government issued the **National Reform Programme 2023**[27]. This report details progress on implementing the European Commission's recommendations, specifically the initiative for decarbonizing buildings. **The plan aims to rebuild and renovate** over 800,000 m² of buildings by mid-2026, including public and cultural buildings, multi-apartment units, and earthquake-damaged structures. **Energy efficiency requirements target** a minimum of 50% heat energy savings and 30% primary energy savings compared to pre-renovation levels, adhering to the "do no significant harm" principle from EU regulations.

The government announced the adoption of the "Program for Energy Renovation of Family Houses" and amendments of the "Program for Energy Renovation of Multi-Apartment Buildings", both extending to 2030. A **National Action Plan for Skills Development in Green Jobs** was adopted in 2022, aiming to train 500 people in energy renovation and post-earthquake reconstruction by 2026, with 50 specialists in sustainable urban development and cultural heritage restoration. To **support sustainable finance**, a Sustainable Finance Support Forum is being established, with collaboration from the Ministry of Finance, the Croatian National Bank, and other stakeholders to draft the Strategic Framework for Capital Markets Development.

In addition to Programmes developed under the first draft of NRRP 2021-2026, two additional updates are expected:

- Programme of Energy Renovation of Family Houses by 2030
- Amended Programme of energy renovation of multi-apartment buildings by 2030

The second and updated version of Croatia National Recovery and Resilience Plan[28] was submitted in November 2023, to which it also added a **REPowerEU chapter**. The new REPowerEU chapter contains five (5) reforms: one new and four scaled-up measures raising budget on €10 040,7 million [29]. The REPowerEU presented two (2) new components: **Energy and sustainable transport** and **Energy renovation of buildings.**

- The *Energy and Sustainable Transport* component aims to reduce dependence on fossil fuels, particularly from Russia, and accelerate the green transition. Measures include developing energy networks, expanding liquefied natural gas and gas infrastructure, increasing the use of renewable energy sources, promoting zero-emission transport, and investing in renewable hydrogen.
- The *Energy Renovation of Buildings* component focuses on reducing fossil fuel reliance and advancing the green transition by renovating buildings, addressing

[27] European Commission, Government of the Republic of Croatia, National Reform Programme 2023. Available at: fec2933e-154c-45b7-ac6a-51795ca12a78_en (europa.eu)
[28] National Recovery and Resilience Plan, Republic of Croatia, version2, November 2023. Available at: Dodatak Nacionalnom planu oporavak i otpornosti 2021.-2026., studeni 2023.pdf (gov.hr)
[29] European Parliament, Croatia's National Recovery and Resilience Plan, Latest state of play. Available at: Croatia's National Recovery and Resilience Plan (europa.eu)

energy poverty, and enhancing green skills. These measures are designed to improve energy efficiency in buildings, enhance energy security, reduce fossil fuel dependency, and support workforce requalification towards green skills. Of the five measures, two have a cross-border or multi-country dimension, particularly the energy renovation of buildings and the renovation of earthquake-damaged structures with energy upgrades.

In Operational Arrangement for the implementation of the National Recovery and Resilience Plan 2021-2026 - First changes, April 2024 [30], Croatia set the following milestones related to proposed initiatives and reforms:

- National guidelines on circular use of construction waste from the buildings with a status of a cultural good adopted – until Q12026
- Guidelines for the energy renovation of buildings with the status of a cultural good – until Q42023
- Pilot projects identified through the green urban renewal strategies and linked with the national programmes on green infrastructure and circular management of space and buildings – Q22026
- Education program for workers from third countries (green skills and competences in the construction sector) – Q12025
- Guidelines for the application of a model for monitoring energy consumption in multi-dwelling buildings -Q42025

Based on Recovery and Resilience Scoreboard [31] and Thematic analysis, Croatia has made solid **progress in energy efficiency investments**, placing mid-range among EU Member States for RRF implementation. The Croatian plan includes key reforms and investments in **building energy efficiency and post-earthquake reconstruction**, with a focus on **deep renovation, seismic safety**, and addressing **energy poverty**. Reforms also aim to reduce administrative hurdles, develop a systemic **energy management** framework, and introduce a **new financing model** for energy-efficiency projects, alongside **workforce** education and upskilling programs.

Significant investments have been made in energy-efficient building construction and reconstruction across sectors, including measures to combat energy poverty. Croatia NRRP planed € 1 751 million for energy efficiency out of which € 1 690 million for energy efficiency in buildings. However, **additional private capital** will be needed to fully meet NECP objectives, particularly in **building renovations** and **industrial energy efficiency** (56.6% of investment). Investments also support renewable hydrogen production, biorefinery development, **solar capacity expansion**, and electricity grid upgrades. **Legislative reforms** focus on removing barriers to renewable energy uptake and introducing a premium system to encourage RES investments (43.4% of investment).

[30] Republic of Croatia, Ministry of finance, Operational agreement for the implementation of the National Recovery and Resilience Plan 2021-2026. April 2024. Available at: Operativni sporazum_NPOO_Addendum.pdf (gov.hr)
[31] European Commission, Recovery and Resilience Scoreboard, Thematic analysis
Energy efficiency in buildings. Available at: scoreboard_thematic_analysis_efficiency.pdf (europa.eu)

2.3 GREECE NATIONAL RECOVERY AND RESILIENCE PLAN

The **National Recovery and Resilience Plan "Greece 2.0"** [32] was adopted on July 13, 2021, by the Economic and Financial Affairs Council of the European Union (Ecofin), amounting €30.5 billion, while on December 8, 2023, its revision was approved, concerning new investments and reforms under REPowerEU as well as expanding the existing loan program. The revised Plan amounts to €35.95 billion. It includes 103 investments and 76 reforms, structured around four pillars, including the new **REPowerEU chapter**: *Green Transition, Digital Transformation, Employment-Skills-Social Cohesion, Private Investments and Transformation of the Economy*. Its resources are channeled into grants and loans and are expected to mobilize over €60 billion of total investments in the country by the end of 2026, when all projects should have been implemented.

The "Greece 2.0" plan has specific provisions for the energy efficiency upgrade of buildings used by households, enterprises, and the public sector. Specifically, under the **pillar of Green Transition**, the component **Renovate** primarily aims to lower CO_2 emissions and promote climate neutrality in urban areas, while supporting climate adaptation goals related to the resilience of cities and their building stock. The measures outlined in the component offer **incentives for building renovations** and **energy efficiency improvements**, leading to the revitalisation of **urban spaces**, drawing in **private investment**, and alleviating **energy poverty**. These actions will also contribute both directly and indirectly to national economic growth by **encouraging investments** in the construction, industry, and urban sectors, generating new job opportunities, driving sustainable growth across various fields, and attracting stable private capital. Furthermore, they will advance the **green transition**, support national and EU climate targets related to lowering GHG emissions, and enhance the climate resilience of cities. The component includes **reforms and investments** aimed at promoting building renovations, energy upgrades, and urban planning improvements. Specifically, investments in upgrading the energy efficiency of existing buildings across residential, commercial, industrial, public sectors, and social infrastructure, as well as **launching a new action plan** to combat **energy poverty**. In the field of urban planning, enhancing the urban ecosystem through reforms in **urban policy** and promoting **sustainable development projects.**

In June 2024, the Commission has endorsed a positive preliminary assessment of Greece's fourth payment request for €2.3 billion in loans (net of pre-financing) under the Recovery and Resilience Facility, the centerpiece of NextGenerationEU.

Following its assessment of the payment request, submitted by Greece on 17 April 2024, the Commission has preliminarily concluded that Greece has satisfactorily completed the one target set out in the Council Implementing Decision for the fourth loan installment.

The payment request covers important steps in the delivery of investments that will drive positive change for citizens and businesses in Greece in the areas of the green transition, digitalisation, increasing export capacity, economies of scale and innovation.

[32] National Recovery and Resilience Plan 'Greece 2.0'. Available at: https://greece20.gov.gr/en/pillars-and-components/

The target in this payment request requires that a cumulative €4.5 billion of RRF loan **contracts are signed by financial institutions** with companies to support private investment. It is part of the Loan Facility, which is the largest measure in Greece's recovery and resilience plan.

The **Loan Facility** was established as part of Greece's Recovery and Resilience Plan to address the low level of private investment and thus accelerate economic development and economic growth. It aims to support private investment related to the green transition, digitalisation, increasing export capacity, economies of scale and innovation. Companies can benefit from easier access to finance through loans, as well as equity support for small and medium-sized enterprises. Examples of investments funded are the replacement of existing electricity consumption meters and metering systems with digital ones, investments in machinery for construction and civil engineering works, the development of a photovoltaic park, the construction of wind farms, and increasing the production capacity of the industrial plants by adding new production lines.

Based on the Recovery and Resilience Scoreboard [33] and Thematic Analysis, the Greek plan encompasses several investments aimed at **promoting energy-efficient renovations** for residential buildings, benefiting approximately 116,500 households. Additionally, it targets 80 hospitals and 150 public buildings, alongside the construction of new judicial facilities. For public sector buildings, these investments will be implemented with the involvement of energy savings companies (ESCOs).

The plan also includes a reform to establish an action plan designed to combat energy poverty, with specific actions targeting economically vulnerable households. These initiatives will enhance energy efficiency and help reduce energy bills. Finally, the plan incorporates a REPowerEU reform to develop a roadmap for innovative energy efficiency interventions, including the introduction of non-grant financial instruments. These will include fiscal incentives, subsidised or guaranteed loans and other financial tools to support energy efficiency investments in the building sector. Based on the roadmap, an energy efficiency financial instrument will be launched.

2.4 Romania National Recovery and Resilience Plan

First version of Romania National Recovery and Resilience Plan[34] was submitted in May 2021 and endorsed by European Commission in September 2021, while the assessment was approved by the Council in October 2021[35]. The €29.2 billion Plan is an ambitious **agenda of reforms and investments** aimed at mitigating the socio-economic effects of the COVID-19 pandemic crisis, the energy crisis and the cost-of-living crisis. The first Romanian NRRP consisted of six pillars which are broken down into fifteen (15) components to be implemented through 64 reforms and 107 investments, with a maximum deadline for investments set for 30 June 30, 2026. The NRRP pillars are:

1. The "Green Transition"

[33] European Commission, Recovery and Resilience Scoreboard, Thematic analysis
Energy efficiency in buildings. Available at: scoreboard_thematic_analysis_efficiency.pdf (europa.eu)

[34] National Recovery and Resilience Plan, Romania, version 1, May 2021. Available at: https://mfe.gov.ro/wp-content/uploads/2021/10/facada6fdd5c00de72eecd8ab49da550.pdf

[35] ANNEX to the Council Implementing Decision approving the assessment of the Recovery and Resilience Plan of Romania. Available at: https://mfe.gov.ro/wp-content/uploads/2022/04/e6d481b413db9e7384a946c92e833d45.pdf

2. The "Digital Transformation"
3. Smart, sustainable and inclusive growth
4. Social and territorial cohesion
5. Health and economic and social resilience
6. Next generation

The "Green Transition" aims to decarbonize the energy and transport sectors, with a focus on renewables, energy efficiency, water and waste management, biodiversity and sustainable mobility. It is envisaged that this pillar will support the green transition in all sectors of the economy, and it includes the creation of a *Renovation Wave* Fund (€2.2 billion) to finance improvements to existing housing stock.

The second and updated version of the Romania National Recovery and Resilience Plan[36] was submitted in September 2024 (approved in November 2023), with a new added **REPowerEU chapter** (as the seventh pillar). The new REPowerEU pillar (€2.2 billion) promotes Romania's green transition by focusing on renewable energy, diversifying the country's energy supply, boosting its energy efficiency and retraining and upskilling its green energy workforce. It also aims to end dependence on fossil fuels. It contains two (2) reforms and seven investment measures. The REPowerEU presented two (2) voucher schemes: one to accelerate the use of renewable energy by households and the second for improving household energy efficiency.

While not deleting any of the existing measures, the amendment made changes to 56 measures, in particular reducing investments to account for reduced subsidy allocation, supply chain disruptions and inflation, and transferring some investments to the REPowerEU chapter. Romania also corrected 17 substantive errors identified in the initial Council implementing decision, affecting 16 measures.

The amended plan - approved by the Council on December 8, 2023 - amounts to €28.5 billion or 12.8% of the country's gross domestic product (GDP) in 2019. This includes Recovery and Resilience Facility (RRM) grants of €12.1 billion (reduced by 14.9% following the June 2022 allocation review), REPowerEU grants of €1.4 billion, the transfer of Romania's share (€43.2 million) of the Brexit adjustment reserve to the NRRP and the allocation of RRM loans already fully committed under the original version of the plan (€14.9 billion). The measures foreseen in the plan, to be implemented by 2026, also aim to facilitate the country's green and digital transition.

Based on the Recovery and Resilience Scoreboard[37] and Thematic analysis, Romania has made solid progress in energy efficiency investments, placing in the first third among EU Member States for **RRF implementation**. Energy efficient building renovations and constructions make up 30% of the climate-tagged measures in the Romanian plan, which shows the great importance put on it. In particular, the plan establishes a Renovation Wave fund backed by more than €2 billion to finance energy efficiency actions to renovate 3.2 million m2 of multi-family apartment buildings and 2.3 million m2 of public buildings.

[36] National Recovery and Resilience Plan, Romania, version 2, November 2023. Available at: https://mfe.gov.ro/wp-content/uploads/2023/12/08bdffbc069494531a2faa582204eb5e.pdf
[37] European Commission, Recovery and Resilience Scoreboard, Thematic analysis, Energy efficiency in buildings. Available at: scoreboard_thematic_analysis_efficiency.pdf (europa.eu)

Since Romania is one of the European countries most exposed to seismic risk, energy renovations will be carried out in parallel with seismic renovations to ensure a cost-efficient approach and a long-lasting effect of the investment. The investment aims to achieve at least an average level of primary energy savings of 30%. This investment and others are reinforced by new reforms. For example, a simplified regulatory framework to support investments in green and resilient buildings aims to reduce by at least 50% the time required for the issuance of building permits. The Romanian plan integrates key principles of the European Green deal, such as promoting resource efficiency, nature-based solutions, biodiversity corridors, and circular economy.

The REPowerEU chapter of the Romanian plan includes voucher schemes for households to invest in the energy efficiency renovations of at least 33 000 homes and the installation of photovoltaic panels and storage batteries to produce renewable energy for their own consumption ("prosumers", with at least 122000 vouchers). These investments are complemented by a reform introducing one-stop-shops at regional level to inform households about the benefits, practicalities, and funding opportunities for energy efficiency renovations and/or of becoming a prosumer

Based on the Mid-term evaluation of the Recovery and Resilience Facility[38] and building on the analysis of the key measures, Romania is progressing rather well in terms of the milestones and targets related to its measures supporting energy efficiency of buildings. Romania has fulfilled or completed all its milestones and targets that were due in 2022, while two milestones due in 2023 are on track. The funding in Romania is considered ambitious and contributes significantly to the identified investment needs. The main challenges include a lack of skilled workforce and rising material prices, which can impact implementation of the measures.

In terms of targeted stakeholders, the measures target private building owners (multi-family buildings) and public buildings, providing 100% financing, which is positive for poorer households, but also sets the wrong incentives.

The Renovation Wave Fund in Romania contains special targets for deep renovations and has funding set aside for it. There is up to EUR 255 million earmarked specifically in the NRRP to be invested in projects with energy savings larger than 60% (to be verified through an energy audit report), but the largest share of funding available only requires a minimum of 30% primary energy savings.

Romania has included one regulatory reform directly supporting the relevant investments in the RRP. The reform aims to achieve a simplified and updated regulatory framework to support the implementation of transition to greener and more resilient buildings. There are no specific measures to provide technical assistance or raise public awareness. As Romania has a high share of owner-owned housing, it could benefit from a stronger emphasis on technical assistance. An additional investment aims at strengthening the professional capacity of professionals and workers in the renovation sector by developing trainings on energy efficiency construction, which helps to tackle the issue of a lack of

[38] Mid-term evaluation of the Recovery and Resilience Facility (RRF). Available at: https://commission.europa.eu/about-european-commission/departments-and-executive-agencies/economic-and-financial-affairs/evaluation-reports-economic-and-financial-affairs-policies-and-spending-activities/mid-term-evaluation-recovery-and-resilience-facility-rrf_en

trained workforce. Twelve certification schemes were approved in 2023 by the Minister of Development, Public Works and Administration, but the investment envisaged for the certification of 8000 participants in these training schemes (based on 2 recently approved de minimis and state-aid schemes) are to be launched with significant delay minimising the chances of achievement. In their REPowerEU chapter in the updated NRRP, Romania plans to start a one-stop shops to provide advice on energy efficiency of buildings, especially for residential buildings owners.

The National Energy and Climate Plans (NECP) and Long-Term Renovation Strategy (LTRS) are explicitly mentioned in the NRRP. It is important to note that no EU funding was attached to the LTRS. Therefore, the LTRS also contains suggested investments that have not been implemented earlier. The RRF provided a key opportunity to put into effect these investments and schemes.

These RRP measures align with the needs identified in Romanian LTRS, targeting common barriers like financial, technical, informational, workforce, awareness, and institutional constraints. Romania provides substantial grant funding, albeit with a potential limitation on private financing, while addressing workforce shortages through training and certification.

Some of the Romanian measures are closely connected to other EU funds. For example, the financial instruments for energy efficiency in the buildings sector include an uncapped portfolio guarantee which is partially covered by InvestEU. The guarantee is provided by the European Bank for Reconstruction and Development (EBRD) to selected financial intermediaries financing eligible final beneficiaries based on predetermined criteria. The guarantee will be complemented by services to final beneficiaries, financed from funds available in the InvestEU Facility for Romania. Expanding financial intermediation and risk-sharing financial instruments for energy efficiency are key priorities both in the EBRD Country Strategy for Romania 2020-2025, as well as in the latest EBRD strategies for the financial sector[39].

Finally, the EBDP recast will require national building renovation plans have more focus on energy poverty, one-stop shops and promoting financing mechanisms. Already, the RRP measures in the case study countries contain measures that support these goals. For example, strengthening the financial landscape by introducing ESCO financing possibilities in Romania.

2.5 Slovenia National Recovery and Resilience Plan

Slovenia is channelling the European recovery and resilience funds towards the green transition, digital transformation, economic support, research and development, education, healthcare, social security, and housing policy. Since the approval of the **Slovenia Recovery and Resilience Plan (NRRP)**[40] by the Council of the European Union in July 2021, new circumstances have significantly impacted its implementation, prompting the need for adjustments. In July 2023, the Government of the Republic of Slovenia

[39] European Commission (2020), A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives

[40] Slovenia Recovery and Resilience Plan (NRRP). Available at: 01_si-rrp_23-7-2021.pdf (gov.si)

initiated a formal dialogue with the European Commission to **amend the plan**[41]. The Council of the European Union subsequently approved the European Commission's positive assessment of the proposed amendments on October 17, 2023. The total amount of available funds for implementing the planned measures in the NRRP, now including the **REPowerEU chapter**, amounts to EUR 1.61 billion in grants (a lower allocation) and EUR 1.07 billion in loans (an increased allocation). When the NRRP was approved in July 2021, Slovenia had notified the European Commission of EUR 1.78 billion in grants and EUR 705 million in loans to support various investments. With the amendment of the plan, the government addressed both the objective circumstances impacting the achievement of milestones and targets within the plan's measures, and the technical and substantive discrepancies between the NRRP and the implementing decision of the Council of the European Union that approved Slovenia's plan.

In alignment with the REPowerEU plan to reduce dependence on Russian fossil fuels and accelerate the green transition, Slovenia has incorporated a new REPowerEU chapter into its revised NRRP. The measures in this new chapter complement the existing initiatives under the NRRP, particularly in the areas of energy efficiency (EE), renewable energy sources (RES), and sustainable mobility. Slovenia will allocate an additional EUR 117 million from the stability reserve of the Emissions Trading System for these initiatives. Additionally, the government plans to utilize EUR 5 million from the European fund designed to help member states address the negative impacts of Brexit.

The recovery and resilience of the European economy and society are built on the green and digital transition - a dual transition. Due to the reduction in available grants from the Recovery and Resilience Facility (RRF), and the resulting decrease in the financial scope of certain measures, the percentage of funds allocated to digital goals is slightly reduced. On the other hand, the percentage of funds for green transition goals is increasing from 42.5% in the original plan to 49%, thanks to additional loans and REPowerEU grants for these purposes. The reforms and investments in the NRRP for the green transition support the achievement of the goals of the National Energy and Climate Plan of the Republic of Slovenia. **Error! Reference source not found.** compares the financial allocations for the g reen transition pillar components (C1 - C5) of the NRRP from July 2021 and October 2023, incorporating the newly added REPowerEU chapter (C17).

Two components of the NRRP green transition pillar stand out for their potential impact on the implementation of EE investments through smart financing, particularly through the further use of public-private partnerships and energy performance contracting, alongside the **C17 REPowerEU chapter**, which indirectly supports power purchase agreement models: **C1, which focuses on RES and EE in the economy, and C2, which centres on Sustainable Building Renovation**.

Component C1: RES and EE in the Economy includes three reforms (RES Promotion, Electricity Supply for RES Promotion, EE in the Economy) and three investment actions (Electricity Generation from RES, Strengthening the Electricity Distribution Network, Increasing EE in the Economy).

[41] Republic of Slovenia, Ministry of Finance. Available at: Microsoft Word - SpremNOOcist (gov.si)

RES promotion reform aims at accelerating the adoption of RES technologies in the electricity sector, with milestones targeted for completion by the end of 2024. It will be implemented through the Renewable Energy Promotion Act, addressing legal and administrative barriers, and assisting consumers via a one-stop contact point. The electricity supply reform for RES promotion aims to improve the integration of RES generation facilities into the grid and enhance demand-side management. It will be implemented through the Electricity Supply Act, which introduces measures for safe grid operation, smart grid services, and connecting new capacities, including demand-side management and energy storage. The reform's milestones are set to be achieved by the end of 2025.

The EE in the economy reform aims to improve Slovenia's EE by promoting digitalization and monitoring. It introduces a digitized system for energy audits and tracking energy (savings), applicable to both companies required to perform audits under the Energy Efficiency Act and those not currently subject to it. The reform is expected to reduce administrative burdens, harmonize data reporting, and enhance the evaluation of EE measures. The milestone for this reform is set for completion by the end of 2023. The investments in EE restructuring of district heating systems using RES aim to enhance the EE of district heating systems, as a 2017 assessment revealed that only about two-thirds are considered efficient. These investments, valued at EUR 41 million (EUR 11 million from the RRF), is expected to achieve its milestones by the end of 2025.

Investments in electricity generation from RES aim to establish new capacities through a technology-neutral public tender, focusing on geothermal and hydropower plants, as well as solar technology for public buildings. The investments are estimated at EUR 202 million, with EUR 50 million coming from the RRF. The milestones are set to be achieved by June 30, 2026.

The goal of investments in strengthening the electricity distribution network is to modernize the electricity distribution network to support increasing consumption of RES and enable the connection of RES generation facilities, heat pumps, and electric vehicle charging stations. The action includes the construction of 838 new transformer stations and 1,300 kilometres of new low-voltage network. The investments are estimated at EUR 324 million, with EUR 80 million funded by the RRF. Milestones are expected by June 30, 2026.

Investments in increasing EE in the economy focus on improving EE reporting and monitoring. It includes the creation of an online tool for companies to report and monitor energy audits, with at least 20 companies receiving energy efficiency e-certificates. The action is expected to be completed by March 31, 2026, with EUR 200,000 allocated from the RRF.

TABLE 1: NRRP 2023 AND NRRP 2021 GREEN TRANSITION FINANCIAL ALLOCATIONS COMPARISON SLOVENIA

Component (C)	RRP 2023 grants (m EUR)	RRP 2023 loans (m EUR)	RRP 2023 Total C (m EUR)	RRP 2021 grants (m EUR)	RRP 2021 loans (m EUR)	RRP 2021 Total C (m EUR)
C1: RES and EE in the Economy	41.2 🡻	100 (=)	141.2 🡻	46	100	146

C2: Sustainable Building Renovation	66.05 ⬇	22.5 ⬆	88.55 ⬆	86.05	0	86.05
C3: Clean and Safe Environment	115.8 ⬇	260 ⬇	375.8 ⬇	152.8	320	472.8
C4: Sustainable Mobility	210.9 ⬇	497.5 ⬆	708.4 ⬆	218.9	93	311.9
C5: Circular Economy – Efficient Use of Resources	45 ⬇	0 **(=)**	45 ⬇	48	0	48
Total RRP GREEN TRANSITION	**478.95** ⬇	**880** ⬆	**1,358.95** ⬆	**551.75**	**513**	**1,064.75**
C17: REPowerEU	*122.17* ***(+)***	*0*	*122,17* ***(+)***	*0*	*0*	*0*
Total RRP GREEN TRANSITION (including REPowerEU)	**601.12** ⬆	**880** ⬆	**1,481.12** ⬆	**551.75**	**513**	**1,064.75**

Component C2: Sustainable Building Renovation includes a reform on the planning and financing of energy renovation of public sector buildings and investments in sustainable buildings renovation.

The reform on the planning and financing of energy renovation of public sector buildings aims to define cost-effective approaches to renovations, policies, and measures that will encourage comprehensive renovation of buildings. It includes the adoption of the Long-Term Strategy for the Energy Renovation of Buildings (DSEPS) 2050, amendments to the Regulation on the Efficient Use of Energy in Buildings, and the preparation of a legal basis for establishing a stable and sufficient systemic financial source for the energy renovation of core public sector buildings. Additionally, a list of buildings suitable for energy renovation, approved by the government based on DSEPS, will be created. The reform will introduce a legal ban on planning and installing boilers that use heating oil, fuel oil, and coal for heating in new buildings. By December 31, 2025, an action plan for the energy renovation of public buildings will be prepared. This plan will include an analysis of the building stock, an assessment of the needs in the public sector, and measures to ensure continuity of services during renovations, as well as concrete steps for building renovations, including the identification of possible financing sources.

Investments in sustainable building renovation focus on the energy renovation of public buildings, including residential buildings in public ownership. The goal is to achieve at least 30% overall energy savings compared to the baseline. The investments will involve thermal insulation, energy-efficient equipment (windows, glazing, doors), heating and ventilation systems, energy-efficient lighting, and control systems. High health and environmental standards will be ensured during the renovation. Public buildings will also be made more accessible for people with disabilities. Given that Slovenia is one of the most earthquake-prone countries in Europe, the energy renovation will be carried out alongside seismic retrofitting to ensure a cost-effective approach and long-lasting investment impact. Funding will be available for buildings of exceptional administrative importance due to the COVID-19 pandemic, socially significant buildings impacted by the pandemic, buildings requiring technical system upgrades, and multi-apartment buildings in public ownership. The renovations are expected to be completed by June 30, 2026. The total investment is estimated at EUR 126.9 million, with approximately EUR 66.05 million in grants and EUR 22.5 million from the RRF's repayable sources.

The conclusions and recommendations from the SEI Forums National Round Table 1 and 2 and the reforms and investments outlined in the RRP are strategically aligned. In summary, the conclusions and recommendations from the SEI Forums strongly support the reforms and investments outlined in the RRP. Both documents stress the importance of integration of seismic safety with EE, removing legal and financial bottlenecks, scaling up technical assistance, and fostering synergies with existing and new support schemes. Below is an analysis of how these elements are connected:

1. Integration of energy renovation with seismic safety

The SEI Forums recommendations highlight the necessity of integrating seismic safety measures with energy renovation projects, given Slovenia's vulnerability to earthquakes. This approach is considered essential for ensuring long-term investment benefits. The RRP mirrors this recommendation, where investments in sustainable building renovation include a dual focus on energy efficiency and seismic retrofitting. This combination ensures cost-effectiveness and maximizes the durability of the renovation projects.

2. Addressing bottlenecks in financing and legal framework

Both RRP and SEI Forums NRTs point out challenges in financing EE projects. The SEI Forums NRTs identify obstacles such as the Housing Law and the difficulty of securing collective financing for multi-apartment buildings. The report suggests removing these bottlenecks and establishing a de-risking loan guarantee fund. In the RRP, the reforms under C2 Sustainable Building Renovation aim to establish a stable legal framework for financing public sector energy renovations. It includes preparing long-term financial strategies, setting up a revolving fund for the energy renovation of buildings in the public sector and implementing a ban on fossil fuel-based heating systems in new buildings.

3. Technical assistance and one-stop shops

The SEI Forums NRTs call for scaling up technical assistance for project development and the establishment of one-stop shops to assist homeowners and businesses in navigating the financing and implementation of EE projects. The NRRP reforms also support the creation of a more accessible framework, where the Ministry of Public Administration will introduce energy management systems in state-owned buildings and initiate comprehensive energy audits to improve EE.

4. Synergies with other support schemes

Both RRP and SEI Forums NRTs emphasize the importance of coordinating with other schemes, such as RES incentives and seismic resilience programs. The SEI Forums suggest leveraging synergies to increase the impact of EE investments. The NRRP reflects this by aligning investments in EE with RES, particularly through the REPowerEU chapter, which allocates funds for reducing dependence on fossil fuels and promoting green energy.

Based on Recovery and Resilience Scoreboard [42] and Thematic analysis, Slovenia's Recovery and Resilience Facility (RRF) will invest EUR 66 million in the construction or renovation of nine highly energy-efficient educational institutions, aligning with the

[42] European Commission, Recovery and Resilience Scoreboard, Thematic analysis
Energy efficiency in buildings. Available at: scoreboard_thematic_analysis_efficiency.pdf (europa.eu)

requirement that new buildings have a primary energy demand at least 20% lower than nearly zero-energy building (NZEB) standards. Additionally, Slovenia plans to renovate 80,000 m² of public buildings and 8,000 m² of residential buildings, focusing on energy efficiency, with a plan for public building renovations to be adopted by 2025.

3. NATIONAL ENERGY AND CLIMATE PLANS

From December 2023 to February 2024 European Commission published individual assessments on National Energy and Climate Plans[43] for each country. The cumulative effect of the draft NECP showed that the EU members did not set the goals ambitiously enough and that there is still room for improvement:

- the draft NECPs are not yet sufficient to reduce net **greenhouse gas emissions** by at least 55% by 2030; current measures would lead to a reduction of 51%
- further ambition is needed to close a gap of 6.2 percentage points in the **effort sharing** sectors compared to the 40% target
- there is a gap of around -40 to -50 million tonnes of CO_2 equivalent ($MtCO_2eq$) compared to the -310 MtCO2eq target under the Land Use, Land Use Change and Forestry (LULUCF) Regulation, showing an enhancement of the carbon sink is necessary
- for **renewable energy**, the current drafts would lead to a share of 38.6-39.3% of renewables in the energy mix by 2030, compared to the 42.5% target in the revised Renewable Energy Directive
- for **energy efficiency**, the current drafts would lead to 5.8% energy efficiency improvements, compared to the target of 11.7% in the revised Energy Efficiency Directive
- there is a new annual energy consumption reduction target of 1.9% for the **public sector**

One of the greatest challenges has been **ensuring effective public participation** and **implementing legislation at the operational level**. EU countries are also encouraged to better harness their **natural renewable energy potential** and address the **financial gap** that hinders progress in achieving their climate and energy goals.

3.1 BULGARIA NATIONAL ENERGY AND CLIMATE PLANS

The **first draft Integrated Energy and Climate Plan of Bulgaria** was submitted in 2019[44], and a **final version of the plan** submitted in February 2020, followed by EC's assessment and recommendations[45].

The document was primarily focused on existing measures rather than proposing new policies to accelerate improvements in energy efficiency and RES, with no account for the involvement of local communities or addressing energy poverty alleviation. Additionally, market mechanisms, which are essential for enabling cost-effective energy consumption reforms, have received little attention. Notably, the plan's improvement was featured as a topic during a number of public policy as well as SMAFIN roundtables and working group meetings between 2021 and 2023, with calls for a better systemic planning of the policies and measures covered in the plan, as well as for a timely engagement of all relevant

[43] European Commission. Available at: Commission publishes new Recommendations on draft NECPs from Belgium, Ireland and Latvia - European Commission (europa.eu)
[44] 1st draft of Integrated Energy and Climate Plan for the Republic of Bulgaria, 2019. Available at: First Draft of the Integrated Energy and Climate Plan for the Period from 2021 to 2030.pdf
[45] European Commission recommendation of final integrated NECP, Bulgaria, 2020. Available at: Final Integrated Energy and Climate Plan for the Period from 2021 to 2030.pdf

stakeholders in the process of public consultations surrounding the required update of the plan for 2023.

Notwithstanding, the **second draft and updated Integrated National Energy and Climate Plan**, was submitted with a significant delay on 20 February 2024[46]. In terms of energy efficiency, the updated version of the NECP has set out ambitious targets but taking a closer look at the European Commission's response [47] from 26 April 2024, "*this is not reflected in the planned measures needed to achieve them*". Furthermore, although the funding sources are outlined, there is lack of quantification of the needed investments, making it impossible to identify the funding gaps and distinguish between public and private funding. Looking at the banking sector, no products specifically targeting energy efficiency investments have been discussed, too.

Later in 2024, another version of the updated NECP was open for public consultations with plans on submitting the document to the EC until end of 2024. Below is a comparison of the primary targets featured in the initial plan and its latest publicly available version.

TABLE 2: PRIMARY TARGET COMPARISON: FIRST AND UPDATED NECP BULGARIA

FIRST NECP 2020		**UPDATED NECP 2024[48]**	
Indicator	**Target**	**Indicator**	**Target**
Share of Renewable Energy Sources (RES) in gross final energy consumption	27.09%	Share of Renewable Energy Sources (RES) in gross final energy consumption	34.48%
Share of RES in final energy consumption in transport	14.20%	Share of RES in final energy consumption in transport	29.66%
Decrease in primary energy consumption compared to the PRIMES 2007 baseline forecast	27.89%	Decrease in primary energy consumption compared to the PRIMES 2007 baseline forecast	11.6%
Decrease in final energy consumption compared to PRIMES 2007 baseline forecast	31.67%	Decrease in final energy consumption compared to PRIMES 2007 baseline forecast	10.7%
Primary energy consumption	17 466 ktoe	Primary energy consumption	12 397 ktoe
Final energy consumption	10 318 ktoe	Final energy consumption	8 423 ktoe
Reduction in greenhouse gas emissions for non-ETS sectors, compared to 2005	N/A	Reduction in greenhouse gas emissions for non-ETS sectors, compared to 2005	-10%

3.1.1 BULGARIA EC ASSESSMENT ON NECP

The European Commission has assessed[49] Bulgaria's draft updated NECP, submitted on 20 February 2024. It was noted that the Bulgarian NECP sets ambitious goals for **renewable**

[46] Draft updated Integrated Energy and Climate Plan for the Republic of Bulgaria, 2024. Available at: Draft Updated Integrated Energy and Climate Plan for the Period from 2021 to 2023.pdf

[47] European Commission assessment and recommendations on Bulgaria second draft NECP. Available at: Commission Recommendation, Assessment (SWD) and Factsheet of the draft updated National Energy and Climate Plan of Bulgaria - European Commission (europa.eu)

[48] Project of the final draft updated Integrated Energy and Climate Plan submitted for public consultations on 13 June 2024. Available at: Integrated Energy and Climate Plan for the Period from 2021 to 2030.pdf

[49] European Commission's assessment of the draft updated Integrated NECP, Bulgaria, 2024. Available at: Draft updated Integrated Energy and Climate Plan for the Period from 2021 to 2030.pdf

energy and energy efficiency, though the measures to achieve the latter are lacking in detail. The Commission has stated that the plan has positive objectives for **energy security** but **lacks specifics on implementation**. While it **has addressed energy poverty** and vulnerable customers, there have been no detailed timeline or target for reducing energy poverty. Moreover, the plan was assessed to lack clear steps for fully liberalizing the **internal energy market**, particularly in the gas sector. Additionally, there have been mentions of the inadequately analyzed climate vulnerabilities and risks, without a comprehensive analysis of the Just transition impact on **employment and skills**, and minimal details on public participation in decision-making.

3.1.2 RECOMMENDATIONS

The EC has recommended[50] that Bulgaria enhance its draft updated NECP by adding **cost-effective policies** for sectors like transport and non-CO2 emissions to meet its 2030 greenhouse gas targets. Projections should be provided to assess whether current and planned measures will meet targets, and additional details are needed on how CO2 capture, storage, and LULUCF targets will be achieved. Bulgaria should set specific **renewable energy deployment goals**, improve **energy efficiency plans**, and detail a long-term strategy for reducing **energy consumption in public buildings**. The Commission also suggested enhancing energy system flexibility, diversifying gas supplies, and ensuring a Just transition for affected sectors. Finally, Bulgaria was urged to **improve public participation** in the plan's development and ensure a coherent approach between the NECP and the country's recovery and resilience plan.

Decarbonisation Dimension:

The updated NECP presents enhanced clarity on measures in the decarbonisation sector, outlining specific timelines, financial sources, and which scenarios (WAM/WEM) are relevant for each action, which marks an improvement from the previous version. However, the plan still lacks sufficient detail to inform stakeholders on **sectoral policies and investments**, which hampers broader engagement from **local communities and SMEs in the energy transition**. The document highlights that coal's role should be phased out in line with environmental regulations.

Energy Efficiency Dimension:

The NECP includes policies targeting energy efficiency across various building types, including multifamily, single-family, public, and private buildings. **Horizontal policies** for **all building types** represent a positive change. Nevertheless, the plan fails to provide a comprehensive table summarizing the **energy savings** expected from each energy efficiency measure by 2030. It is recommended that energy savings be evaluated against set targets in consistent units to simplify comparisons and clearly demonstrate the contribution of each measure. Additionally, the plan needs to present **clearer financial mechanisms** and their long-term integration into national renovation strategies.

[50] European Commission's recommendations for the draft updated Integrated NECP, Bulgaria, 2024. Available at: Draft updated Integrated Energy and Climate Plan for the Period from 2021 to 2030.pdf

3.2 CROATIA NATIONAL ENERGY AND CLIMATE PLANS

The **first draft version of Croatia National and Energy Climate Plan (NECP)** [51] was submitted to the European Commission in 2018. It was followed by European Commission recommendations[52] and the first final NECP[53] was submitted in December 2019. NECP contained **national objectives and targets**, followed by **policies and measures** for implementation at the operational level. The objectives were to be achieved through five (5) key dimensions of the Energy Union: **energy security, internal energy market, energy efficiency, decarbonisation and research, innovation and competitiveness.** The first Croatia NECP was followed by European Commission recommendations[54] from October 2020 as part of the broader EU strategy to meet its 2030 climate goals. These recommendations emphasized the need for Croatia to **enhance its ambition regarding energy efficiency and the development of renewable energy sources.** The plan lacked detailed policies and measures, and the impact of some actions was unclear. While progress was made in areas such as regional cooperation and investment needs, the plan did not fully address energy market integration or provide sufficient information on phasing out fossil fuel subsidies. Additionally, Croatia's approach to energy poverty and social impacts required further development.

The European Green Deal and legislative and policy framework adopted under both the 'Fit for 55' package and the REPowerEU Plan required Member States to update their National Energy and Climate Plans (NECPs) for the first time since 2019.

The second draft version of Croatia National and Energy Climate Plan (NECP)[55] was submitted in July 2023. Croatia 2nd draft and updated NECP (2023) **raised the 2030 target** for the **share of renewables** in the final energy consumption from 36.4% to 42.5% (28% in 2022), including 73.6% for electricity, 47.1% for heating and cooling, and 21.6% in transport.

TABLE 3: PRIMARY TARGET COMPARISON: FIRST AND UPDATED NECP CROATIA

FIRST NECP 2019		SECOND UPDATED NECP 2023	
Indicator	**Target**	**Indicator**	**Target**
Reduction in greenhouse gas emissions for the ETS sector, compared to 2005	at least - 43%*	Reduction in greenhouse gas emissions for the ETS sector, compared to 2005	-50.2%
Reduction in greenhouse gas emissions for non-ETS sectors, compared to 2005	at least - 7%	Reduction in greenhouse gas emissions for non-ETS sectors, compared to 2005	-16.7%
Share of Renewable Energy Sources (RES) in gross final energy consumption	36.4%	Share of Renewable Energy Sources (RES) in gross final energy consumption	42.5%

[51] 1st draft of Integrated Energy and Climate Plan for the Republic of Croatia, 2018. Available at: First Draft of the Integrated Energy and Climate Plan for the Period from 2021 to 2030.pdf (gov.hr)
[52] European Commission recommendation of first draft integrated NECP. Available at: EUR-Lex - 32019H0903(11) - EN - EUR-Lex (europa.eu)
[53] 1st Final Integrated Energy and Climate Plan for the Republic of Croatia, 2019. Available at: hr_final_necp_main_en_0.pdf (europa.eu)
[54] European Commission assessment on first integrated NECP, Croatia. Available at: https://energy.ec.europa.eu/system/files/2021-01/staff_working_document_assessment_necp_croatia_en_0.pdf)
[55] 2nd draft of Integrated Energy and Climate Plan for the Republic of Croatia, 2023. Available at: Croatia - Draft Updated NECP 2021-2030 - European Commission (europa.eu)

FIRST NECP 2019		SECOND UPDATED NECP 2023	
Indicator	**Target**	**Indicator**	**Target**
Share of RES in final energy consumption in transport	13.2%	Share of RES in final energy consumption in transport	21.6%
Primary energy consumption (total energy consumption excluding non-energy use)	344.38 PJ	Primary energy consumption (total energy consumption excluding non-energy use)	340.9 PJ (8.14 Mtoe)
Final energy consumption	286.91 PJ	Final energy consumption	274.2 PJ (6.55 Mtoe)

In section *APPENDICES: 10.3 Policies and measures (xls)*[56] dimension relevant for energy efficiency in building sectors are: **Decarbonisation and Energy Efficiency.** In relation to ***dimensions*** following policies and regulatory measures are planned to achieve targets and ensure NECP monitoring:

Decarbonisation Dimension:

- Committee for intersectoral coordination for policy and measures for mitigation of and adaptation to climate change as cross-sectoral measure MS-1
- Establishing of Programme for Carbon Footprint Calculation and Reduction in Businesses and Public sector as cross-sectoral measure MS-7
- Development of the regulatory framework for RES sector OEI-3
- Regulatory framework for Energy sharing and energy community in RES sector OEI-7

Energy Efficiency Dimension:

- Energy efficiency obligation system for suppliers ENU-1 *(adopted!)*
- Energy management system in the public sector ENU-7
- Green public procurement ENU-9 for public sector
- Adoption and implementation of the Programme for energy poverty alleviation UET-8
- Energy Poverty Suppression Program, including the use of renewable energy sources in residential buildings in subsidised areas and areas of special state care for the period 2023-2027 UET-9

But in addition to regulatory measures, NECP scenario covers updates on:

- Programmes of energy renovation of multi-apartment buildings, family houses and public sector buildings

3.2.1 CROATIA EC ASSESSMENT ON NECP

Croatia's updated National Energy and Climate Plan (NECP) for the 2021-2030 period, submitted in July 2023, addressed the ambitious goals set by the European Union's "Fit

[56] European Commission, NECP Appendices: table policies and measures -Croatia Draft Updated NECP 2021 2030 (5) (xlsx). Available at: Croatia - Draft Updated NECP 2021-2030 - European Commission (europa.eu)

for 55" package and the REPowerEU plan but still has areas for improvement. European Commission assessment of Croatia NECP[57], highlighted both the positive and negative aspects of the plan. Significant **progress** has been made in the fields of land use, land use change and forestry (LULUCF), CO2 storage capacity, electro-mobility, charging, rail, ports and airports infrastructure and the introduction of zero-emission technologies and energy supply and resilience (**energy security**). Croatia **reaches its GHG emissions in ESR** sectors target based on projections, reduction of **final energy consumption** is above the indicated target resulting from EU legislation and **RES contribution to the EU target is slightly below** the one resulting from EU legislation. Additional efforts are made in terms of **circular economy**, announcing a "National Plan for circular economy" and **circular economy skills** in terms of construction sector. Country NECP contains measures to ensure **energy sharing** and **energy communities**, predominantly based on solar energy.

There remain several areas where Croatia falls short of its targets, and further adjustments are needed to meet both national and EU-level climate and energy objectives. Croatia should raise ambition in the use of **renewable energy, climate risk mitigation and** innovative approaches such as **insurance policies and fiscal measures** addressing the climate protection gap.

TABLE 4: HIGHLIGHTS OF THE COMMISSION ASSESSMENT ON CROATIA DRAFT UPDATED NECP

Indicator	2020 Data	2021 Data	2030 Targets (NECP)	Assessment of 2030 Ambition Level
Greenhouse Gas Emissions (compared to 2005)	-3.5% (2021)	-6.1% (2022)	-16.7%	NECP target of -17.1%, slightly exceeding the national target under the Effort Sharing Regulation.
Net GHG Removals (LULUCF)	-5.80 Mt CO2 eq.	-	-593 kt CO2 eq.	Insufficient ambition falls short of the -5.5 Mt CO2 eq. target.
Renewable Energy Contribution (share of energy from renewable sources in gross final consumption)	31%	31.3%	42.5%	Croatia's contribution of 42.5% is slightly below the 44% required by the Governance Regulation.
Renewable Energy in the heating and cooling sector	n/a	n/a	47.1%	increase RES in heating and cooling by 1.0 percentage points as an annual average between 2021 and 2030, does not fully match the new mandatory average annual from revised REDII
Energy Efficiency - Primary Energy Consumption	10.7 Mtoe	8.27 Mtoe	8.14 Mtoe	The target of 8,140 ktoe is below the EED recast formula result of 6,830 ktoe.
Energy Efficiency - Final Energy Consumption	7.0 Mtoe	6.97 Mtoe	6.55 Mtoe	Croatia's contribution is 6,550 ktoe, above the EED recast result of 5,866 ktoe.

[57] European Commission, Croatia's draft updated national energy and climate plan, December 2023. Available at: https://commission.europa.eu/system/files/2023-12/Factsheet_Commissions_assessment_NECP_Croatia_2023_4.pdf

Electricity Interconnectivity Level	52.0%	29.5%	15%	Target is the general interconnectivity goal, with specific ambitions depending on

3.2.2 RECOMMENDATIONS

The European Commission recommends Croatia enhance its updated National Energy and Climate Plan (NECP) by expanding policies in key sectors such as transport, waste management, and agriculture to meet greenhouse gas reduction targets. Croatia is invited to **increase its renewable energy contribution target to at least 44% by 2030** and the **use of renewable energy in the heating and cooling sector** (projection is to reach a share of 47.1% by 2030), improve energy efficiency efforts, **accelerate permitting for renewable energy projects** and increase ambition for LULUCF targets with clearer timelines. The country should also phase out fossil fuel subsidies, **promote clean technologies**, develop more detailed **climate vulnerabilities and risks** and ensure a **Just transition** by addressing **the employment and skills impacts of the energy and climate transition, green jobs required for building renovations** and access to affordable and inclusive education, training and life-long learning, **particularly in vulnerable regions**. Additional tax reforms and social protection systems should be considered in the context of the transition. The Commission recommends Croatia to **enhance energy efficiency policies**, especially in **public buildings** with a focus on reducing consumption in public buildings and decarbonizing heating systems, **improve public participation** in the NECP process, raise **ambition for R&I in clean energy technologies** and provide clear and **comprehensive investment plan** detailing both public and private financing sources, ensuring that investments are aligned with Croatia Recovery and Resilience Plan.

Decarbonisation Dimension:

- The Decarbonisation dimension of Croatia's updated National Energy and Climate Plan (NECP) reflects commitment to reduce greenhouse gas (GHG) emissions and increasing removals through targeted policies. **Croatia aims to achieve a 17.1% reduction in GHG emissions by 2030 compared to 2005**, surpassing the national target of 16.7%. This is possible through the implementation of additional measures outlined in the plan, focusing on sectors covered under the Effort Sharing Regulation (ESR).
- In terms of **renewable energy, Croatia is aiming for a 42.5% share in gross final energy consumption and 47.1% share in heating and cooling sector by 2030.** Although share of RES gross final energy consumption is slightly below the EU's recommended 44% and increase of the use of renewables in district heating and cooling should be more than 1.0 percentage points annually, Croatia is actively expanding its renewable energy capacities, with significant growth expected in wind and bioenergy production. The government is also streamlining procedures to **accelerate the deployment of renewable energy projects**.
- It is recommended to provide the share of RES in the energy consumption of the industry and buildings sectors.

Energy efficiency (including buildings) Dimension

- The Energy Efficiency dimension of Croatia's updated National Energy and Climate Plan (NECP) prioritizes reducing energy consumption across various sectors, with a strong focus on buildings. Croatia has set ambitious targets, aiming to **reduce primary energy consumption to 8.14 Mtoe and final energy consumption to 6.55 Mtoe by 2030**, slightly above the benchmarks suggested by the European Energy Efficiency Directive (EED).
- Buildings, especially public ones, play a central role in energy efficiency strategy. Croatia is **continuing its focus on renovating public buildings**, including schools, hospitals, and administrative facilities. The draft updated NECP does not increase the ambitions set in the 2020 long-term renovation strategy (LTRS). The 2020 LTRS targets a gradual rise in renovation rates from 0.7% in 2020 to an average of 1.6% for 2021-2030, aiming for 2% by 2030, 3.5% by 2040, and 4% by 2050. Targets are given in terms of renovated building areas and annual renovation rates, but clearer measurement methods are needed. Additionally, energy efficiency in residential buildings is being promoted through various financial incentives and renovation programs, which are expected to deliver significant energy savings.
- Positive aspect related to **public buildings** are three measures addressing **energy renovations** and **energy system management** in the public sector with updated measure from 2014 related to **green public procurement.**
- Croatia has adopted an alternative approach to the EED Article 5 requirements by **targeting energy savings in public buildings** rather than specifying renovation rates by floor area. The plan sets a **target of 4.89 TJ per year in equivalent energy savings from public sector buildings,** the plan should be expanded with information on the **floor area of public building space to be renovated**.
- In addition, the target for reducing the **total final energy consumption of all public bodies** is not well described in Croatia's draft updated NECP and does not include enough information regarding the measures planned, including the information on the exclusion/inclusion of public transport or armed forces.
- The "Programme for Combating **Energy Poverty**", which is expected to deliver cumulative savings of 78.86 ktoe over the period 2021-2030 supported by Implementation of the Energy Poverty Suppression Program through RES

Beyond buildings, the NECP includes comprehensive measures to **improve energy efficiency in industry and public assets**. The Croatian energy efficiency obligation scheme is expected to contribute significantly to energy savings, particularly in sectors like manufacturing and water management. These efforts are complemented by measures to **modernize energy systems**, including the electricity transmission and distribution networks.

3.3 Greece National Energy and Climate Plans

The **first final draft version of Greece National and Energy Climate Plan (NECP)**[58] was submitted in January 2019. Following the European Commission assessment of the first

[58] National Energy and Climate Plan, Greece, January 2019. Available at: bf556585-cb33-44d7-be06-8ec365b53feb_en (europa.eu)

draft submitted[59], the Government has submitted **final first version of Greece National and Energy Climate Plan (NECP)**[60] in December 2019, setting out a detailed roadmap regarding the attainment of specific energy and climate objectives by 2030. First final version of Greece NECP revised the objective for the **RES share in gross final energy consumption** from 31%, as stated in the initial NECP draft, **to at least 35%** by 2030. Regarding energy efficiency improvement the government's aim was that final energy consumption in 2030 would be limited to the 2017 levels, much lower than the corresponding target for 2020. The performance aimed to ensure the attainment of the **energy efficiency improvement objective of 38%** in relation to the methodology used for the core EU objective. In relation to decarbonization, the total GHG emissions aimed to be reduced by at least 40% compared to 1990 (reduction rate >42%).

Second draft version of Greece National and Energy Climate Plan (NECP)[61] was submitted in November 2023 and followed by European Commission assessment and recommendations in December 2023[62].

3.3.1 GREECE EC ASSESSMENT ON NECP

According to the Commission assessment [63] the plan highlights several **positive elements** across key areas. In terms of **energy efficiency**, it includes **measures that align** with the **long-term building renovation strategy** and adhere to the **'energy efficiency first'** principle. Regarding **decarbonization**, the plan offers projections of expected capacities for the capture, storage, and use of CO2 up to 2050. For **energy security**, it outlines a comprehensive gas diversification strategy alongside ambitious forecasts for energy storage. Within the **internal energy market**, the plan aims to meet the 15% interconnectivity target by commissioning a second electricity interconnection with Bulgaria. Finally, in **renewable energy**, the plan projects that renewable electricity generation will account for 82% of gross electricity consumption by 2030, with solar power becoming the primary source of renewable energy and wind power, as well as installed capacity, **expected to double** by 2030 compared to 2023 levels.

The plan identifies several **areas for improvement**. Regarding adaptation to **climate change**, it needs to address relevant **climate vulnerabilities and risks**. In terms of fossil fuel subsidies, the plan lacks details on how and by when these subsidies will be phased out. For **just transition**, it does not provide a comprehensive analysis of the social, employment, and skills impacts, including distributional effects, of the climate and energy transition, nor does it outline specific policies and measures to address these challenges. The plan also shows inconsistencies in **alignment with the territorial just transition plans**, particularly with regard to coal phase-out commitments, presenting contradictory

[59] European Commission, Summary of the Commission assessment of the draft National Energy and Climate Plan 2021-2030. Available at: https://energy.ec.europa.eu/document/download/ec84e23c-d950-4486-9093-fe8386bfd3df_en

[60] HELLENIC REPUBLIC, Ministry of the Environment and Energy. Available at: https://energy.ec.europa.eu/system/files/2020-03/el_final_necp_main_en_0.pdf

[61] European Commission, Greece - Draft Updated NECP 2021-2030. Available at: Greece - Draft Updated NECP 2021-2030 - European Commission (europa.eu)

[62] European Commission, Assessment of the draft updated National Energy and Climate Plan of Greece, December 2023. Available at: fa776a38-49ae-4c79-9b05-c7763a4250ee_en (europa.eu)

[63] https://commission.europa.eu/publications/commission-recommendation-assessment-swd-and-factsheet-draft-updated-national-energy-and-climate-16_en

information. Lastly, **research, innovation, competitiveness, and skills** are notably absent, as the plan does not include a dedicated chapter on these critical areas.

TABLE 5: SUMMARY OF KEY OBJECTIVES, TARGETS AND CONTRIBUTIONS OF GREECE'S DRAFT UPDATED NECP

Indicator	2030 Targets (NECP)	2030 Targets indicated by EU	Assessment of 2030 Ambition Level
Greenhouse Gas Emissions under ESR (compared to 2005)	n/a	-22.7%	No projections provided in the plan, but Greece would overachive based on its nationally net -46% target for ESR sector
Net GHG Removals (LULUCF)	-4.8	-1 154 kt CO2 eq. (additional removals target) -4 373 kt CO2 eq. (total net removals)	Projecting to meet the target but lack of credible pathway
Renewable Energy Contribution (share of energy from renewable sources in gross final consumption)	44%	39%	Greece's contribution of 44% is above the 39.2% required pursuant to the formula set out in Annex II of the Governance Regulation
Energy Efficiency - Final Energy Consumption	15.4 Mtoe	14.6 Mtoe	Greece's final energy consumption contribution is 15.4 Mtoe. EED recast Annex I formula results: 14.6 Mtoe

Considering the above as well as the progress the country has made in the last 5 years in energy transition, the Ministry for Environment and Energy has coordinated the preparation the **revised National Energy and Climate Plan** and published it in August 2024, **for public consultation**[64]. The Greece National Energy and Climate Plan reflects country's planning moving on three axes: **reducing emissions, boosting economic growth** and at the same time a permanent **reduction in energy costs** for consumers.

In the context of this National Energy and Climate Plan, it is set as a goal, in the context of Article 4 of Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency and the amendment of Regulation (EU) 2023/ 955, the **final energy consumption** should not exceed 15.2 Mtoe in the year 2030, showing a **reduction of 8% compared to the target** of the previous plan for the same year (16.5 Mtoe).

TABLE 6: QUANTIFICATION OF NECP TARGETS AND INDICATORS GREECE

ACHIEVEMENT OF OBJECTIVES	Year 2030		Year 2035	Year 2040	Year 2050	
	EU target	NPEC Prediction	NPEC Prediction	NPEC Prediction	EU target	NPEC Prediction
Reduction of GHG emissions compared to 1990*	-55,0%	**-58,6%**	**-68,9%**	**-79,8%**	-100%	**-97,5%**
**RES in gross final energy consumption ** **	42,5%	**45,4%**	**64,1%**	**84,8%**		**127,2%**
RES in gross electricity consumption***	69,0%	**76,8%**	**96,4%**	**99,5%**	100%	**99,0%**
Final energy consumption (ktoe)	14,6	**15,2**	**14,1**	**13,4**		**12,2**

[64] https://ypen.gov.gr/se-dimosia-diavoulefsi-to-anatheorimeno-ethniko-schedio-gia-tin-energeia-kai-to-klima/

Primary energy consumption (ktoe)	17,1	**17,6**	**16,5**	**15,9**	**16,3**

The building sector is possibly the most critical sector for achieving the goals of improving energy efficiency. The implementation of the foreseen policy measures is expected to lead to the achievement of the goals foreseen in the framework of Directive (EU) 2024/1275 for the energy efficiency of buildings. Initially, a **target is set to reduce the average use of primary energy in the buildings** of the domestic sector by 16% by the year 2030 and by 20-22% by the year 2035. At the same time, the target is redefined for the case of other buildings, based on of which, 16% of the worst performing buildings need to be renovated by the year 2030 and 26% of the worst performing buildings need to be renovated by the year 2033.

The renovation of residential buildings in the period 2025-2030 will amount to 68 thousand renovations, annually. Accordingly, for the period 2031-2040 the **annual renovations will decrease** to 64 thousand renovations, while a significant increase is expected to be achieved in the period 2041-2050 to 83 thousand to decarbonize the residential sector.

3.3.2 RECOMMENDATIONS

The European Commission recommends Greece [65] to complement the information on the existing and planned policies and measures, including in agriculture, which are expected to contribute to meeting the national greenhouse gas target under the ESR. Additionally, to set out complete policies and measures to achieve the national contributions on energy efficiency and in particular provide information of the **energy savings measures** to ensure the achievement of the required amount of cumulative end-use energy savings by 2030. Besides, to specify robust **financing energy efficiency programmes** and **financial support** schemes able to **mobilise private investments** and additional **co-financing**.

Decarbonisation dimension:

The draft updated NECP reaffirms Greece's commitment to achieving climate neutrality by 2050. It supports the findings of the 2023 Climate Action Progress Report, which indicates that Greece is on track to meet the EU's climate-neutrality objective based on available information. The **draft NECP sets a comprehensive target of reducing greenhouse gas (GHG)** emissions by 55% by 2030, compared to 1990 levels.

In terms of **renewable energy**, the contribution proposed in the draft updated NECP is a share of 44% of the national gross final consumption of energy in 2030. This contribution is significantly above the share of 39% resulting from the formula in Annex II of the Governance Regulation. The scenarios do not provide yearly overall renewable energy contribution trajectories by technology but include trajectories in five years intervals up to 2050.

Energy efficiency (including buildings) dimension:

[65] COMMISSION RECOMMENDATION of 18.12.2023 on the draft updated integrated national energy and climate plan of Greece covering the period 2021-2030, https://commission.europa.eu/document/download/e7b2a97f-8e7d-43fc-9bf0-3c7c8d9e8406_en?filename=Recommendation_draft_updated_NECP_Greece_2023.pdf

The target for reducing total **final energy consumption across all public bodies** is not clearly outlined in the draft updated NECP, although it does provide well-reasoned information regarding the planned measures. While the draft mentions a 3% annual renovation obligation for public buildings, it lacks **specific targets in terms of square meters**. Additionally, information on **the total floor area** of these buildings is not included.

The draft updated NECP provides satisfactory information on what measures will be used to deliver the savings required post-2020 under Article 7 EED on energy savings obligation. Greece adopts **a mixed approach**, including both an energy efficiency obligation scheme and alternative measures. **The policies and measures** contained in the draft updated NECP under the energy efficiency dimension are sufficiently described but they do not include an adequate **estimation of energy savings**. More details are needed to understand how these measures contribute to the achievement of the 2030 energy efficiency contributions.

The draft updated NECP outlines the planned measures to achieve the 2030 energy efficiency goals in detail; however, it does not provide information on the **expected savings** and related **financial requirements**. The draft effectively presents new measures adopted after 2020, along with additional planned initiatives aimed at reaching the higher 2030 target. It also incorporates measures that adhere to the 'energy efficiency first' principle.

3.4 Romania National Energy and Climate Plans

From the submission of its **first draft integrated National Energy Climate Plan** on 31 December 2018, Romania was recommended to significantly raise the level of ambition as regards reducing both final and primary energy consumption, to support the Union's 2030 energy efficiency target. The recommendations included not only proposing more ambitious policies and measures to ensure additional energy savings are delivered by 2030, but also more clarity on existing policies and measures as well as the planned policies and measures for the whole 2021 to 2030 period, including more detailed information on their expected savings and impacts as well as timeline for implementation[66]. To ensure cohesive delivery of the Energy Union and Climate Action for a successful clean energy transition, the recommendations emphasized the need for the **final plan to reinforce the application of the "Energy Efficiency First Principle**." This principle should serve as a cross-cutting policy to guide authorities in evaluating whether the same objectives can be achieved more cost-effectively through energy efficiency before introducing new energy policies or making investment decisions[67].

Romania notified its **first final National Energy Climate Plan** to the European Commission on 28 April 2020. The submitted document shows an **increased level of ambition** for its national contribution on energy efficiency to the 2030 EU level target compared to the draft plan. However, its contribution for primary energy consumption of 32.3 Mtoe was

[66] COMMISSION RECOMMENDATION of 18 June 2019 on the draft integrated National Energy and Climate Plan of Romania covering the period 2021-2030 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019H0903(23)
[67] COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS EMPTY, United in delivering the Energy Union and Climate Action - Setting the foundations for a successful clean energy transition https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1565713062913&uri=CELEX:52019DC0285

evaluated by EC as still of low ambition, while for final energy consumption the target of 25.7 Mtoe was evaluated as of very low ambition. On the positive side, the final plan included useful information for buildings, indicating already the intention **to go beyond a 3-4% renovation** rate (before the submission of the country's long-term renovation strategy). On energy efficiency, Romania partially addressed the **recommendation to update and scale up energy efficiency policies and measures**. For Romania to achieve its 2030 objective, the plan relies both on new measures and on ramping up the current ones. While the final plan provides a list of current and planned policies and measures, it lacks detailed descriptions of the measures, such as implementation details, target sectors and timelines. As regards the buildings sector, more information has been added to the plan, indicating that three scenarios have been analysed for the long-term renovation strategy with measures to i**mprove energy efficiency, reduce greenhouse gas emissions and increase the renewable energy share in total energy consumption** through **renovation**[68] The plan provided descriptive information on policies and measures beyond 2020 targeting the **building sector**, but also policies and measures for the transport, industry and the supply sectors.

The European Commission evaluated Romania's final NECP as still unclear as regards the planned national policies and measures in relation to the achievement of the target as no detailed descriptions was provided for them (particularly beyond 2020), including contribution of policies and measures in terms of **energy savings**. As regards the buildings sector, the plan indicated that three scenarios have been analysed to support the long-term renovation strategy with intentions for going beyond a 3-4% renovation rate (the baseline is 0.5%). The scenario that was preferred at this stage by the Romanian authorities was estimated to lead to a reduction of 0.83 Mtoe **in final consumption** in 2030 and 3.38 Mtoe in 2050, a **66% reduction** compared to the same year in the baseline scenario and a reduction in CO2 emissions of 2.34 million tonnes by 2030. An evaluation of the **needed investments** for the implementation of the preferred scenario was also included with a total of EUR 12.8 billion needed (estimation 2019), with EUR 3 billion envisaged to come from grants from the state budget or from EU funds, while between EUR 6 billion and 8 billion to be financed through repayable financial mechanisms including repayable grants, and 1.8 billion to be secured by the owners of buildings to be refurbished under a co-financing regime.

Romania submitted its **second draft and updated integrated NECP** on 31 October 2023. On energy efficiency, Romania's plan is now evaluated by EC as comprehensive and informative, including new measures addressing different sectors.

3.4.1 ROMANIA EC ASSESSMENT ON NECP

Based on Commission assessment[69], the lack of **quantification of energy savings measures** still makes it difficult to estimate the contribution to the energy efficiency targets. **Energy savings are presented as a pilla**r of the draft updated NECP, with Romania targeting to

[68] COMMISSION STAFF WORKING DOCUMENT Assessment of the final national energy and climate plan, https://energy.ec.europa.eu/system/files/2021-01/staff_working_document_assessment_necp_romania_en_0.pdf
[69] European Commission, Assessment of the draft updated National Energy and Climate Plan of Romania, December 2023. Available at: 32433a1b-41e6-4afd-80bb-e720a9880b70_en

reduce final energy consumption by 48 ktoe per year until 2030 compared to the 2017-2019 average. This equals to a corrected **national contribution** of 31.4 Mtoe for primary energy consumption (compared to 30.2 Mtoe according to the EED recast Annex I formula results) and 23.2 Mtoe for final energy consumption (compared to 22.8 Mtoe according to the EED recast Annex I formula results). Overall, Romania's current contribution for **final energy consumption** was evaluated as **in line with the level of ambition set by the EED recast.** On the other side the national contribution for **primary energy consumption** was evaluated as being set **slightly above** the 2030 projections for primary energy consumption therefore EC recommended **aligning the national contribution with the WAM[70] scenario** to reduce the gap from 4.1% to 1%, thereby making both contributions in line with the EED recast ambition. According to Article 4(4) EED recast, a Member State shall ensure that its contribution in Mtoe is not more than 2.5% above what it would have been had it resulted from the EED recast Annex I formula. The comparison has been done with the 2020 targets as included in the Romanian factsheet on 2020 NECP: 43.0 Mtoe PEC, 30.3 Mtoe FEC. Another important aspect it that the target on reducing total final energy consumption of **all public bodies** is not described in the draft updated NECP and the plan does not include enough information on the measures planned, nor on the exclusion of public transport or armed forces.

The draft updated NECP provides satisfactory information on what measures will be used to deliver the savings required post-2020 on **energy savings obligation[71]**. While policies and measures under the energy efficiency dimension are sufficiently well described they do not include an estimation of energy savings. **Furthermore, the potential overlapping of measures and how the double counting of the impacts is avoided, is not addressed.** More details are needed to understand how recent measures contribute to the achievement of the 2030 energy efficiency contributions. Romania implements **alternative policy measures** to fulfil the **energy savings** obligation. The draft updated NECP did not revise the cumulative end-use energy savings target of 10.1 Mtoe over 2021-2030, thus not considering the new ambition of the EED recast.

The document presents in details new measures to achieve the 2030 energy efficiency targets, but **the expected energy savings are not included**. It is important to note that the new measures are designed within the frame of existing measures. However, the level of ambition of the new measures compared to the existing ones is not clear as the existing measures are described in a broader way. The draft updated NECP includes measures reflecting the '**Energy Efficiency First principle**', emphasising that all measures adhere to the fundamental principles of energy efficiency. The policies and measures aimed at improving building energy efficiency and promoting the use of more efficient technologies will significantly impact household energy consumption in both scenarios (WEM and WAM) across sectors. Relevant final energy savings can be achieved in the WAM scenario thanks to the electrification of the transport sector.

[70] Projections scenario 'with additional measures' (WAM) means projections of anthropogenic GHG or air pollutant emissions by sources that encompass the effects of policies and measures which have been adopted and implemented, as well as planned policies that are judged to have a realistic chance to be adopted and implemented in the future; *Projections in hindsight, An assessment of past emission projections reported by Member States under EU air pollution and GHG legislation EEA, 2019*

[71] under Article 7 EED (Article 8 EED recast)

The Romanian draft updated NECP does not increase the ambition of **the 2020 long-term renovation strategy** but recalls its key elements. In particular, as per the 2020 long-term renovation strategy, the **annual renovation rates** are projected to increase gradually from 0.69% in 2021 to 3.39% by 2030, to 3.79% in the period 2031-2040, eventually reaching 4.33% in the period 2041-2050. These progressive renovation rates are expected to lead to a 9% reduction of final consumption and a cumulative 24% GHG emission reduction by 2030, and a 65% reduction of final energy consumption and an 80% cumulative GHG emission reduction by 2050 (6.14 Mtoe). The unchanged 2030 milestone for energy consumption in buildings is not in line with the overall identified increased ambition to reduce primary and final energy consumption. The draft updated NECP includes various future measures addressing building sector, both enhancing its **energy performance** and deploying renewable energy consumption. The proposed measures to reduce energy consumption and related emissions of buildings, include renovation of the **building envelope**, further deployment of **solar-thermal collectors**, **rooftop PVs** and an **increased use of heat pumps**. Nevertheless, the expected energy and emission savings of the proposed measures are not presented. In this respect, the level of ambition of newly proposed measures is not clear compared to existing measures. Policies and measures have identified financing sources and, in some limited cases, also the available budget[72].

Overall **energy efficiency dimension in the updated Romania's NECP is evaluated as comprehensive and informative including measures addressing different sectors but still lacking quantification of energy savings that makes it difficult to estimate the contribution to the energy efficiency targets**. On the strategic alignment with other planning tools, Romania's draft updated NECP covers the implementation of the measures included in the recovery and resilience plan and notably those in the new REPowerEU chapter[73].

Romania's - final updated NECP 2021 - 2030 was submitted to EC in October 2024. The revised document acknowledges Romania has already made significant progress, achieving by 2022 85% of its 2030 target for net GHG emission reduction, with a projection of reaching 93% of the 2030 reduction target by 2025.

3.4.2 RECOMMENDATIONS

Energy efficiency investments in buildings and increasing the renewable energy share in the heating and cooling of buildings remain the main levers for reducing GHG emissions. To reach Romania's ambitious targets, several priority measures were identified by the Energy Policy Group in a critical evaluation of the updated final NECP[74]:

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[72] Commission staff working document: Assessment of the draft updated National Energy and Climate Plan of Romania Accompanying the document COMMISSION RECOMMENDATION on the draft updated integrated national energy and climate plan of Romania covering the period 2021-2030 and on the consistency of Romania's measures with the Union's climate-neutrality objective and with ensuring progress on adaptation, https://commission.europa.eu/document/download/32433a1b-41e6-4afd-80bb-e720a9880b70_en?filename=SWD_Assessment_draft_updated_NECP_Romania_2023.pdf

[73] Factsheet: Highlights of the Commission's assessment of Romania's draft updated National Energy and Climate Plan https://commission.europa.eu/document/download/aadce661-e5ab-4061-a669-919724257f17_en?filename=Factsheet_Commissions_assessment_NECP_Romania_2023.pdf

[74] Energy Policy Group (2023), A critical evaluation of Romania's first Integrated National Energy and Climate Plan: implementation progress and the road to 2030, https://www.enpg.ro/a-critical-evaluation-of-romanias-first-integrated-national-energy-and-climate-plan-implementation-progress-and-the-road-to-2030/

- Addressing **data discrepancies and challenges in achieving the targets set in the LTRS** for a significant increase of the renovation rate including allocated that remains insufficient to meet the NECP objectives.
- There is a need to **focus on deep renovations** that substantially reduce energy consumption in buildings. Efforts should be made to increase the **standards at which buildings are renovated**.
- New residential buildings need to adhere to **higher energy efficiency standards** to contribute to overall energy savings.
- **Renewable energy consumption for district heating** needs to be increased, including geothermal energy.
- The more ambitious targets set by RED III require significant efforts, including **transitioning households to heat pumps and increasing solar thermal systems**.

As regards other sectors, the EPG report evaluated that the **industry is given little attention in the NECP** following a drop in energy consumption in 2022 that led to a consumption level already below the set ambition. As this is likely to rebound in coming years significant additional planning and measures are needed for meeting the revised expectations for industrial decarbonisation under the new objectives set through the Fit-for-55 package. It also remarks that the NECP outlines some goals for the waste sector and explores the **interaction between the circular economy and energy efficiency, but lacks specific policies, strategies, and quantification of their effects on GHG emissions.**

3.5 Slovenia National Energy and Climate Plans

The Government of Slovenia adopted the **first integrated National Energy and Climate Plan of the Republic of Slovenia (NECP 2020)** [75] on February 27, 2020, setting ambitious national and sectoral targets for reducing GHG emissions, improve EE and increase a share of RES by 2030. Key goals included:

Decarbonisation Dimension

- A 20% reduction in GHG emissions in non-EU ETS sectors compared to 2005, exceeding EU obligations by 5%.
- Sectoral targets: 76% reduction in other sectors, 1% in agriculture, 65% in waste, 43% in non-EU ETS industry, 34% in energy transformations, and limiting transport emissions growth to 12%.
- No net emissions from LULUCF by 2030.
- A 70% reduction in building emissions by 2030.
- Improving energy and resource efficiency in all sectors (therefore reducing energy and natural resource consumption) as the first and key measure for transitioning to a climate-neutral society.
- Phase out coal, with a 30% reduction by 2030, full phase-out by 2033, and target 10% climate-neutral syngas in the gas network by 2030.
- Decarbonize electricity production, phasing out coal by at least 30% by 2030, with a decision on coal phase-out based on just transition principles by 2021.

[75] National Energy and Climate Plan of the Republic of Slovenia, 2020. Available at: Celoviti nacionalni energetski in podnebni načrt (NEPN 5.0), 28.2.2020 (energetika-portal.si)

- Gradually decarbonize energy-intensive industries by providing financial incentives for restructuring production processes and introducing green technologies.
- Increase investment in human resources and new skills necessary for the transition to a climate-neutral society and reduce implementation gaps.

Energy Efficiency Dimension

- By 2030, improve EE by at least 35% compared to the 2007 baseline scenario.
- Ensure systematic implementation of adopted policies and measures so that final energy consumption does not exceed 54.9 TWh (4,717 ktoe).
- Reduce final energy consumption in buildings by 20% by 2030 compared to 2005 and ensure a 70% reduction in GHG emissions in buildings by 2030 compared to 2005.
- Accelerate programs for informing, raising awareness, and training various target groups about the benefits and practical aspects of EE technologies and the use of RES.

Renewable Energy Sources Dimension

- Achieve at least a 27% share of RES in final energy consumption by 2030.
- Ensure at least 2/3 of energy use in buildings comes from RES (excluding electricity and district heating).
- Ban the sale and installation of new heating oil boilers after 2022.
- Achieve at least a 30% share of RES (including waste heat) in industry.
- Increase the share of RES, waste heat, and cooling in district heating and cooling systems by 1% annually.
- Achieve at least a 43% share of RES in electricity production.
- Achieve at least a 41% share of RES in heating and cooling.
- Achieve at least a 21% share of RES in transport.

The vision defined by the current Long-Term Strategy for the Energy Renovation of Buildings by 2050 (LTRS), which is also included in the NECP 2020, aims to **achieve low-carbon energy use in buildings** by 2050. Slovenia will accomplish this through significant improvements in EE and increased use of RES in buildings. Another goal is for Slovenia to become recognized in the field of **sustainable construction**. A new LTRS is being prepared and it will be aligned with the new integrated National Energy and Climate Plan and the Long-Term Climate Strategy.

The **second draft and updated National Energy and Climate Plan**[76] (version 5.0, August 2024), incorporates the required mitigation measures from the revised draft environmental report, has been prepared. The updated NECP and the revised environmental documents have been submitted for approval of their acceptability. Upon completion of the comprehensive environmental impact assessment, the updated NECP 2024 will be submitted to the Government of the Republic of Slovenia for approval and subsequently forwarded to the European Commission, anticipated in autumn 2024.

[76] Republic of Slovenia, Draft update proposal (2024): INTEGRATED NATIONAL ENERGY AND CLIMATE PLAN OF THE REPUBLIC OF SLOVENIa. Available at: 88f140fc-424f-4740-8b6f-6d4d89b2a701_en (europa.eu)

3.5.1 SLOVENIA EC ASSESSMENT ON NECP AND RECOMMENDATIONS

Slovenia considered all previously adopted goals in preparing the updated NECP 2024 and, based on updated expert analyses, public consultation, comprehensive environmental assessments, and recommendations from the Commission[77] (except for the OVE share due to specific national circumstances), set development-oriented and ambitious targets for 2030. These goals stem from the ambitious scenario with additional measures, further enhanced with feasible measures from the European Commission recommendations. The enhanced ambitious scenario with additional measures is referred to as the updated NECP 2024 scenario. The updated key goals are outlined below:

Decarbonisation Dimension

- Reduce **total GHG emissions** by at least 55% by 2033 and 37% by 2030 (vs. 2005).
- Exceed Slovenia's Effort Sharing Regulation targets with a 28% reduction by 2030, focusing on:
    - Transport: -1%, Widespread use: -69%, Agriculture: -2.8%, Waste management: -65%, Industry: -40%, Energy: -35% (non-ETS sectors).
- Cut GHG emissions from buildings by 70% by 2030 (vs. 2005).
- Ensure LULUCF sector emissions don't exceed removals from 2021–2025, achieving at least
  -146 kt CO_2 eq. by 2030.
- Enhance **resilience** and adaptive **capacity to climate impacts** and disasters.
- Ensure **climate justice**.
- Phase out **fossil fuel** subsidies by 2030.
- Ensuring the transition to a low-carbon circular economy by promoting sustainable consumption and production.
- **Decarbonize electricity production** by gradually phasing out coal, with coal units ceasing operations by 2033 at the latest, following the principles of a just transition.
- Gradually **decarbonize hard-to-abate sectors** of **energy-intensive industries** by providing **financial incentives** for restructuring production processes, introducing green technologies, renewable and low-carbon gases (including hydrogen), and technologies for CO2 capture, transport, and utilization.
- Increase investment in human resources and **new skills needed for the transition to a climate-neutral society** and to reduce the implementation gap.
- Contribute to reducing air pollutant emissions through NECP measures.

Energy Efficiency Dimension

- Accelerate **energy and resource efficiency improvements** across all sectors to reduce consumption and support a successful green transition, and in line with energy efficiency first principle.
- Achieve EE improvements and annual savings by 2030, aligned with the Energy Efficiency Directive.
- **Limit final energy consumption** to 50.2 TWh (4,320 ktoe).
- **Reduce final energy consumption in buildings** by 15% (compared to 2005).

[77] Commission Recommendation, Assessment (SWD) and Factsheet of the draft updated National Energy and Climate Plan of Slovenia. Available at: Commission Recommendation, Assessment (SWD) and Factsheet of the draft updated National Energy and Climate Plan of Slovenia - European Commission (europa.eu)

- Decrease **public sector energy consumption** by 1.9% annually and renovate 3% of public buildings' floor area each year.
- Ensure EE access for all, including vulnerable users.
- **Support the industry** in enhancing EE, adopting **green technologies**, and promoting the **circular economy**.
- Expand **awareness and training** on EE and RES technologies.

Renewable Energy Sources Dimension

- Achieve at least a 33% share of **RES in final energy consumption** by 2030, including:
    - At least 55% of energy in buildings from RES,
    - At least 30% of RES (including waste heat) in industry,
    - An annual 2-3% increase in the share of RES, waste heat, and cooling in district heating and cooling systems, reaching a 25-40% share by 2030,
    - At least 55% share of RES in electricity production,
    - At least 45% share of RES in heating and cooling,
    - At least 26% share of RES in transport.
- Accelerate the integration of RES into spatial planning.
- Accelerate the installation of solar panels on public sector roofs.

4. POLICY MEASURES SUMMARY

BULGARIA

Bulgaria's **NRRP** and **NECP** aim to address key challenges in energy efficiency, renewable energy, and climate action. The **NRRP** focuses heavily on the **green transition**, with 57.5% of its funding directed towards climate objectives, making it one of the most environmentally focused plans in Europe. It includes significant investments in **building renovation**, **decarbonization of the energy sector**, and **renewable energy projects**. Reforms also address **energy poverty**, simplifying regulations for **energy efficiency** renovations, setting up of **OSSs** and a **National Decarbonisation Fund,** and the promotion of **ESCO projects**.

The **NECP**, revised in 2024, sets ambitious targets for **renewable energy** and **energy efficiency**, with goals to achieve a 34.48% share of renewable energy in final energy consumption and improve energy efficiency across sectors. However, the plan has been criticized for lacking detailed measures and timelines to meet these goals, particularly in reducing **greenhouse gas emissions** and improving energy security. Recommendations from the European Commission include enhancing **public participation**, improving policies for **non-CO2 emissions**, and specifying **financial mechanisms** to support these reforms.

Despite the positive developments, there is still room for improvements in both plans – by providing more detailed measures and timelines for achieving energy efficiency targets, enhancing public participation and local engagement, and setting specific goals for **energy poverty** reduction. The plans also need clearer policies for **decarbonization** and **renewable energy deployment**, especially in the transport sector and non-CO2 emissions. Additionally, **investment quantification**, gas market liberalization, and stronger **monitoring mechanisms** are needed to ensure progress towards the 2030 and 2050 climate goals.

CROATIA

Croatia has made progress in energy efficiency, particularly in building renovations and post-earthquake reconstruction, focusing on deep renovation, seismic safety, and reducing energy poverty. The **NRRP** and **NECP** analysis highlights positive steps toward EU climate goals, though there are still opportunities for improvement. The **NRRP** outlines future **reforms**, including a **pilot project** allowing customers to repay energy renovation loans through savings on energy bills. Assessment of the **updated NECP** (July 2023) shows progress but highlights the need climate ambition through **additional long-term policies** and measures, including setting **sectoral climate targets** for 2030. Reduction of GHG emissions by 2030 (- 17,1%) is slightly exceeding the national target under the Effort Sharing Regulation (-16,7%) but needs implementation of **additional measures focusing on sectors covered under the Effort Sharing Regulation (ESR).** While public dialogue has improved through enhanced public participation, further efforts are needed to ensure greater **transparency**, particularly through the establishment of an official platform for **multilevel dialogues** that involves all stakeholders in decision-making processes. Energy transition should be more encouraged both in terms of **renewable energy sources** (RES), **energy efficiency** (EE) and **research and innovation** (R&I) linked to clean energy

technologies. **Renewable energy share** should aim to exceed the currently set goal of 42.5%, the energy efficiency and **renovation of buildings** should be accelerated, and it is necessary to determine the **national targets and spending for R&I in clean energy technologies**. In addition, Croatia needs to **clearly identify financing needs** and funding sources to implement some key measures**.**

Energy poverty must be tackled through clear national objectives and a concrete timetable for implementing the announced measures, while strengthening the connection between energy efficiency and social policies, including the "Program for Elimination of Energy Poverty," which is set for an update in 2024. Improvements are expected in terms of **tax benefits**, social protection systems in the **context of the Just Transition Fund** (JTF), and the analytical groundwork needed for **preparing the Social Climate Plan** (SCP).

In addition, Croatia will comply national policies with the revised Energy Performance of Buildings Directive (EPBD), which mandates implementation by May 2026. Key updates include the introduction of Minimum Energy Performance Standards (MEPS), with the standard for new buildings shifting from 'nearly-zero energy buildings' (nZEB) to 'zero-emission buildings' (ZEB). This transition will be supported by the implementation of Building Renovation Passports, Energy Performance Certificates (EPC), One-Stop-Shops (OSS), and a national energy performance database. Regarding public building renovations, the Energy Efficiency Directive (EED) mandates a 1.9% annual energy savings target and a 3% annual renovation obligation for public sector buildings, with full implementation expected by October 2025.

GREECE

A critical parameter in order to fulfil the **NECP**'s objectives, is the **implementation of targeted policy measures to mobilize the required investments**. The plan includes the improvement of the **operating framework** of the existing programs aiming indicatively, to increase the number of potential beneficiaries, promoting interventions that are more efficient in terms of costs and results, more **active participation of financial institutions** in the financing of the required interventions and promoting the innovation in manufacturing and processing industry.

The successful **financing programs** to improve the energy efficiency of residential buildings will continue without interruption, while they will be suitably modified to target more effectively the **support of energy vulnerable** households. Emphasis is placed on adapting and **improving the existing financial model** with the aim of increasing the existing levels of leverage by the beneficiaries. At the same time, the possibility of improving the framework of the existing **tax exemptions for households** will be investigated in order to accelerate the required energy renovation interventions with alternative financing methods.

At the same time, **alternative financing mechanisms indicatively such as Energy Performance Contracts**, especially for the case of public buildings, are being promoted at an increasing rate.

One Stop Services (**OSS)**, the policy measure studied under the SMAFIN project, is mentioned that can facilitate the implementation of interventions to improve energy

efficiency in the building sector. Targeted actions will be launched to establish One Stop Services in each region providing support in all phases required for the decarbonisation of the building stock.

The implementation of financial programs to improve energy efficiency in businesses will be intensified in conjunction with the already established tax incentives in order to promote actions to save energy and water in businesses. Additionally, the goal is to remove the barriers to business access to the required financing through the provision of both loans with favourable terms and guarantees. In contrast, **alternative financing mechanisms** will be promoted, such as **Energy Performance Contracts**.

ROMANIA

Romania has improved its **National Integrated Energy Climate Plan** (NECP) showing an **increased level of ambition** for its national contribution on energy efficiency to the 2030 EU level target compared to the previous plan and showcasing a **stronger commitment**. Critical aspects to support a successful implementation of the NECP remain in the areas of enhancing stakeholder engagement through **transparent public participation** processes, developing **concrete measures with specific timelines and milestones**, **identification of effective financing mechanisms to ensure financial stability** and considering the broader socio-economic and environmental impacts, and committing to **regular updates and monitoring mechanisms** to adapt to new scientific findings, technological advancements, and changes in economic or social conditions.

The **National Recovery and Resilience Plan (NRRP)** supports to a big extent the implementation of the National Energy and Climate Plans (NECP) and Long-Term Renovation Strategy (LTRS), with measures targeting private residential and public buildings, providing 100% financing, which on one side, impacts positively on reducing energy poverty, but on the other side is expected not to incentivise the acceptance of a desired strategy to gradually blend private financing with public funded programs mobilizing the needed resources to reach the energy efficiency targets.

One Stop Shops (OSS), recommended as policy measure under the SMAFIN project as integrated renovation services, was approved by the Government and is currently under development to provide support at the county level in all phases required by projects for the energy renovation of the building stock. The measure has a very high potential to integrate existing programs, tools and experience to support both the implementation of the current NZEB standard and to facilitate a coherent transition towards Zero Emission Buildings (ZEB). The success of these one-stop-shops depends on how OSS will connect with key specialists and actors (technology providers, construction and service companies, financial institutions etc.), on the procedural framework to support the delivery of energy and environmental performance as well as on the communication with final beneficiaries.

At the same time, **alternative financing mechanisms** such as **Energy Performance Contracts (EnPC)**, especially for the case of public buildings, are being promoted at the Governmental level. The EnPC model was approved at the end of 2023, but pilot projects are needed to test the feasibility of such an instrument on the market. Additionally, there

are ongoing efforts to remove the barriers to business access to the required financing through the provision of both loans with favourable terms and guarantees.

SLOVENIA

By 2022, final energy consumption (FEC) in Slovenia decreased by 6.5% compared to 2005. The indicative FEC target for 2021 was met, with the final value 2.4% below the target. The 2030 goal, set in NECP 2020, aims for a 35% **reduction in final energy consumption (FEC)** compared to the 2007 PRIMES reference scenario. Slovenia has set even more ambitious FEC target in **NECP 2024**. Achieving higher goals will require **significantly stronger measures**, particularly in **building renovation** and **industrial technological transition**, along with additional measures. **Energy efficiency** and its accessibility must become top priorities in energy and climate policies. In 2021, FEC exceeded the 2030 target by about 1% (699 GWh). Since 2005, industrial energy consumption has seen the largest decrease, by 5 percentage points. For **primary energy consumption** (PEC), the NECP 2020 target for 2030 also calls for a 35% reduction compared to the 2007 PRIMES scenario. In 2021, the PEC was 3.8% below the indicative target for that year. Compared to 2005, PEC has decreased by 10.6%, but it was still 2% above the 2030 target (1,324 GWh). To achieve the 2030 targets, which will be further tightened, a reduction in FEC of at least 11.7% by 2030 is targeted, compared to the projections of the 2020 reference scenario, it will become even more crucial to manage FEC effectively.

Measures to reduce FEC continue across all sectors, but there have been delays in meeting planned timelines and target scopes, particularly for additional EE measures set in NECP 2020. Slovenia failed to meet its 3% **annual renovation target** for **central government buildings** - renovations of central government buildings under the Operational Program for European Cohesion Policy (2014–2020) performed till 2023 have fallen short, achieving only 42% of the planned 2014–2021 target. Trends to reach the NECP 2020 goal to reduce FEC in buildings by 20% and GHG emissions by at least 70% by 2030, compared to 2005 levels, remain positive. The updated NECP 2024 draft targets are setting even **more demanding building goals**. Achieving these targets will require **strengthening measures and policies** to **improve EE and reduce GHG emissions**, with special attention **to vulnerable populations** to ensure they have access to EE and a fair transition to a low-carbon society.

In 2021, the share of RES in Slovenia was 24.6%, below the 25% target. The 2030 target, set in NECP 2020 at 27%, will be raised in line with EU commitments. More attention will be needed to overcome barriers in **spatial planning**, renew **support schemes for RES** electricity production, and develop conditions for **self-sufficient RES communities**.

5. ANNEX I: INVENTORY ON NRRP AND NECP IMPLEMENTATION

Inventories by Consortium countries on the national policies and measures relevant for EU energy efficiency 2030 and 2050 targets and Fit for 55 packages.

TABLE 7: BULGARIA NATIONAL POLICIES AND MEASURES RELEVANT FOR ENERGY EFFICIENCY AND FIT FOR 55 PACKAGES

Policy target	Implementation/National Policy	Acronym	Managing Authority	Short description	Measure type
Decarbonisation of buildings	National Energy and Climate Plan National Recovery and Resilience Plan Long-term national strategy to support the renovation of the national building stock of residential and non-residential buildings by 2050 Energy Efficiency Act	NECP, NRRP, LTRS	Ministry of Energy, Ministry of Regional Development and Public Works	National Decarbonisation Fund to be created; Continuous national renovation programmes; financial mechanisms; incentives to increase nZEBs; introduction of a mandatory energy efficiency scheme (reduction of fuel and energy consumption in final energy consumption; Encouragement of the application of "Energy Efficiency First" principle, empowering local authorities to develop long-term renovation plans; Promoting the use of high-efficiency heating and cooling systems, the introduction of innovative technologies using geothermal, hydrothermal and solar energy, and the use of waste heat and cold	Regulatory, financial
Residential sector	National Energy and Climate Plan National Recovery and Resilience Plan Long-term national strategy to support the renovation of the national building stock of residential and non-residential buildings by 2050	NECP, NRRP, LTRS	Ministry of Energy, Ministry of Regional Development and Public Works	One-stop-shops for consumers to facilitate the implementation of energy renovation projects in the building stock	Financial, Information
Multifamily apartment buildings	National Energy and Climate Plan National Recovery and Resilience Plan Long-term national strategy to support the renovation of the national building stock of residential and non-residential buildings by 2050	NECP, NRRP, LTRS	Ministry of Energy, Ministry of Regional Development and Public Works	Introduction of a systematic monitoring of the results of the support programmes for building renovation; Effective implementation of the organisational and regulatory framework for energy renovation of multi-family residential buildings, condominium management and reduction of administrative burden	Regulatory
Multifamily apartment buildings	National Energy and Climate Plan National Recovery and Resilience Plan Long-term national strategy to support the renovation of the national building stock of residential and non-residential buildings by 2050	NECP, NRRP, LTRS	Ministry of Energy, Ministry of Regional Development and Public Works	Building the administrative and professional capacity of public administration and local authorities, as well as those involved in the investment process; awareness raising and information campaigns; continuing professional development systems and expanding the scope of training courses in the field of energy efficiency and RES for designers (architects and engineers), construction professionals and workers, with the leading role of the relevant sectoral organisations. Establish registers for qualified construction professionals and workers and an effective system for recognition of professional qualifications acquired on the job.	Informational, Educational
Public buildings	National Energy and Climate Plan National Recovery and Resilience Plan	NECP, NRRP	Ministry of Energy, Ministry of Regional Development and Public Works	Taking measures to improve the energy performance of at least 5% of the total floor area of all heated and/or cooled state-owned buildings used by the public administration	Regulatory
Commercial sector	National Energy and Climate Plan National Recovery and Resilience Plan	NECP, NRRP	Ministry of Innovation and Growth, Ministry of Energy, Ministry of Regional Development and Public Works	Encouraging, through additional financial compensation, the purchase of zero net emission technology end products with a high contribution to economic sustainability; Creating markets for low carbon, 'circular' products	Financial, Regulatory
Energy poverty	National Energy and Climate Plan National Recovery and Resilience Plan Long-term national strategy to support the renovation of the national building stock of residential and non-residential buildings Energy Act	NECP, NRRP, Energy Act	Ministry of Innovation and Growth, Ministry of Energy, Ministry of Regional Development and Public Works, Ministry of Labour and Social Policy, Social Assistance Agency, National Statistical Institute	Financial mechanisms for energy vulnerable people; Creation of a unified digital system for collecting information (database) on the existing building stock in the different categories of buildings at municipal level, including information for the purpose of the social policies concerning energy vulnerable groups of the population;	Financial, Regulatory

All buildings	National Energy and Climate Plan National Recovery and Resilience Plan Long-term national strategy to support the renovation of the national building stock of residential and non-residential buildings by 2050	NECP, NRRP, LTRS	Ministry of Innovation and Growth, Ministry of Energy, Ministry of Regional Development and Public Works	Introduction of updated energy performance certificates for buildings and making them a mandatory element of the package of documents for the disposal of property, such as purchase and lease; Digitization of technical passports and creation of databases of municipalities when systems are connected; Introduction of optional common SRI scheme and adaptation of the European methodology established by the EC for its calculation in accordance with national specificities; Promote the application of building automation and management systems; Providing prerequisites for the entry of innovative ESCO business models in the field of energy efficiency at regional and national level; On-bill financing mechanism for energy efficiency and renewable energy;	Regulatory
RES	National Energy and Climate Plan National Recovery and Resilience Plan Renewable Energy Sources Act	NECP, NRRP, RES Act	National Energy and Climate Plan National Recovery and Resilience Plan Ministry of Environment and Waters	RES Act introduces measures aimed at promoting the production and consumption of electricity, heat and cooling energy from RES, biogas and green hydrogen, energy from RES in transport, in order to create the conditions for a sustainable and competitive energy policy and economic growth through innovation, the introduction of new products and technologies and the improvement of the living standards of the population through the cost-effective use of energy from RES. Eased administrative procedures for building energy communities, creation of dedicated administrative service centres to provide guidance and information and to organise procedures related to the implementation of investment plans for RES energy production; NRRP's Investment 6 (C4.I6): 'Support for new renewable electricity generation and storage capacity'; Investment 2 (C4.I2): 'Support for renewable energy for households'; Investment 5: (C4.I5): 'Support scheme for pilot projects for green hydrogen and biogas production'; Investment 3: Energy efficient municipal outdoor artificial lighting systems;	Regulatory

TABLE 8: CROATIA NATIONAL POLICIES AND MEASURES RELEVANT FOR ENERGY EFFICIENCY AND FIT FOR 55 PACKAGES

Policy target	Implementation/National Policy	Acronym	Managing Authority	Short description	Measure type
Decarbonisation of buildings	National Energy and Climate Plan National Recovery and Resilience Plan	NECP, NRRP	Ministry of Physical Planning, Construction and State Assets, Ministry of Economy and Sustainable Development	Promotion of Decarbonization and Application of "Energy Efficiency First" Principle in Construction. Promotion of nZEB standards in new construction and renovation; ensuring the valid application of nZEB standards. Increasing the level of awareness of the benefits of energy efficiency with the consequent change in behaviour and reduction in energy consumption by applying concrete measures Support for a regulatory measure for the construction and renovation of buildings as well as a promotional measure that will result in measurable reduction of energy consumption, greater use of RES and avoided CO2 emissions	Information Measure ENU-2
Multiapartment buildings	National Energy and Climate Plan National Recovery and Resilience Plan	NECP, NRRP	Ministry of Economy and Sustainable Development	Multi-Apartment Building Energy Renovation Program. Reducing demand for thermal energy and energy consumption; promotion of nZEB renovation	Financial Measure ENU-3
Family houses	National Energy and Climate Plan National Recovery and Resilience Plan	NECP, NRRP	Ministry of Economy and Sustainable Development	Family houses Energy Renovation Program. Reducing demand for thermal energy and energy consumption; promotion of nZEB renovation	Financial Measure ENU-4
Public buildings	National Energy and Climate Plan National Recovery and Resilience Plan	NECP, NRRP	Ministry of Economy and Sustainable Development	Public sector Energy Renovation Program. Reducing demand for thermal energy and energy consumption; promotion of nZEB renovation	Financial Measure ENU-5
Cultural heritage buildings	National Energy and Climate Plan National Recovery and Resilience Plan	NECP, NRRP	Ministry of Economy and Sustainable Development	Cultural heritage buildings Energy Renovation Program. Reducing demand for thermal energy and energy consumption; promotion of nZEB renovation	Financial Measure ENU-6
Energy management system in the public sector	National Energy and Climate Plan National Recovery and Resilience Plan	NECP, NRRP	Ministry of Economy and Sustainable Development	Energy Management System in the Public Sector. Continuous monitoring of energy consumption in the public sector and utilization of energy efficiency potentials. The measure is based on the information system for energy management (ISEM). The goal is to cover and regularly monitor all public sector buildings and public lighting systems by the end of 2030 using the ISEM.	Information Measure ENU-7
Energy efficiency obligation system for suppliers	National Energy and Climate Plan	NECP	Ministry of Economy and Sustainable Development	From 2021 to 2030, the goal is to achieve cumulative energy savings in final consumption by achieving new annual savings every year. Reduction of final energy consumption and consequent reduction of CO2 emissions: estimated savings in 2030 27.3 PJ (652.5 ktoe); estimated reduction in CO2 emissions in 2030, 1,532.9 ktCO2e; cumulative energy savings in the period 2021-2030 126.4 PJ (3,019.5 ktoe); cumulative reduction in CO2 emissions in 2021-2030 7,093.9ktCO2e.	Regulatory measure ENU 1
Green public procurement	National Energy and Climate Plan	NECP	Ministry of Economy and Sustainable Development	Reducing energy consumption in public buildings; changes in the habits and behaviour of users of public sector buildings. Green public procurement was also accepted as a measure in the 4th NEEAP, which sets the target that by 2020 green public procurement criteria are applied in 50% of implemented public procurement procedures.	Information Measure ENU-9
Commercial sector	National Energy and Climate Plan	NECP	Ministry of Environment and Energy-MEE Ministry of Finance for budgeting	Energy Management System in the Business (Service and Manufacturing) Sector. Reduction of energy consumption through fiscal initiatives for the use of standardized energy management systems. -detailed analysis of the tax system will be carried out, include the identification of possible incentives and/or; - an increase tax benefits in case of non-introduction of certified management systems energy -process of adopting the proposed measures is planned until the end of 2024. -From 2025, changes and additions to legal and by-laws are planned	Fiscal Measure ENU-10
Workforce	National Action Plan for Skills Development in the Context of Green Jobs Related to Energy Renovation and Post-Earthquake Renovation National Energy and Climate Plan National Recovery and Resilience Plan	NECP, NRRP	Ministry of Economy and Sustainable Development; Ministry of Physical Planning, Construction and State Assets	Development of Framework for Ensuring Adequate Skills in the Context of Green Jobs Needed for Building Renovation. In relation to NRPP, Initiative Buildings. Building capacity for the implementation of energy efficiency measures. Ministry of Physical Planning, Construction and State Assets – setting and implementing green building principles in cooperation with the Croatian Green Building Council and the Faculty of Architecture (FA)	Educational Measure ENU 13
Workforce	Smart Specialization Strategy	SSS (S3)	Ministry of Economy	Smart Specialization Strategy (S3) until 2029 is fully aligned with the National Development Strategy of the Republic of Croatia until 2030 (NRS). The new S3 until 2029 also considers the corresponding reforms and investments foreseen The National Recovery and Resilience Plan 2021-2026. (NPOO).	Policy

Energy poverty	National Energy and Climate Plan National Recovery and Resilience Plan	NECP, NRRP	Ministry of Physical Planning, Construction and State Assets, Central State Office for Reconstruction and Housing, Environmental Protection and Energy Efficiency Fund	Alleviation of energy poverty and vulnerability in buildings managed by the Ministry of Physical Planning, Construction and State Assets, where residents cannot participate in financing necessary repairs. Including the Use of Renewable Energy in Residential Buildings in Assisted Areas and Areas of Special State Concern for the Period Until 2025. Comprehensive renovation of buildings in assisted areas and areas of special state concern; capacity building for energy poverty alleviation; establishment of a model for covering energy costs.	Financial Measure UET-6
Tertiary-Tourism	Sustainable tourism development strategy until 2030	NECP, NRRP	Ministry of tourism	Act of strategic planning of Croatian tourism for the period until the year 2030, coordinated with the National development strategy of the Republic of Croatia until 2030 and with basic documents and policies of the European Union and the Republic of Croatia, including the National Recovery and resilience Plan. The priorities of public policy will contribute to the development of sustainable, innovative and resilient tourism including EE, RES, buildings renovation and waste management	Policy
All buildings	National Reform Programme 2023	NRP	Government of the Republic of Croatia	National Reform Program 2023 brings REPowerEU and Based on the European Commission's guidelines, this NRP includes a progress report on the implementation of the National Resilience and Recovery Plan (NRRP) 2021-2026, covering 2022 and early 2023. Some reforms have been fully implemented, while progress continues in others, with structural reforms ongoing until 2026.	Policy
All buildings	Long-term Renovation Strategy of the national Building Stock by 2050	LTRS	Ministry of Physical Planning, Construction and State Assets	Long-Term Strategy has been harmonized with the Integrated National Energy and Climate Plan for the Republic of Croatia for the period 2021-2030 and the Energy Development Strategy of the Republic of Croatia until 2030 with an outlook to 2050. In line with recommendations of the European Commission, the preparation of the Long-Term Strategy is based on the following guidelines: raising the long-term goal of renovating the national building stock to a higher level – minimum 80 % reduction in greenhouse gas emissions by 2050	Policy
Stakeholder cooperation	National Energy and Climate Plan	NECP	Ministry of Economy and Sustainable Development	Cross-sectoral measures: MS1-Committee for intersectoral coordination for policy and measures for mitigation of and adaptation to climate change	Regulatory measure MS-1

TABLE 9: GREECE NATIONAL POLICIES AND MEASURES RELEVANT FOR ENERGY EFFICIENCY AND FIT FOR 55 PACKAGES

Policy target	Implementation/National Policy	Acronym	Managing Authority	Short description	Measure type
Tertiary sector- Public buildings	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Financing programs for the renovation of public sector buildiings with the possibility of EPCs	Financial measure
Tertiary sector- Public buildings	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Financing of public buiding upgrades based on municipal and regional building energy performance action plans and municipal emission reduction plans	Financial measure
Tertiary sector- Public buildings	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Improving the regulatory framework and streghtening the role of energy managers of public buildings	Regulatory measure
Residential sector	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Financial programs for the renovation of residential buildings	Financial measure
Tertiary sector- buildings except public ones	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Financing programs for the renovation of buildings in the tertiary sector (non public)	Financial measure
Residential sector- Tertiary sector buildings except public ones	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Use of tax and urban plan incentives for the implementation of energy saving interventions in residential buildings and the teriary sector (on public)	Regulatory , financial measure
All buildings	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Regulatory measures to promote nearly zero energy consumption and zero carbon footprint buildings	Regulatory measure
All buildings	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Regulatory, fiscal and financial incentives to promote buildings above the minimum energy requirements	Regulatory, financial measure
Tertiary sector	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Promotion of EPCs through targeted financing programs for the energy upgrade of the building stock	Financial measure
Residential /tertiary sector	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Measures for the most efficient sharing of benefits between tenants and building owners	Regulatory, Financial and information awareness measure
All final energy consumption sectors	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Strethening the role and improving the the regulatory framework of energy efficiency obligation schemes	Regualatory measure
All final energy consumption sectors	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Implementation of energy efficiency auctions	Financial measure
Industrial, tertiary and residential sector	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Development of an institutional framewrok for the repayment of energy saving investments through energy bills (on bill financing)	Regulatory measure
Industrial and tertiary	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Financing programs through energy audits in obligated and non obligatory businesses	Financial measure
All final energy consumption sectors	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Training/retraining actions for installers of new systems, materials and equipment in buildings	Regulatory measure
All final energy consumption sectors	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Implementation of information and awareness actions to improve energy efficiency	Information awareness measure
Industrial sector	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Programs to enter into programmatic agreements with industries and manufacturing enterprises	Financial measure

Industrial sector	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Financial programs to improve the energy efficiency of industries and manufacturing enterprises, including the promotion of EPCs	Financial measure
Residential sector	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Review and implementation of polcy measures in the context of the Action Plan to address energy poverty	Regulatory, Financial and information awareness measure
Residential sector	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Establishment of One Stop Shops	Financial and information awareness measure
All final energy consumption sectors	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Development of an implementation framework for the "Energy efficiency first" Principle	Regulatory measure
Tertiary sector	National Energy and Climate Plan	NECP	Ministry for Environment and Energy	Promoting energy efficiency data centers	Financial and information awareness measure

TABLE 10: ROMANIA NATIONAL POLICIES AND MEASURES RELEVANT FOR ENERGY EFFICIENCY AND FIT FOR 55 PACKAGES

Policy target	Implementation/National Policy	Acronym	Managing Authority	Short description	Measure type
Improve energy performance of public buildings at central level	National Energy and Climate Plan National Long Term Renovation Strategy Energy Efficiency Law National Recovery and Resilience Plan	NECP, NRRP, NLTRS	Ministry of Economy, Entrepreneurship, and Tourism Ministry of Development, Public Works and Administration Ministry of Finance Local government Municipal public enterprises Donors and financial institutions	Renovation of existing public buildings under the central government's jurisdiction, encompassing activities such as the replacement of windows, insulation etc. As a part of this initiative, it will facilitate the issuance of energy performance certificates for these buildings. This certificate serves as a prerequisite for authorizing the implementation of the renovation projects, ensuring compliance with energy efficiency standards before renovation can commence. An assumption for an annual renovation rate of 3% of the existing central government buildings (NLTRS)	Technical, regulatory
Improve energy performance of public buildings at local level	National Energy and Climate Plan National Long Term Renovation Strategy Energy Efficiency Law National Recovery and Resilience Plan	NECP, NRRP, NLTRS	Ministry of Economy, Entrepreneurship, and Tourism Ministry of Development, Public Works and Administration Ministry of Finance Local self government Municipal public enterprises Donors and financial institutions	Renovation of existing public buildings within the jurisdiction of the local self-government, encompassing activities such as the replacement of windows, insulation etc. As a key component of this initiative, it will streamline the process for issuing energy performance certificates for these buildings. These certificates serves as a mandatory requirement before the renovation projects is finished, ensuring that the buildings meet established energy efficiency standards. This promotes more sustainable and energy-efficient infrastructure and streamlines the authorization process. An assumption for an annual renovation rate of 3% of the existing local self-government buildings	Technical, regulatory
Renovation of residential buildings	National Energy and Climate Plan National Long Term Renovation Strategy Energy Efficiency Law National Recovery and Resilience Plan	NECP, NRRP, NLTRS	Ministry of Energy Ministry of Development, Public Works and Administration Donors and financial institutions Households	Renovation of residential buildings, which may involve activities such as the replacement of windows, insulation etc. These renovation efforts can be initiated by the building owners themselves and/or supported by commercial banks and funds. As a significant aspect of this initiative, it aims to facilitate the issuance of energy performance certificates for these buildings. This certificate is mandatory requirement before renovation projects is finished, ensuring compliance with established energy efficiency standards.	Technical, regulatory
Renovation of commercial buildings	National Energy and Climate Plan National Long Term Renovation Strategy Energy Efficiency Law National Recovery and Resilience Plan	NECP, NRRP, NLTRS	Ministry of Energy Ministry of Economy, Entrepreneurship, and Tourism Ministry of Investments and European Projects Ministry of Finance Commercial building owners Monitoring entity	Renovation of existing commercial buildings, which may involve activities such as the replacement of windows, insulation etc. These renovation efforts can be initiated by the building owners themselves and/or supported by commercial banks and funds. As a significant aspect of this initiative, it aims to facilitate the issuance of energy performance certificates for these buildings. This certificate is mandatory requirement before renovation projects is finished, ensuring compliance with established energy efficiency standards.	Technical, regulatory
Development of energy services/market (ESCO)	National Long Term Renovation Strategy Energy Efficiency Law National Recovery and Resilience Plan	NECP, NRRP, NLTRS	Ministry of Energy Ministry of Environment, Water and Forests Ministry of Economy, Entrepreneurship, and Tourism	The Energy Service Companies (ESCO) is one of the mechanisms through which the implementation of energy efficiency projects in Romania can be increased.	Technical, regulatory
Green procurement	National Long Term Renovation Strategy Energy Efficiency Law National Recovery and Resilience Plan Law no. 69/2016 on Green Public Procurement Green Procurement Action Plan	NECP, NRRP, NLTRS	Ministry of Economy, Entrepreneurship, and Tourism National agency of Public Procurement Local self-government	Application of energy efficiency criteria (“greening”) in public procurement procedures	Regulatory, technical
One Stop Shop – OSS	National Recovery and Resilience Plan National Long Term Renovation Strategy	NRRP, NLTRS	Ministry of Investments and European Projects Ministry of Development, Public Works and Administration	The establishment of single information counters (One Stop Shop – OSS) for the purpose of providing energy advisory services in the field of energy efficiency and energy production from renewable sources for prosumers . Simplification of the process of obtaining information for the realization of energy efficiency investments in buildings and the stimulation of investments of this type.	Reform

Grant scheme for households in the form of vouchers for EE and RES	National Recovery and Resilience Plan National Long Term Renovation Strategy	NRRP, NLTRS	Ministry of Investments and European Projects Ministry of Development, Public Works and Administration	(1) improving energy efficiency in individual households. PNRR/2024/C16 RePowerEU/I7/ Axis1/1 - the financial allocation of the call for projects is 299,990,200 EUR, equivalent to vouchers for the renovation of 14,851 houses (for 1 house: Energy renovation voucher 14.000 EUR, Photovoltaic system voucher 5.000 EUR, Technical expertise voucher 700 EUR, Energy audit voucher 300 EUR, Voucher energy performance certificate (initial and final) 2 x 100 EUR), (2) accelerating the use of renewable energy by households. PN RR/2024/C16RePowerEU/I4/1.A,/1.B and /2 - the financial allocation for the investment is 610,762,268 EUR, equivalent to 122,000 vouchers (for 1 house: Voucher photovoltaic panel system 5.000 EUR and Electricity storage system voucher 5.000 EUR).	Financial Measure
Grant scheme for EE and resilience in multi-family residential buildings, public buildings + Moderate rehabilitation of public buildings (public services, renovation of public buildings)	National Recovery and Resilience Plan National Long Term Renovation Strategy	NRRP	Ministry of Investments and European Projects Ministry of Development, Public Works and Administration	Axis 1 - Grant scheme for energy efficiency and resilience in multi-family residential buildings ; Axis 2 - Grant scheme for energy efficiency and resilience in public buildings; Moderate rehabilitation of public buildings to improve the provision of public services by administrative-territorial units (renovation of public buildings). Different calls during 2022-2023.	Financial Measure
EE in the industrial sector	National Recovery and Resilience Plan	NRRP	Ministry of Investments and European Projects Ministry of Energy	Ensuring energy efficiency in the industrial sector, 3 calls 2022-2024.	Financial Measure

TABLE 11: SLOVENIA NATIONAL POLICIES AND MEASURES RELEVANT FOR ENERGY EFFICIENCY AND FIT FOR 55 PACKAGES

Policy target	Implementation/National Policy	Acronym	Managing Authority	Short description	Measure type
Amendments to EE regulations in buildings	National Energy and Climate Plan	NECP 2020/2024	Ministry of Natural Resources and Spatial Planning, Ministry for Environment, Climate and Energy	Update the energy efficiency regulation in line with the EPBD	Regulation
Renovation of cultural heritage buildings	National Energy and Climate Plan	NECP 2020/2024	Mk, Ministry for Environment, Climate and Energy, Ministry for Cohesion and Regional Development	Create guidelines for comprehensive renovation of cultural heritage buildings	Regulation
Energy performance contracting (EnPC)	National Energy and Climate Plan	NECP 2020/2024	Ministry for Environment, Climate and Energy, Ministry for Cohesion and Regional Development, Ministry of Solidarity-Based Future, Eco Fund	Support the development and implementation of EPC models and expand it to residential sectors	Financial instrument
Transition to comprehensive building renovations	National Energy and Climate Plan	NECP 2020/2024	Ministry for Environment, Climate and Energy, Ministry of Natural Resources and Spatial Planning, Ministry of Solidarity-Based Future, Eco Fund	Establish a regulatory framework for sustainable building valuation and renovation practices	Regulation, Study
Financial incentives for EE in residential buildings	National Energy and Climate Plan	NECP 2020/2024	Ministry for Environment, Climate and Energy, Eco Fund	Provide financial incentives for energy-efficient renovations in residential buildings	Financial support
Financing schemes for multi-owner building renovations	National Energy and Climate Plan	NECP 2020/2024	Eco Fund, Ministry for Environment, Climate and Energy, Ministry for Cohesion and Regional Development, Ministry of Solidarity-Based Future	Develop financial instruments to support renovations in multi-owner buildings	Economic and regulatory
Mandatory cost-sharing for heating in multi-apartment buildings	National Energy and Climate Plan	NECP 2020/2024	Ministry for Environment, Climate and Energy, Ministry of Solidarity-Based Future	Review and update the regulations for cost-sharing in heating expenses in multi-apartment buildings	Regulation
Energy advisory network ENSVET	National Energy and Climate Plan	NECP 2020/2024	Ministry for Environment, Climate and Energy, Eco Fund	Expand and enhance the ENSVET energy advisory services, including energy consulting for businesses	Awareness, Information
Financial schemes for energy efficiency in the public sector	National Energy and Climate Plan	NECP 2020/2024	Ministry for Environment, Climate and Energy, Ministry of Public Administration, Eco Fund	Continue and upgrade the financial schemes for public sector energy efficiency projects	Economic
Project Office for Comprehensive Renovation of Residential Buildings	National Energy and Climate Plan National Recovery and Resilience Plan	NECP 2024	Ministry for Environment, Climate and Energy, Ministry of Natural Resources and Spatial Planning	Establish human and financial resources for comprehensive renovation of residential buildings	Organizational measure
Active Buildings	National Energy and Climate Plan National Recovery and Resilience Plan	NECP 2024	Ministry for Environment, Climate and Energy	Prepare measures for energy management and integrating RES in buildings	Technical basis, Incentives
Comprehensive Renovation of Publicly Owned Housing	National Energy and Climate Plan National Recovery and Resilience Plan	NECP 2024	Ministry of Solidarity-Based Future, Ministry for Environment, Climate and Energy, Ministry of Natural Resources and Spatial Planning	Conduct inventory of public housing to assess quality, safety, and potential for energy renovation	Planning
Update of Long-Term Energy Renovation Strategy	National Energy and Climate Plan	NECP 2024	Ministry for Environment, Climate and Energy	Adopt the strategy for energy renovation of buildings by 2050, in line with new EU requirements	Regulation
Adoption of an Action Plan for Public Building Renovation	National Energy and Climate Plan	NECP 2024	Ministry for Environment, Climate and Energy, Ministry of Finance, Ministry of Public Administration	Establish an action plan for public building renovation, including funding sources	Financial