

Diagnostic Assessment Report: Romania

Technical Assistance Facility to Support the Renovation Wave in EU Member States

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List of Abbreviations

AC	air conditioning
ANRE	National Energy Regulatory Authority
ANRSC	National Regulatory Authority for Public Utilities Community Services
AP	action plan
bcm	billion cubic meters
BIM	building information modelling
bn	billion
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
CSO	civil society organization
DH	district heating
DHC	district heating company
DHW	domestic hot water
EBRD	European Bank for Reconstruction and Development
ERDF	European Regional Development Fund
EC	European Commission
EE	energy efficiency
EED	Energy Efficiency Directive (EU)
EEEF	European Energy Efficiency Fund
EIB	European Investment Bank
EnPC	energy performance contracting
EPBD	Energy Performance of Buildings Directive
EPC	energy performance certificate
ESCO	energy service company
ETS	Emissions Trading System (EU)
EU	European Union
EUR	euro
FEC	final energy consumption
FREE	Romanian Energy Efficiency Fund
GD	government decision
GDP	gross domestic product
GEFF	Green Economy Financing Facility of EBRD
GHG	greenhouse gas
HOA	homeowners' association
IFI	international finance institution
URBAN- INCERC	National Institute for Research and Development in Construction, Urban Planning and Sustainable Spatial Development
JASPERS	Joint Assistance to Support Projects in European Regions
JESSICA	Joint European Support for Sustainable Investment in City Areas
KfW	Kreditanstalt für Wiederaufbau ("Credit Institute for Reconstruction")
Ktoe	kilotonnes of oil equivalent
kWh	kilowatt-hour
LA	local authority
LPA	local public authority
LTRS	Long-Term Renovation Strategy
m ²	square meters

M&V	measurement and verification
MAB	multi-family apartment building
MDLPA	Ministry Of Development, Public Works And Administration
MF	Modernization Fund
Mln	million
MoE	Ministry of Energy
MoEWF	Ministry of Environment, Water and Forests
MoF	Ministry of Finance
MRDPA	Ministry of Regional Development and Public Administration
MRV	monitoring, reporting and verification
Mtoe	million tonnes of oil equivalent
MWh	megawatt-hour
NE	northeast
NECP	National Energy and Climate Plan
NEEAP	National Energy Efficiency Action Plan
NRRP	National Recovery and Resilience Plan
NW	northwest
nZEB	nearly-zero-energy building
OER	Energy Cities Romania
PV	photovoltaic
RDB	Romanian Development Bank
RE	renewable energy
RES	renewable energy sources
RNB	Romanian National Bank
ROENEF	Association for Promoting Energy Efficiency in Buildings in Romania
RoGBC	Romania Green Building Council
ROP	Regional Operational Program of the European Commission
RP	Regional Program
RRF	Recovery and Resilience Fund
RW	Renovation Wave
SE	southeast
SFH	single-family house
SMEs	small and medium-sized enterprises
SRI	Smart Readiness Indicator
SW	southwest
SWH	solar water heater
TA	technical assistance
TDD	technical design documentation
toe	tonnes of oil equivalent
TPES	total primary energy sources
TRV	thermal regulatory valve
WB	World Bank

Executive Summary

The Renovation Wave

The Renovation Wave is a key initiative of the European Green Deal designed to support energy efficiency improvements in public and private buildings. The construction sector can also benefit from the European Commission's recovery plans to double building renovation in public and social infrastructure (prioritizing the worst-performing buildings) while decarbonizing heating and cooling, creating green jobs, mitigating energy poverty and improving the quality of lives.

The regional Renovation Wave initiative in Romania builds on the national Long-Term Building Renovation Strategy (LTRS) and the National Energy and Climate Plan (NECP), as well as national legislation harmonized with the EU Directives on Buildings Energy Performance, Energy Efficiency and Renewable Energy.

The EC/World Bank Technical Assistance Facility to Support the Renovation Wave

The European Commission, in cooperation with the World Bank, has provided technical assistance through a trust fund designed to support the Cohesion Policy in delivering the Renovation Wave for Romania, which will accelerate the country's implementation of the LTRS and NECP through a refurbished and improved building stock that will help pave the way for a decarbonized and clean energy system.

Diagnostic Assessment

The technical assistance included a diagnostic assessment to reveal gaps and barriers constraining the scale-up of the Renovation Wave in Romania in four areas:

- The legal and regulatory framework;
- Institutional capacities;
- The market landscape; and
- Ongoing and planned building renovation investment programs.

Based on the findings of the diagnostic assessment – and on consultations with the Romanian Government, the European Commission, market players, and implementing partners – this report lists a set of options and recommendations for addressing the identified gaps and barriers.

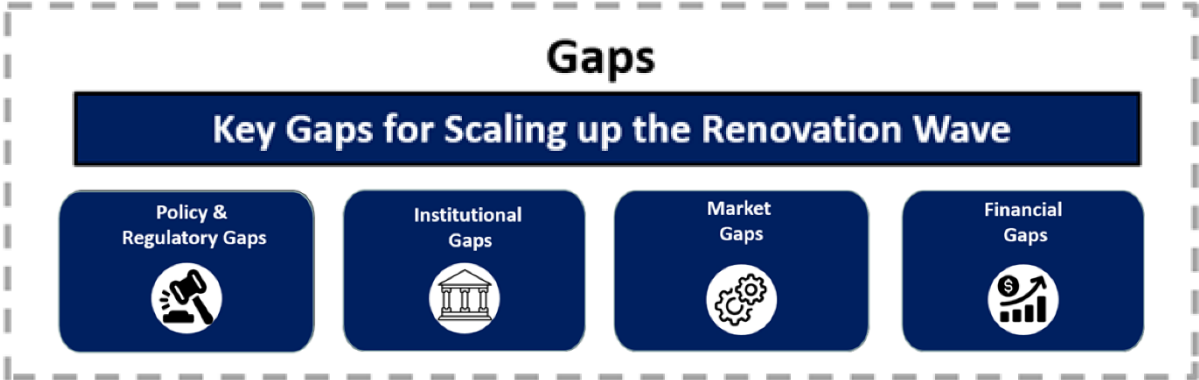
Summary of Country Context and Identified Gaps

Policies and Legislation

Romania has set the target of reducing primary energy consumption by 37.5% by 2030 (from 2007), above the EU target of 32.5%, as stated in the 2021-2030 Integrated National Energy and Climate Plan (NECP). This target is in line with the European Green Deal, endorsed by the country and where buildings renovation has been singled out as a key initiative to drive energy efficiency. The building sector accounts for 42% of this final energy consumption, becoming a critical sector for achieving the climate objectives of the government. As of 2020, Romania's building stock comprises over 5.5 million buildings distributed across multiple sectors, with

residential buildings comprising more than 90% of the built-up area, followed by educational and commercial buildings.¹

Figure ES-1. Key Gap Areas for Building Renovation



Romania’s Long-term Renovation Strategy (LTRS) estimates the need for investments at €12.8 billion. The programs and investment resources lined up for its implementation are less than 30%, leaving a sizable investment gap of nearly €8 billion. Due to the impact of Covid-19 on the construction market and the energy crisis emerging due to the war in Ukraine, construction costs have increased by 25-40%. This has expanded the investment gaps and created major challenges for achievement of LTRS and NECP targets in terms of funds invested, energy saved, greenhouse gas emissions reduced and floor area renovated. Given the growing energy supply challenges and climate crisis concerns, building renovation provides a sustainable and viable opportunity to curtail energy demand, import dependence, energy poverty and, concurrently, the carbon footprint of building energy use. Despite the country’s advanced policy framework, several regulatory gaps hamper the enforcement of the fairly robust policies and plans, as summarized in Table ES.1.

¹ World Bank. 2021. Reimbursable Advisory Services Agreement on Consolidation of the Strategic Planning Capacity of the Ministry of Development, Public Works and Administration for Renovation of the National Building Stock for Energy Efficiency and Seismic Risk in Romania (P169420). Output 4. Inputs to the National Seismic Risk Reduction Strategy (NSRRS). July 2021.

Table ES-1. Summary of Regulatory Gaps

<p>LTRS Enforcement and Coordination</p>	<ul style="list-style-type: none"> • Limited coordination between Multiple sectoral policy and strategy documents • Slow enforcement of LTRS • Public Financing Gap emerging • Limited policy instruments for phasing out 100% grants
<p>Digitalization and Data Management & Monitoring</p>	<ul style="list-style-type: none"> • Limited digitalization of building energy information, including: <ul style="list-style-type: none"> • Lack of integrated building registry, technical passports, EPCs and building renovation passports, • Building information modeling (BIM) • Insufficient MRV, ex-post evaluation of completed renovation projects
<p>Private Sector Participation</p>	<ul style="list-style-type: none"> • Lack of legal incentives and promotional initiatives for ESCO market development • Lack of application of EE Obligation Scheme and Incentives for Obligated Parties to achieve energy savings in buildings
<p>Building the Energy Regulatory Framework</p>	<ul style="list-style-type: none"> • Outdated Building Energy Performance Calculation Methodology • Need for routine updating of cost-optimality framework • Limited utilization of RES prosumer opportunities in residential sector • Poor enforcement of existing EE regulations and standards • Lack of regulatory framework and clear technical criteria on NZEB
<p>Integrated EE benefits of district heating</p>	<ul style="list-style-type: none"> • Lack of long-term policy on efficient retention of district heating (DH) • Poor policy regulation of DH in relation to the building energy performance requirements • Lack of flexibility for building renovation in combination with DH EE retrofits
<p>Housing Policy</p>	<ul style="list-style-type: none"> • Weak HOA/condominium policy framework and enforcement • Lack of policy incentives for investing in building renovation
<p>Municipal Energy Management</p>	<ul style="list-style-type: none"> • Poor enforcement of municipal energy management provisions • Lack of secondary legislation on MEM implementation and integration in decision-making

Institutional Landscape

The institutional framework for building renovation is populated with a significant number of state agencies and public institutions, local and regional governments, as well as the political structures of the European Union. Many of these institutions implement a large number of complex programs as well as developing and promoting policies; however, lack of both staff and technical and administrative capacities have hampered program implementation. Through interviews and surveys, the WB team has assessed the gaps in institutional capacities, as listed in Table ES.2.

Table ES-2. Summary of Institutional Gaps Identified

Institutional Capacities & Coordination	<ul style="list-style-type: none">• Limited institutional support and coordination of LTRS implementation at the State Government level• Insufficient inter-agency coordination on promotion of EE in buildings• Limited absorption rate (55%) country-wide, uneven absorption across regions (min 1.3%, max 77.2%)
Regional & Local Authorities	<ul style="list-style-type: none">• Lack of staff and institutional capacities for facilitation of renovation programs at the level of regional development agencies• Lack of capacities among local public authorities• Complex technical procedures related to programming, planning, selection and evaluation criteria, procurement, management, MRV and other procedures related to Cohesion Policy and Regional Operational Program administration
Public Procurement	<ul style="list-style-type: none">• Delivering energy efficiency through public procurement is slow and complex
Monitoring, Reporting and Verification	<ul style="list-style-type: none">• Insufficient MRV procedures on implemented building certifications, tracking renovation results, building renovation passports
Lack of Digitalization	<ul style="list-style-type: none">• Slow rate of digitalization of documentation on buildings (building renovation passports, EPCs, building registry, etc.)

Market Framework

The market players – including private sector companies, consulting service providers, banks, civil society organizations, and academia – all have important functions in the building renovation value chain. The Romanian construction market has successfully renovated thousands of buildings, but to scale up the current efforts and accomplish the LTRS targets, all market segments have to be able to deliver more, which is currently not possible due to the market limitations summarized in Table ES.3.

Table ES-3. Market Capacity Gaps

Awareness Gaps Slowing Down Engagement of Stakeholders	<ul style="list-style-type: none"> Lack of proper understanding among consumers on the cost-reflective energy prices, energy security and demand-management concerns, benefits of energy efficiency and comprehensive building renovation Limited willingness and capacities of HOAs, SFHs and public building managers to engage in building renovation projects Insufficient awareness among private banks on the potential market demand for EE lending
Market Volatility Leading Potential Cost Overruns	<ul style="list-style-type: none"> Potential financial savings may be lower than estimated due to growing energy prices and underheating; as well as potentially higher construction costs and higher-than-expected reinforcement/consolidation costs Interrupted supply chains and lack of ready-made solutions Insufficient consideration of seismic risk and reinforcement costs Declining ESCO market and limited energy performance capacities
Lack of Qualified Technical Expertise to Supply Quality Projects	<ul style="list-style-type: none"> Lack of qualified energy auditors, design engineers, quality assurance and MRV experts Lack of standardized technical solutions for SFHs promoting RES-integration Lack of qualified construction workers and construction market capacities

Financing Landscape

With support from the European Commission Cohesion Funds, the Romanian State Budget – administered through the Ministries of Regional Development, Energy, and Environment – has committed a total of €3.5 billion to building renovation, energy efficiency, and renewable energy in buildings, as summarized in Table ES-4.

Table ES-4. Mapping of the Financing Initiatives in EE, RES and Building Renovation

Program Title	Funds Available (mln EUR)
MDLPA multiannual national program on increasing the energy performance of blocks of flats	15
Environmental Fund Administration - EE in public buildings	283
Casa Verde - PV Panels	57
Casa Verde Plus program	80
Casa Eficienta Program - Energy Efficient House - residential households	47
National Recovery and Resilience Plan	2,700
Green Economy Finance Facility (GEFF)	162
EBRD's Municipal Energy Efficiency Financing facility (MFFEE)	17
Interreg Europe 2021 2027 Program (Regional)	57
Ministry of Energy "ElectricUp" financing program for SMEs and HORECA field	109
Total	3,528

The above mapping of the financing initiatives, despite the massive contribution of the National Recovery and Resilience Plan, revealed a large gap in the investment needs of the LTRS (estimated at €12.8 billion), leaving a gap of over €7.8 billion. The 2021-22 construction cost index and inflation trends require re-assessing the investment need. Potential new estimates could be within the range of €16-18 billion, while the acceleration of the deployment will require not only more financial instruments, but also substantially more technical assistance. The gaps in the financing landscape are summarized in Table ES-5.

Table ES-5. Gaps in Financing Landscape

Potential shortage of public funds	<ul style="list-style-type: none"> • Insufficient financing to meet LTRS goals (growing budget deficit, high energy subsidy burden) • High project development costs
Strong shortage of private/ commercial financing	<ul style="list-style-type: none"> • Limited financial instruments from banks for addressing building renovation • Limited financing available for distributed renewable energy systems (RES)
Low engagement of stakeholders	<ul style="list-style-type: none"> • Reluctance of homeowners in MABs to seek financial instruments. • Homeowners are unclear about what funds/programs are available

Russia’s war on Ukraine has disrupted oil and gas import channels, leading to increases in the already-high energy prices in the EU. This creates an additional challenge in terms of mitigating the impact of higher energy prices on vulnerable households. In an attempt to strengthen the energy security of the EU and reduce the dependence on Russian energy supplies, Romania will also have to raise its ambition to accelerate building renovation, as one of the pillars of the REPowerEU plan.²

The delivery mechanisms necessary to achieve the targeted advancement in building renovation scale will require substantial strengthening of technical and institutional capacities of all public and market players, continued policy reform and tailor-made financing mechanisms, as well as massive awareness raising of the population at large.

Roadmap of Options and Initiatives to Bridge Gaps

Based on the diagnostic analysis and assessment, a **roadmap is proposed to guide Romanian authorities and public and private sector stakeholders in choosing potential strategies and actions for overcoming the critical gaps and barriers identified.** To tackle the identified gaps, the roadmap seeks to document and replicate Romania’s multiple success stories – including the transposition of the EU’s Energy Performance of Buildings Directive (EPBD) and Energy Efficiency Directive (EED); ambitious reforms planned under the National Recovery and Resilience Plan; successful investment programs (with loan-financed investments and even

² Source: https://ec.europa.eu/commission/presscorner/detail/da/ip_22_4904.

partial repayment through renovation taxation) in Bucharest; revolving financing through the Romanian Energy Efficiency Fund (with leveraged private sector financing); deployment of nearly-zero-energy building (NZEB) solutions in both public and private sector reconstruction and new construction; and the introduction of green mortgages in the banking sector. International best practices can offer tested solutions for areas such as lending for HOA/MAB renovation, centralized public procurement of building renovation, district-level DH-integrated building community renovation programs, residential EE for improving low-income utility affordability programs, one-stop-shop advisory centers, revolving funds, ESCO/EnPC for public building renovation, awareness and outreach campaigns, etc.

Key Message and High Priority Action Areas

The key message from this diagnostic assessment is that the Romanian government should (a) develop and communicate to all stakeholders a long-term plan to gradually decrease the grants share in financing building renovations, while providing support to vulnerable or energy-poor households and (b) broadly communicate that alternative implementing models and financing mechanisms will be designed, including using public funding to leverage private capital.

The specific elements of such a long-term plan shall include actions related to addressing policy and regulatory gaps, institutional gaps, market gaps and financing gaps in all of the building sectors.

There are large gaps in funding, floor area to be renovated, energy savings, and emission reductions the LTRS and NECP targets and the current plans, programs and committed funding to achieve these targets. Therefore, there is a need to take some immediate actions to address the gaps. The proposed roadmap includes a large number of options and initiatives (a total of 63) that are all needed for the achievement of the intended market transformation and scale-up of building renovation. The roadmap further provides a comprehensive listing of all options and initiatives for scaling up building renovation, including those that are:

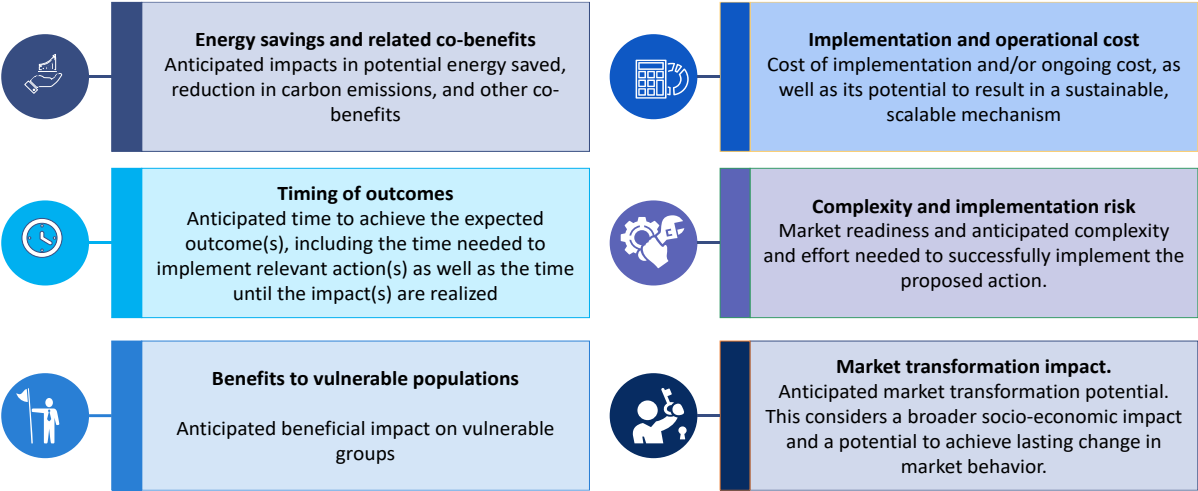
- Recommended in the draft Romanian LTRS implementation plan;
- Recommended in National Recovery and Resilience Plan (NRRP);
- Proposed by the World Bank Team; and
- Any proposed modifications, elaborations or additional suggestions on activities planned under LTRS or NRRP.

The specific elements of such a long-term plan will include actions related to addressing policy and regulatory gaps, institutional gaps, market gaps and financing gaps in all of the building sectors.

The proposed interventions should be viewed from different perspectives: some of the measures that can be implemented and start producing energy savings, emission reduction, social and economic impacts in the short and medium terms, while others target market transformation, establishing a level playing field for all parties, building the right knowledge and skills, introducing economic incentives for accelerating commercial investments in building renovation and energy consumers' behavioral change in the long run.

In order to assist the Romanian government in identifying and prioritizing the most important policy and regulatory, institutional, market development and financing actions, the World Bank Team developed a prioritization scheme comprising six criteria (Figure ES-2).

Figure ES-2. Criteria for Prioritization of Action Items

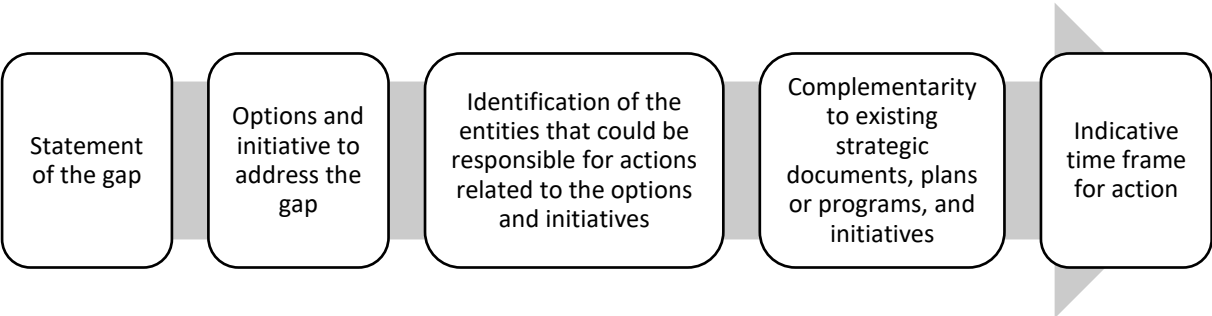


Source: Authors.

Each of the options and initiatives in the roadmap was assessed against each of the six criteria on a scale of High, Medium and Low. Based on the assessment, a final rating of High, Medium or Low was assigned. The process of applying these six criteria to the identified options and initiatives was limited to a qualitative assessment (based on the collective authors’ professional judgement and experience of the Team) due to the lack of quantitative indicators and is largely context-dependent and involves subjective assessment. Annex 4 provides a detailed description.

The roadmap defines the following for each of the four building types (and for the common gaps for all building types) and the four types of gaps identified (Figure ES-3).

Figure ES-3. Key Gap Areas for Building Renovation

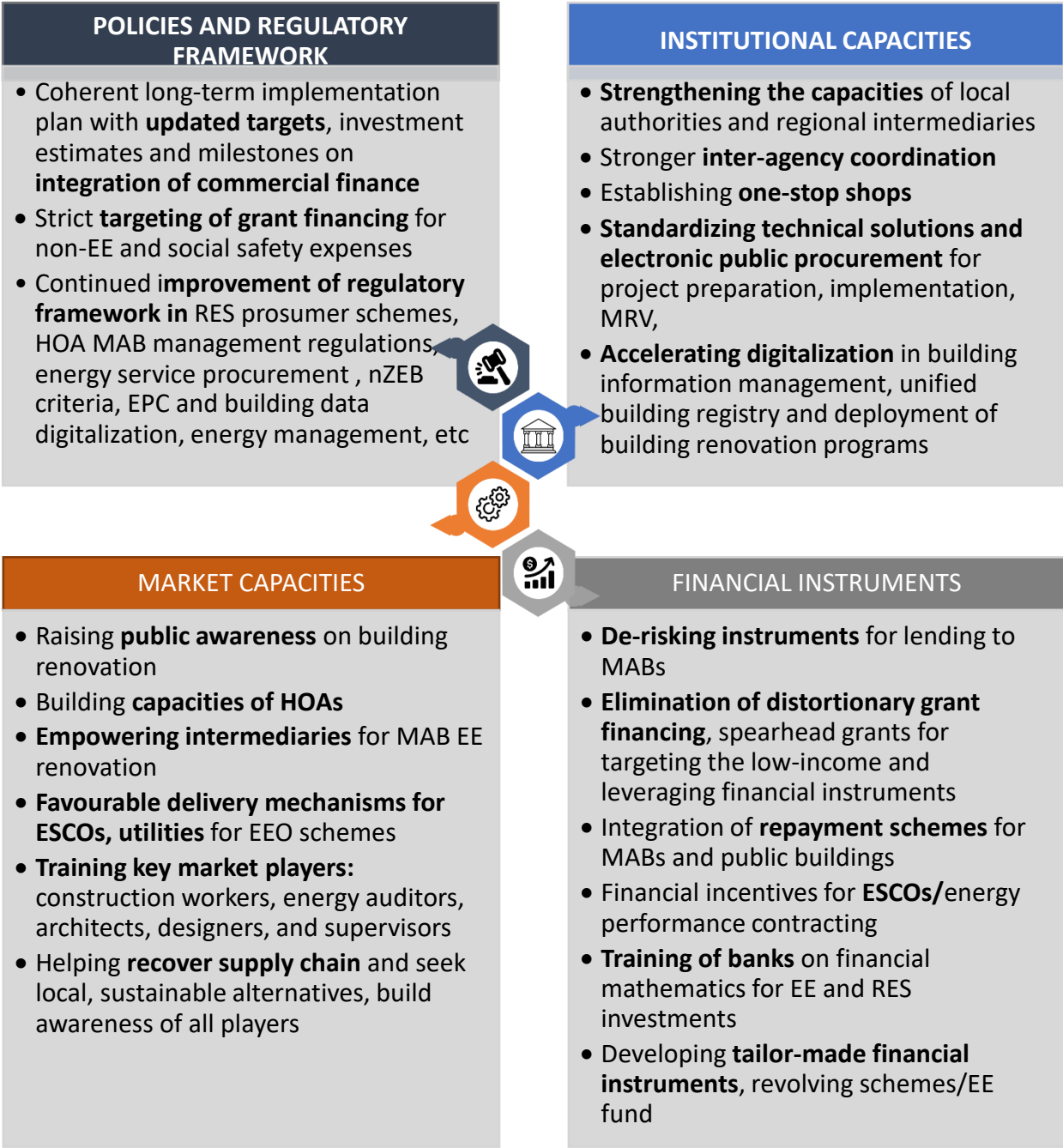


The presented roadmap is recommended for further discussion with the Romanian Government for potential ranking and prioritization of interventions, as well as identifying specific areas wherein the Team can effectively and efficiently support government authorities, public and private sector stakeholders in undertaking the needed actions for implementing key elements of the proposed roadmap, as summarized below. The World Bank team stands ready to support government authorities, public and private sector stakeholders

in finalizing an actionable roadmap as soon as practicable, and subsequently to support the effective implementation of the proposed roadmap.

The roadmap proposes interventions that spearhead policy instruments by eliminating policy and regulatory barriers, strengthening the capacities or institutions and market players in designing and implementing projects, while catalyzing an influx of private capital in building renovation investments to help achieve scale. The key areas of the proposed interventions are listed in Figure ES-4. The details of the proposed roadmap are presented in Section 6.

Figure ES-4. Priority Action Areas



Introduction

Background

The European Commission (EC) has expressed an interest that the World Bank (WB) provides technical assistance within the framework of the Part II Europe 2020 Programmatic Single-Donor Trust Fund³.

The Trust Fund was designed to support the EU's Cohesion Policy in delivering the Renovation Wave for Europe, which will accelerate a refurbished and improved building stock to help pave the way for a decarbonized and clean energy system. The Trust Fund aims to:

- (i) Carry out institutional analyses and assessments to identify key institutional gaps or barriers;
- (ii) Map ongoing and planned building renovation programs to identify gaps and or areas that require further strengthening;
- (iii) Conduct market assessments to identify market opportunities/constraints, financing needs and technical assistance (TA) requirements; and
- (iv) Develop a set of options and recommendations to address the identified gaps and barriers, in consultation with the beneficiary Member States, the EC, and other stakeholders (relevant national ministries, managing authorities and regional and local administrations, private sector, beneficiaries).

Along with the European Commission, national and local authorities in each Member State are the main audience for the activity. Their buy-in and involvement are essential to the success of the facility.

The World Bank team is working in close cooperation with the European Commission and relevant Romanian ministries as well as other stakeholders through meetings and consultations, workshops and conferences to share the findings and recommendations of the reviews and assessments of the respective components of the support, as well as to inform the governments regarding the development of their plans, programs and policy documents.

The TA Facility consists of five components:

- Component 1 – A Diagnostic Assessment to identify market and capacity bottlenecks.

Renovation Wave Technical Assistance

The **Renovation Wave (RW)** delivers building renovation as an essential element of the EU Green Deal and an effective application of the Cohesion Policy funding instruments.

The RW initiative includes technical support designed to facilitate:

✓ Implementing the RW and national long-term renovation strategies, the **Directive on Energy Performance of Buildings**, and building-related aspects of each EU country's **National Energy and Climate Plans (NECPs)**.

✓ Effectively deploying **Cohesion Policy** funding, one of the main EU funding instruments for renovation.

³ Administration Agreement between the European Commission on behalf of the European Union and the International Bank for Reconstruction and Development concerning the Part II Europe 2020 Programmatic Single-Donor Trust Fund (Trust Fund No. TF073756; EC Contract No. 2021CE160AT108).

- Component 2 - TA to build capacity in program planning and design of financial instruments
- Component 3 – TA to build capacity for developing systems to bolster program implementation, monitoring and evaluation, and reporting of renovation programs.
- Component 4 – TA to build capacity for designing and implementing policy and regulatory reforms to enable or support renovation programs at scale.
- Component 5 – TA to build the capacity of national government and regional and local authorities to implement scaled-up renovation programs.

This report presents the results of the Diagnostic Assessment.

Objectives of the Diagnostic Assessment

The activities under this TA are designed with the specific objective of contributing to decarbonizing the building stock by scaling up building renovations in Romania, through supporting capacity-building efforts in the design and implementation of building renovation programs.

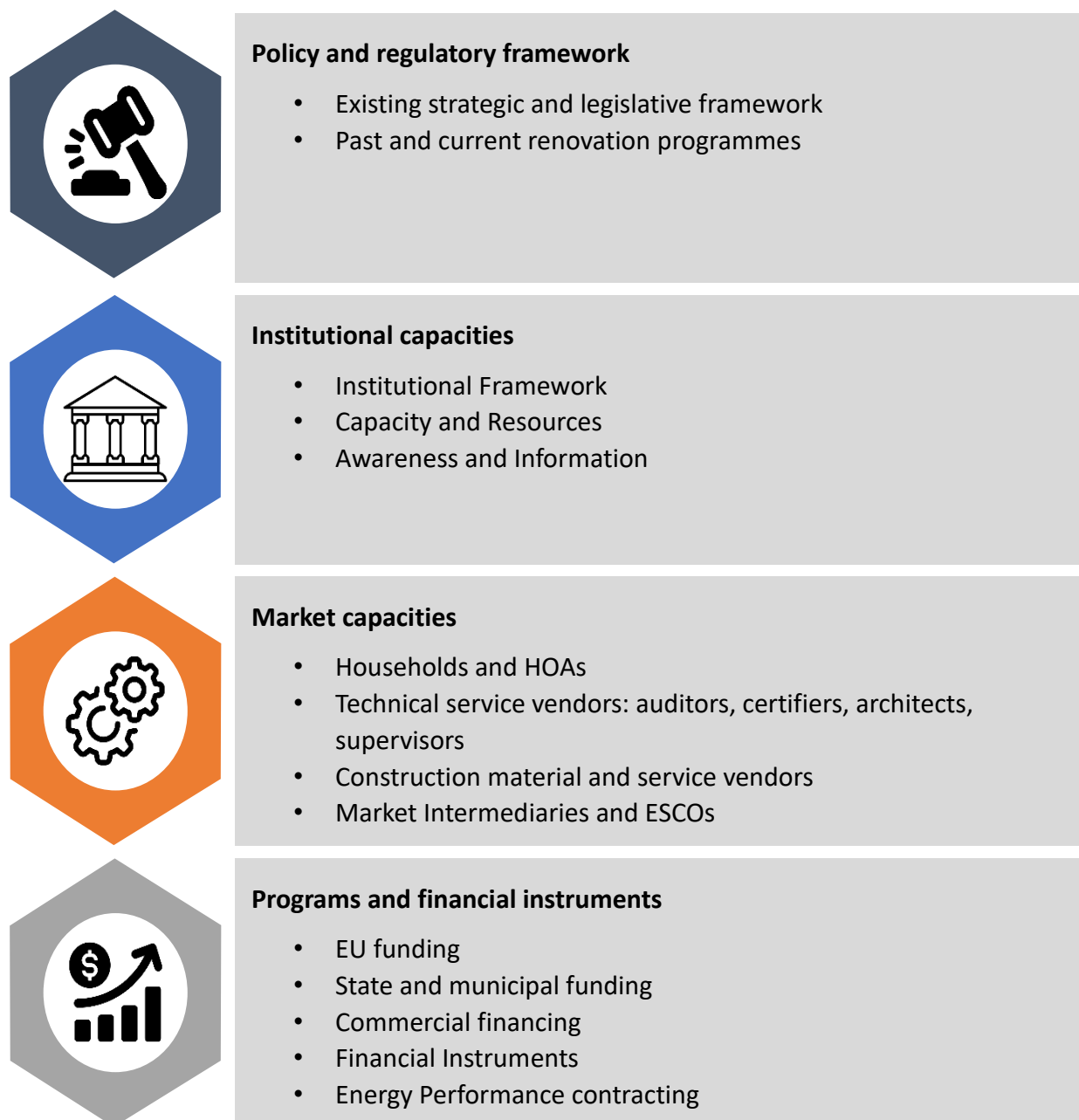
The objective of the diagnostic assessment is to conduct comprehensive diagnostics of the building renovation programs in Romania with a view to identifying market and capacity bottlenecks that have prevented past programs and investments benefitting from the EU investment policy⁴ (programs designed to support job creation, business competitiveness, economic growth, sustainable development, and improvement in citizens' quality of life) from realizing their full potential and being implemented at scale.

The assessment includes (i) policy and regulatory analyses to identify critical legal gaps that have constrained investments under the EU energy package; (ii) stocktaking of institutional capacities among central and local government as well as regional managing authorities; (iii) assessment of the key market players in the private sector, civil society and academia with the potential to offer skills, services and materials to implement renovation projects across the full value chain, engage in implementation, and access financing; (iv) mapping of the building renovation programs and investment initiatives assisting the government with investments, energy saving, and CO₂ emission reduction; and (v) development of a roadmap with a set of options and actions to address identified constraints.

The thematic areas of this report's analysis are shown in Figure 1.

⁴ Cohesion Policy as EU's main investment policy is described at https://ec.europa.eu/regional_policy/sources/docgener/informat/basic/basic_2014_en.pdf

Figure 1. Thematic Areas of Analysis



Activities during Diagnostic Mission and Assessment

Following the virtual inception mission held on February 8-11, 2022, the World Bank team conducted an in-country mission on April 4-8, 2022, later supplemented by virtual follow-up meetings with additional stakeholders.

Concurrently with the missions and stakeholder interviews, a desk review of existing strategic, policy and other building renovation related documents was conducted. The diagnostics assessment, including building-renovation-program mapping and market assessment, was initiated. Input from stakeholders was gathered during a virtual public consultation on July 13, 2022, with the Romanian government and European Commission; and a separate meeting with market players from the private sector, civil society organizations (CSOs) and academia, local financial institutions, and international implementing partners, which were also given a two-week review period. Constructive comments and suggestions were received from the

European Commission Directorate-General for Regional and Urban Policy; the Romanian Ministries of Regional Development and Public Administration, Finance, and the Environment; regional development agencies; and local authorities who contributed to the report. The team would like to express its gratitude for the excellent cooperation, guidance and timely feedback provided by the representatives of the European Commission, in particular to Mr. Marco Migliara, Program Manager, Directorate-General for Regional and Urban Policy. Comments received have been incorporated in the draft roadmap in this report.

Outline of this Report

The report introduces the finding of the diagnostic assessment. It has the following structure:

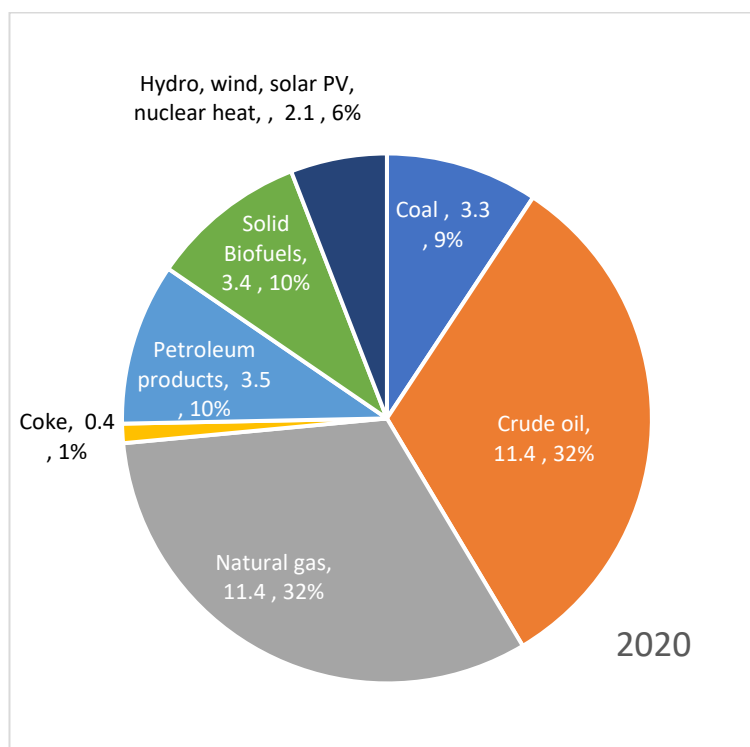
- **Section 1** provides the country context in terms of energy consumption profile, the state of the buildings sector and its energy performance, as well as energy poverty statistics.
- **Section 2** provides an overview of the policy and regulatory framework providing the vision, targets and objectives for building renovation and affiliated fields, programs and plans that earmark the desired building renovation scale and timeline, with greater detail presented in Annex 1.
- **Section 3** conducts a stocktaking of key public institutions and associated regional agencies, and their capacities to identify, design, procure, implement and report on building renovation programs – including the availability of standardized solutions, digitalized building statistics and procurement tools, monitoring, reporting and verification protocols – and identifies the institutional gaps preventing the smooth deployment of investment programs in the buildings sector. A supporting assessment of capacities among local authorities and regional development agencies is also presented.
- **Section 4** describes the renovation market landscape and identifies its key actors, including key vendors of renovation-related professional services (energy auditors, architects, designers, site supervisors, assessors and certifiers), energy service companies (ESCOs) and construction companies, as well as the individual multi-apartment building homeowners. The section further reports on the limitations in human resources, skills, and tools at disposal of market players for offering the proper quality and volume services necessary for the development and implementation of high-quality projects in building renovation.
- **Section 5** presents the mapping of the state, donor and IFI building renovation programs, technical assistance and funding initiatives (details on each program appear in Annex 3) to identify the critical gaps critical gaps that have constrained building renovation investments made under the EU Cohesion Policy and other funds supporting programs.
- **Section 6** presents a roadmap containing a set of prioritized options and recommendations for addressing identified constraints on the advancement of renovation programs in consultation with country counterparts. The prioritization approach is presented in Annex 4.

Section 1. Country Context

National Energy Profile

Romania's energy mix consists of 86% carbon-intensive fossil fuels, with the remaining 16% coming from renewable and nuclear energy. Crude oil and natural gas each comprise 33% of the total primary energy sources, petroleum products 10%, and coke 1% (Figure 2).

Figure 2. Energy Sources, million tons of oil equivalent and share (%), 2020

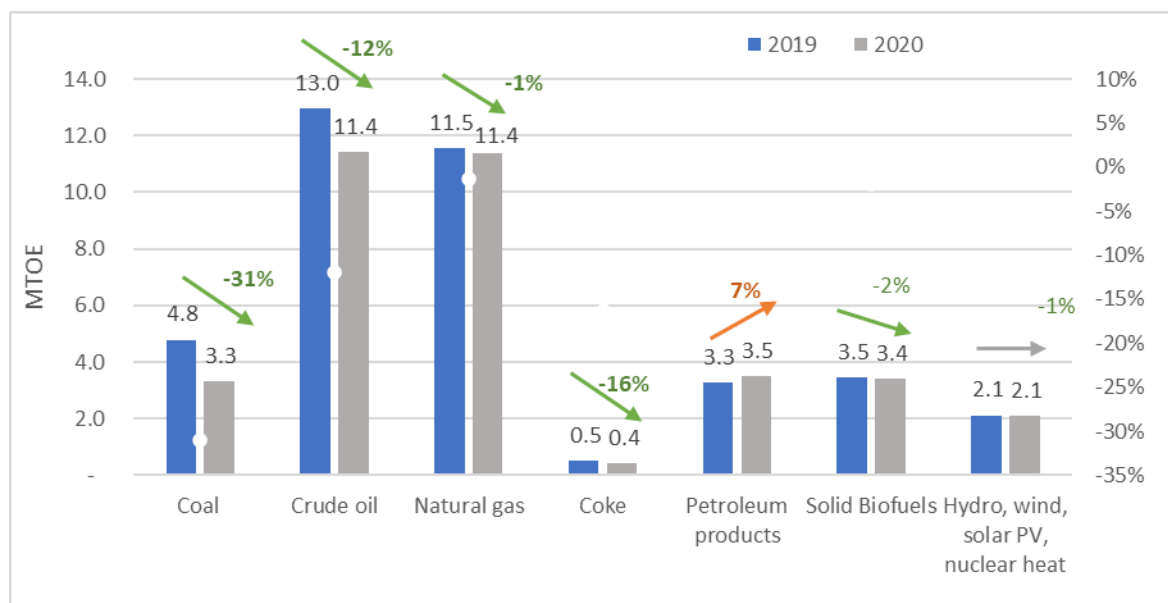


Source: Energy Balance of Romania, 2020.

With the exception of petroleum products, all other fossil fuels have registered significant drops in supply. The total primary energy resources available in 2020 recorded a decrease of 6.2% compared to the previous year – a total of 41.4 million tons of oil equivalent (toe), with both primary energy production and imports of energy products registering decreases of 8.9% and 11.9%, respectively.

Among primary energy resources, significant variations were recorded in coal and crude oil resources, which decreased by 31.0% and 12.0%, respectively, largely due to lower demand in transportation and industry (Figure 3).

Figure 3. Total Primary Energy Sources, million TOE, 2019-2020



Source: Romanian Institute of Statistics

In 2020 Romania imported 34% of all energy resources. In 2021 the imports grew - 45% of Romania’s energy demand was supplied by imported primary energy sources,⁵ of which Russian imports supply 29% of natural gas consumption and 25% of its liquid fuels.⁶ The effects of Russia’s war on Ukraine are discussed in Box 1.

Box. 1. The Ukraine War and Europe’s Energy Supply

Russia’s war on Ukraine disrupted Romania’s oil and gas import channels (40% of the EU’s natural gas and 25% of crude oil came from Russia in 2021), leading to further increases in the already high energy prices in EU. To reduce its dependence on Russian imports, the European Commission announced plans to cut EU imports of Russian gas by two-thirds in 2022; however, there is no consensus on banning energy imports from Russia among EU Member States, which fear the predictable price escalation and gas deficit. The Romanian government was forced to cap energy prices in 2021, and then to extend the cap until 2023.

The European Commission’s REPowerEU Plan aims to achieve energy security and resilience through renovation. The plan names energy savings as one of its three pillars. Buildings consume 40% of the EU’s energy. REPowerEU, with the Recovery and Resilience Facility at its heart and coupled with the Renovation Wave, can reduce building energy consumption, help boost energy security, and cut the demand for imported gas, while helping boost the resilience of the economy and mitigating energy poverty. In the context of Russia's invasion of Ukraine, the Commission approved a €4 billion Romanian scheme to support companies across sectors (€3.6 billion to be used for loan guarantees for businesses, and €0.39 billion for direct grants) under the State aid Temporary Crisis Framework adopted by the Commission on [23 March 2022](https://www.eceee.org/all-news/news/romania-aims-for-energy-independence-in-response-to-ukraine-war) and amended on [20 July 2022](https://www.eceee.org/all-news/news/romania-aims-for-energy-independence-in-response-to-ukraine-war).

⁵ National Statistical Institute of Romania, insse.ro/cms/sites/default/files/com_presa/com_pdf/energie12r21.pdf

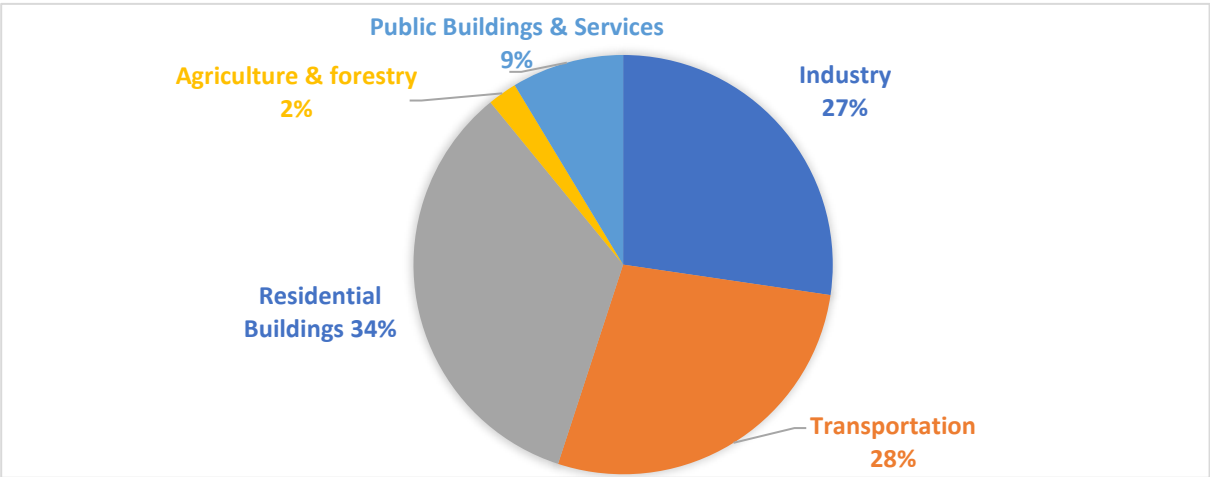
⁶ Source: <https://www.eceee.org/all-news/news/romania-aims-for-energy-independence-in-response-to-ukraine-war>.

Energy Consumption Trends

The overall energy consumed in all sectors of Romanian economy in 2020 was 33.6 million ktoe, of which residential housing is the single largest energy-consuming sector, with 34% of final energy consumption (FEC). Public Buildings and Services consume 9% of total FEC.

Despite continuous energy-policy reform efforts, energy consumption by residential and public buildings has not registered a steady trend of decline. As Figure 4 indicates, residential and public buildings cumulatively continue to account for 41% of final energy consumption.

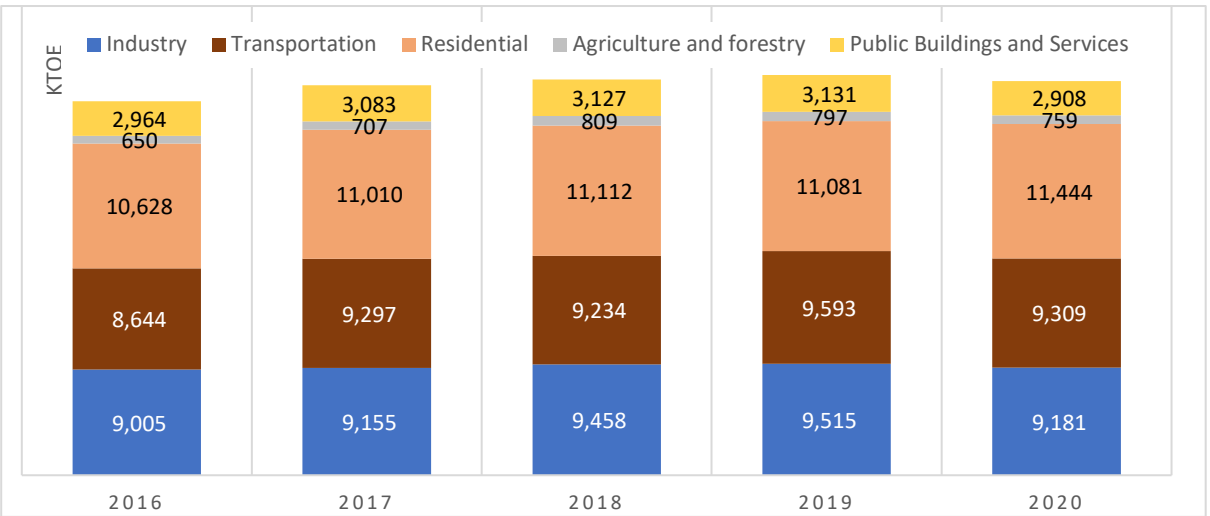
Figure 4. Structure of Energy Consumption by Sectors, 2020



Source: Energy Balance of Romania for 2020.

Although the buildings sector registered a steady decline in energy consumption during 2010-2016, the trend was interrupted in 2017 and further accelerated by the 2020 COVID-19 pandemic and the consequent lockdown, which had a serious effect on all countries’ energy consumption patterns.

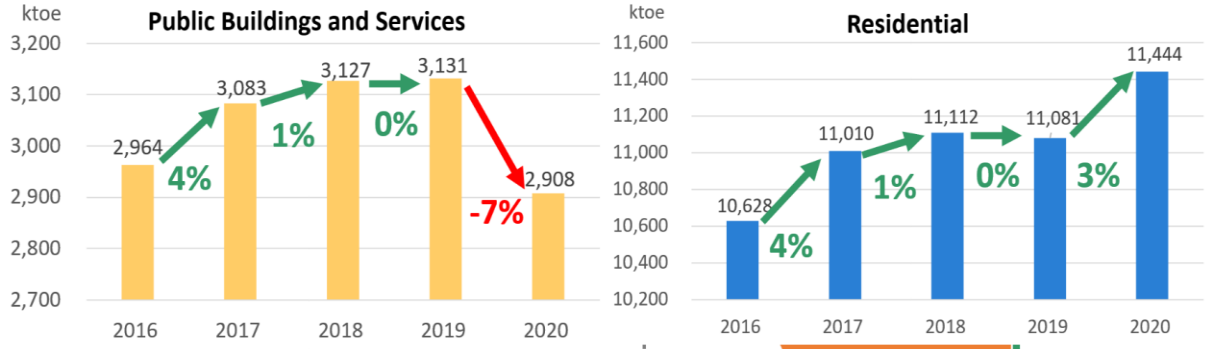
Figure 5. Final Energy Consumption in Romania, by Sector, 2016-2020



Source: Energy Balance of Romania, National Institute of Statistics.

Similarly, the real (production) sectors of the economy (industry, transport, agriculture) registered a drop in energy consumption due to the massive teleworking transition and reduced operations. There was, however, a “leakage” of energy consumption between sectors. Due to the Covid-19 lockdown, building energy consumption shifted from public to residential buildings (See Figure 6).

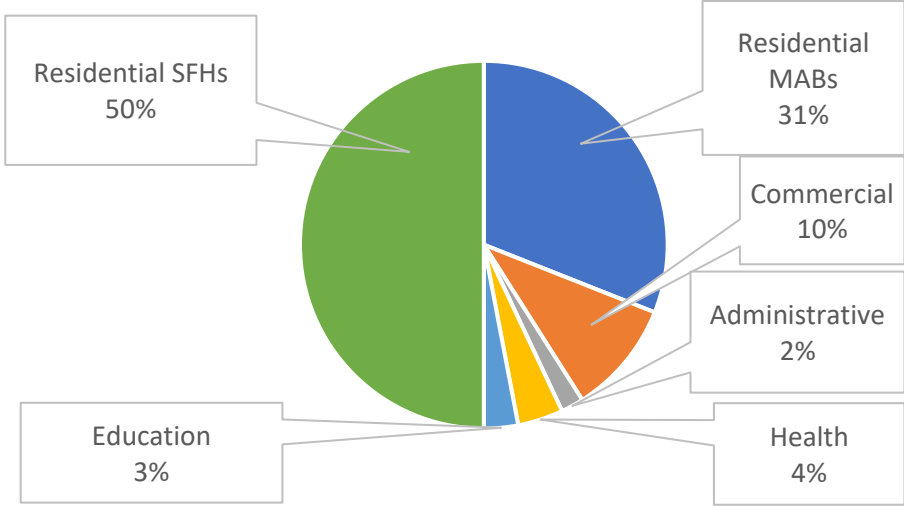
Figure 6. Dynamics of Energy Use in Public and Services Buildings (left) and Residential Housing (right), 2016-2020



Source: Energy Balance of Romania, National Institute of Statistics.

Overall, 50% of final energy in the buildings sector was consumed by single-family houses (SFHs) and 31% by multi-apartment buildings (MABs), while the remaining 19% went to various public and commercial buildings (Figure 7).

Figure 7. Final Energy Consumption by Building Category, 2020



Source: Energy Balance of Romania, National Institute of Statistics.

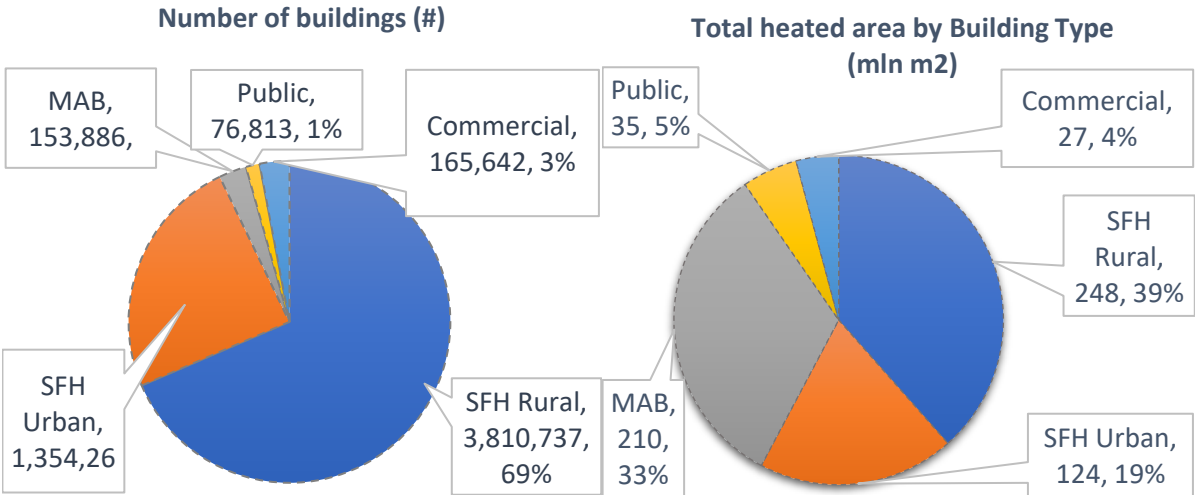
About 80% of all buildings’ energy consumption occurs in the residential sector, making it the highest priority of the policy agenda aimed at promoting building renovation for reducing energy consumption and greenhouse gas (GHG) emissions. The conservative scenario of Romania’s Long-term Renovation Strategy endorses a combination of cost-effective measures in MABs, SFHs, and public and commercial/services buildings. The buildings sector can

contribute 30% of the National Energy and Climate Action Plan’s (NECP)⁷ energy saving target by 30% (a -0.83 Mtoe reduction); by integrating rooftop solar systems on renovated and new buildings, this sector can contribute to the NECP renewable energy target by 87% (a +0.22 Mtoe increase). The combined impact of energy saving and renewable energy integration in the buildings can contribute to the GHG emission reduction target by 108% (a reduction of 3.28 million metric tonnes)⁸.

Building Stock

Residential buildings account for 91% of the area of the entire building stock, representing 582 million square meters (m²) of total heated space, and non-residential buildings account for the remainder (about 62 million m², or 9%). Among residential buildings, SFHs represent the largest share, at about 43%, followed by MABs at about 36%. Figure 8 presents the number of building structures.

Figure 8. Building Stock Composition: Number of Buildings (left), Total Heated Area (Right)

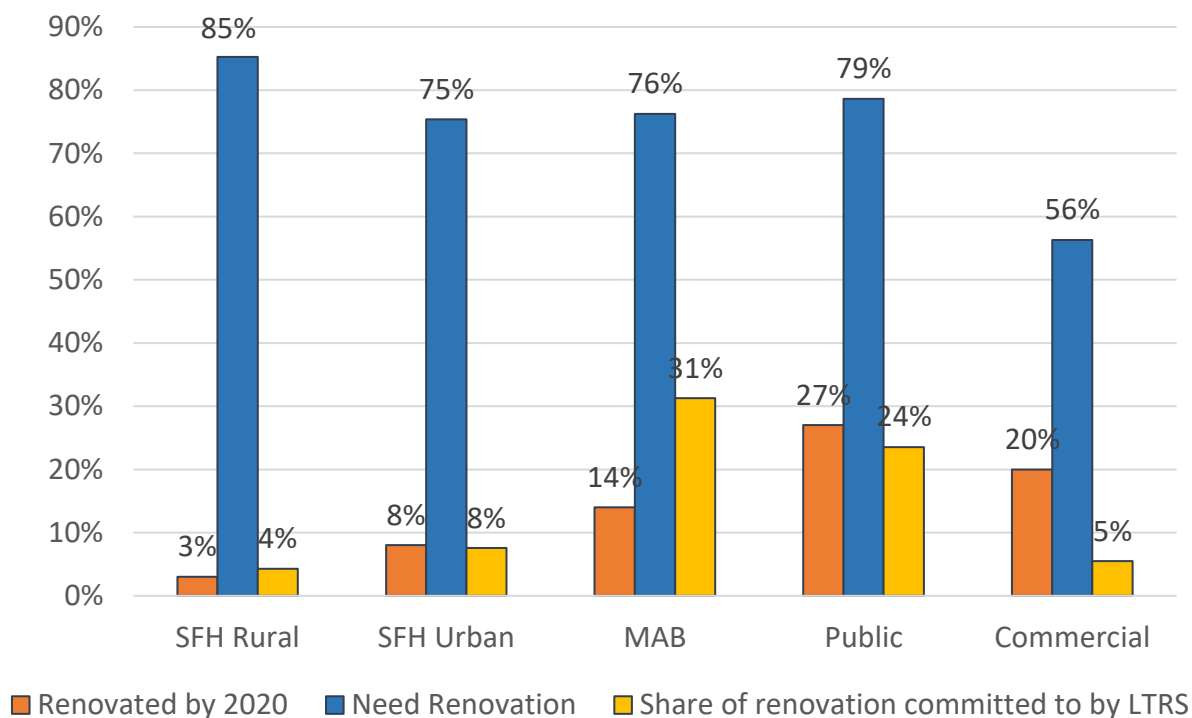


Source: Long-term Renovation Strategy.

A significant number of buildings were renovated by 2020. As shown in Figure 9, the largest accomplishments were made in the public buildings sector, where 79% needed refurbishment: by 2020, 27% of all buildings had been renovated, and an additional 24% had been committed to renovation under the LTRS. Similarly, the LTRS committed to renovate an additional 31% of the MABs, while only 14% of the buildings were already renovated.

⁷ Romania’s NECP can be retrieved from https://energy.ec.europa.eu/system/files/2020-06/ro_final_necp_main_en_0.pdf
⁸ Source: LTRS, 2019.

Figure 9. Building Renovation Status by Building Type (% share)



Source: LTRS.

Note: the percentages should not be added up since buildings needing renovation include those committed for renovation in the LTRS.

Gradually increasing the renovation ambition from the 0.5% baseline annually to 3.39% by 2030 and to 4.33% by 2050 will allow Romania to cost-effectively cut energy consumption in residential buildings by 0.78 Mtoe, and in public buildings by 0.05 Mtoe, annually – cumulatively equivalent to 19% of total final energy consumption in Romania.

Energy Poverty

Energy poverty is critical to the dynamics of building energy performance. Social vulnerability of households directly affects indoor thermal comfort, the affordability of utility bills, and proper maintenance of buildings, as well as the ability to invest in building renovation. Section 2 reviews the reflection of energy poverty in the regulatory environment, while this section seeks to provide context on energy consumption within the vulnerable population niche.

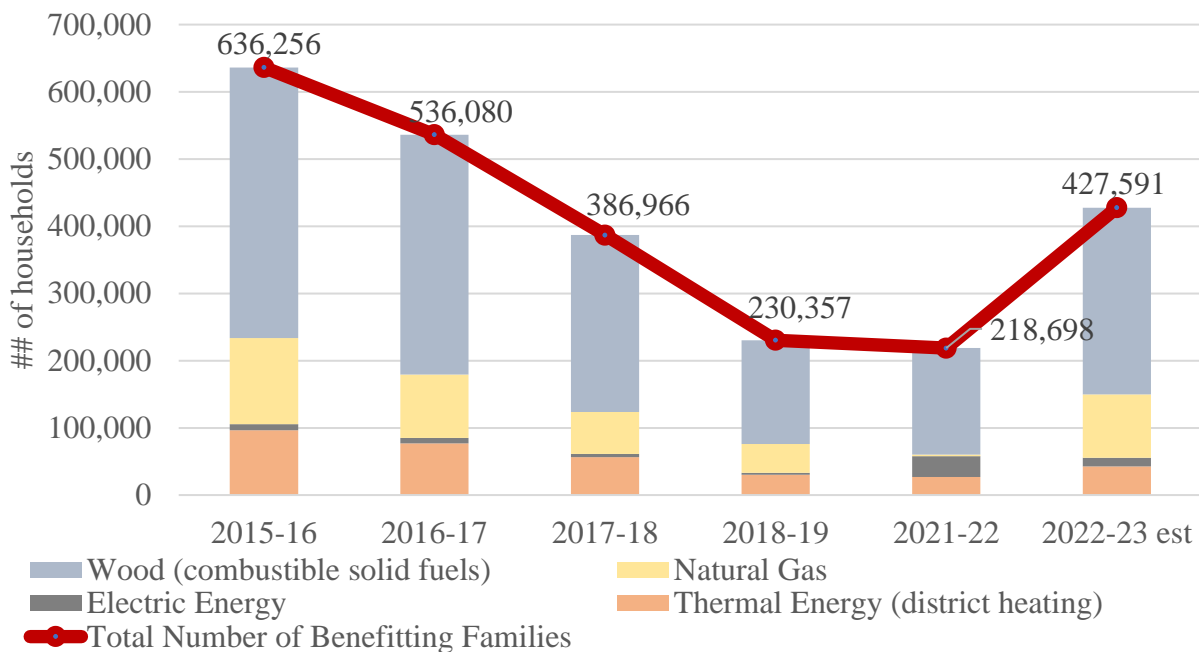
According to Eurostat data, in 2020 Romanian households registered the following indicators of energy poverty and low energy affordability:

- 20.5% households (HHs) are energy poor – i.e., are spending twice more than the national average on energy.
- 19% HHs are in hidden energy poverty – i.e., are spending half of the national average.
- 10.5% HHs are low-income high-cost (LIHC) – i.e., the households appear below the poverty line after paying for energy, and are spending more than the national average on energy bills.

- 33% HHs spend more than 10% of their disposable income on energy.
- 34% HHs face situations associated with energy poverty.
- 39% of the population is at extreme social risk.
- 10% of the population is unable to keep their homes adequately warm.

The number of energy-aid beneficiary families has dropped by nearly 64% since 2015, which was a result of continued efforts to phase out subsidies. The recent war in Ukraine and the emerging energy crisis has led to price escalation and, consequently, new challenges for energy utility affordability. According to statements from the government of Romania, the number of beneficiaries of energy subsidies/aid during the 2022-23 heating season is estimated to double, and monthly public spending on energy assistance will nearly triple (from 15.78 million LEI/month in 2021-22 to 43.23 million LEI/month in 2022-23).

Figure 10. Families Receiving Aid for Home Heating, by Fuel (NECP)



Source: Integrated National Energy and Climate Plan of Romania

It is noteworthy that, under the circumstances of growing budget deficit, the larger demands for public funds for energy subsidies competed with the financing demands for building renovation.

Energy efficiency is the only sustainable means to improve low-income utility affordability. It can also help tackle the current energy crisis and alleviate energy poverty by reducing energy consumption and resulting energy bills.

Section 2. Policy and Regulatory Framework

2.1. National Targets

In 2020, 17% of Romania's power generation was based on coal and another 17% was based on natural gas. The Romanian government aims to phase out coal by 31 December 2032.⁹ The exit date for coal is closely tied to the energy security challenges created by the war in Ukraine. In the interim, Romania's policies promote a shift to other resources. Bucharest is counting on offshore gas recovery off the Black Sea coast, where an estimated 200 bcm of natural gas lies,¹⁰ with a favorable tax regime¹¹ and pre-emptive right of purchase assigned to the Romanian government by law.¹² The production is expected to start in 2026.¹³

Romania has declared an ambition to go beyond the 3% annual renovation target set by EU legislation (with a gradual increase of the annual renovation rate from 0.69% to 3.39% in 2030) and to take measures to improve the energy performance of at least 18% of the total floor area of all heated and cooled buildings. The main policy drivers for renovation are the Long-term Renovation Strategy (LTRS) and the Integrated National Energy and Climate Plan (NECP), 2021-2030. The present diagnostic assessment aims to take a critical look at the current pace of renovation and the availability of the necessary policy, market and other prerequisites for achieving the targets summarized below in Figure 11.

Many of the policy reform actions have progressed Romania along this pathway:

- Transposition of the EU Directives on Energy Performance in Buildings and Energy Efficiency
- The 4th National Energy Efficiency Action Plan under implementation
- National Energy and Climate Action Plan (NECP) under implementation
- In 2014-20 hundreds of thousands of buildings were renovated, covering over 62 million m²
- The Long-Term Renovation Strategy (LTRS) was adopted in 2020 and a LTRS action plan drafted in 2022
- Cost optimality regulation adopted
- Coordination Committee established for LTRS implementation
- National Recovery and Resilience Plan (NRRP) adopted
- Pending reforms envisioned by NRRP
- National Housing Strategy adopted
- National Seismic Risk Reduction strategy adopted

⁹ Source: ANRE President's Order no. 108/2022 on the decarbonization of the energy sector. Note, the initial plan would have had mines and coal-related activities shut down by December 31, 2030, but in the light of delays in availability of suitable replacements, the deadline was extended.

¹⁰ Source: Enerdata Newsletter available at: <https://www.enerdata.net/>

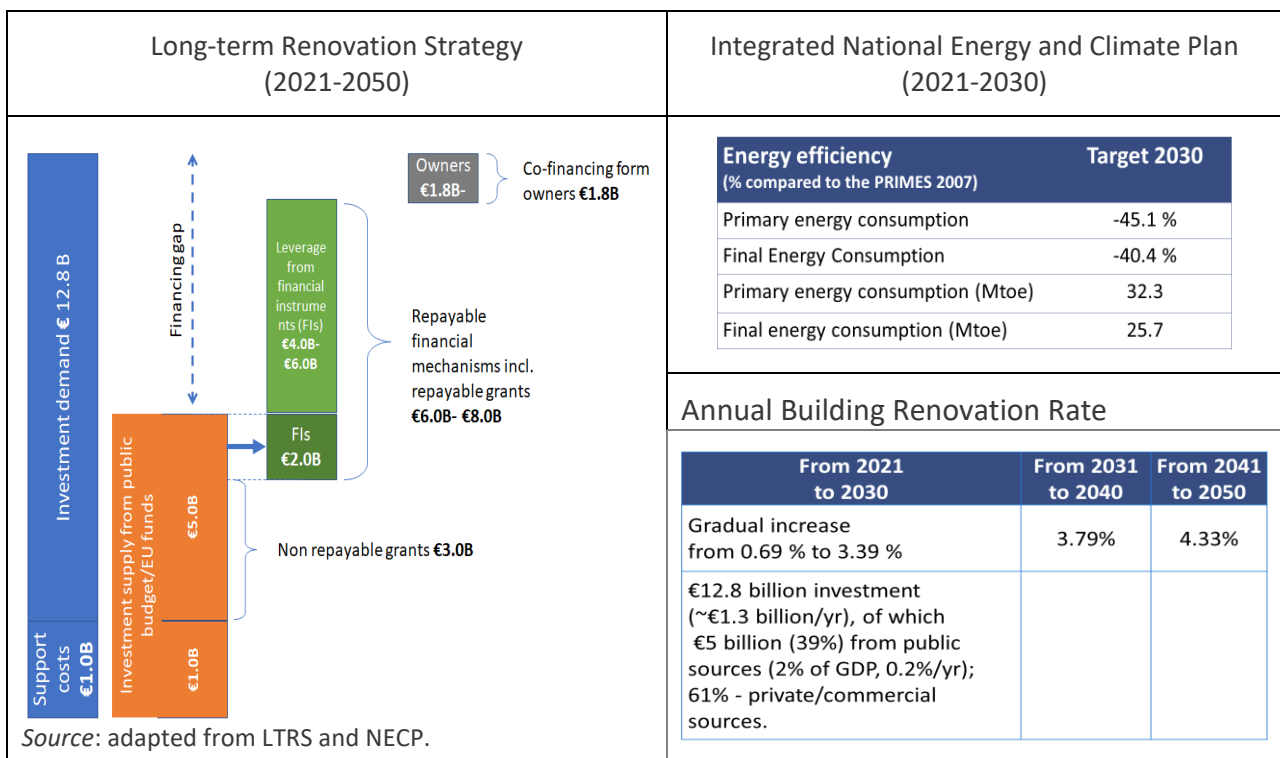
¹¹ Romania's parliament approved legislation that will reduce taxes on future income from offshore gas projects.

¹² https://www.euractiv.com/section/politics/short_news/romanian-parliament-adopts-new-offshore-law.

¹³ <https://www.euractiv.com/section/energy/news/romania-to-ease-black-sea-gas-extraction-conditions/>

- Horizon 2020 projects forming a platform for discourse on:
 - Integration of energy performance certification (EPC) and building renovation passport
 - Smart Financing (SMAFIN) Implementation for Sustainable Energy Investments Forums offering a platform for dialogue on financing solutions for the energy renovation of buildings
 - Nearly Zero Energy Buildings (nZEB) Roadshow, etc.

Figure 11. Romania’s Energy Efficiency and Renovation Agenda



2.2. Legal-Regulatory Framework

This section reviews and summarizes the laws, decrees, strategies, plans and programs in the fields of energy efficiency, renewable energy, building energy performance, energy service companies (ESCOs), public procurement, housing, utility subsidies, and related fields creating the general framework that regulates the initiation and implementation of building renovation. Annex 1 contains further information, including recent policy development in areas related to building renovation.

2.2.1. Transposing the “Energy Performance in Buildings” Directive

EPBD transposition in Romanian legislation is aimed at improving the energy efficiency of the supply chain – from resources, production, transport and distribution to end-use consumers – and represents one of the priorities of the National Energy Strategy of Romania for 2019-30¹⁴.

¹⁴ The Romanian Energy Strategy for 2019-30 is available for download at https://2015-2019.kormany.hu/download/3/06/b1000/01_RO%20Energiastat%202019%202030%20EN.pdf

For the building sector, the national implementation of the EPBD is the overall responsibility of the Ministry of Regional Development and Public Administration (MDRAP). The current state of transposition and key regulatory elements in place are summarized in **Table 1**.

Table 1. Policy Provisions Transposing EPBD in Romania

Legal Documents, Laws, Secondary Legislation, Government Decisions, etc.	Policy Elements Covered
<ul style="list-style-type: none"> • Law 372/2005 on energy performance of buildings, amended by Law no. 101/2020 • Initial proposal for “Territorial planning, urban planning and constructions code” (Construction Code) approved by Government Decision no. 298/2021 • Government Emergency Ordinance no. 63/2012 amending Government Emergency Ordinance no. 18/2009 	<ul style="list-style-type: none"> • Electronic energy performance certificate (EPC) validity, display for public buildings and database • Licensing qualified certifiers • Buildings with nearly zero energy consumption, or nearly-zero-energy buildings (nZEB) • Energy audit of the building • Obligations and responsibilities of energy auditors • Calculation methodology of energy performance • Cost-optimality calculation methodology • Specification for the Smart Readiness Indicator (SRI) • Allowing public funds for building renovation to be recovered from beneficiaries through further taxation by local authorities (since 2014) • Provisions for implementing independent control systems • Contraventions and penalty charges • Elaborating a study on the technical, environmental and economic feasibility of energy use from RES for new buildings

Although the transposition is advanced, enforcement is lagging with regard to energy performance certificates (EPCs), licensing of certifiers, independent control, revocation of EPCs, and penalties. Continued effort is required in updating the methodologies in energy performance evaluation, cost-optimality, etc. Digitalized EPCs should form the basis for a unified, digitalized Building Registry, which has not yet been developed in Romania. There is insufficient implementation of organized quality assurance and verification of EPCs (i.e., the sampling and consistency of quality checks are insufficient).

2.2.2. Energy Efficiency Directive

The main responsibility for implementing the Energy Efficiency Directive 2012/27/UE (EED) lies with the National Regulatory Authority for Energy (ANRE) through the Energy Efficiency Department, which was established by Law no. 121/2014 on energy efficiency, which is responsible with transposing the provisions of the law into secondary legislation, as summarized in Table 2.

Table 2. Policy Provisions Transposing EED in Romania

Legal Documents, Laws, Secondary Legislation, Government Decisions, etc.	Policy Elements Covered
<p>Law 121/2014 on energy efficiency amendment</p> <p>Law no. 220/ 2008 (recast) on establishment of the system for the promotion of the production of energy from renewable energy sources</p> <p>Methodology of 23/02/22 on rules for the marketing of prosumer electricity produced under 400 kW</p> <p>ANRE Decisions and orders</p> <p>Law no. 220/ 2008 (recast) on establishment of the system for the promotion of the production of energy from renewable energy sources</p> <p>23/02/22 Market rules for prosumer electricity produced under 400kW</p>	<ul style="list-style-type: none"> • Certification of energy managers and energy service provider companies • Authorization of industrial energy auditors • Guide for energy audits, including minimum criteria • Program for increasing energy efficiency for industrial units • Model for developing the program for increasing EE in establishments with a population exceeding 5000 inhabitants • Syllabus of specialized courses in the field of energy management and energy-audit development • Layouts for the total energy consumption statement and the analysis questionnaire of the energy consumer • High-efficiency cogeneration • Monitoring, reporting and verification (MRV) methodology for the promotion of high-efficiency cogeneration based on the useful heat demand • ESCOs and energy service market • Promotion of RES and prosumer electricity market schemes • For EE Obligation Scheme, Romania has opted for a set of alternative policy measures (EE program, establishment of an EE Investment Fund, or development of the existing EE Fund)

Although the transposition is advanced, enforcement is lagging in some areas, particularly in areas related to certification of energy auditors, monitoring, reporting and verification (MRV) applications, and ESCOs.

The following sections elaborate on the relevant elements of EPBD and EED transposition, including ESCO and energy performance contracting and energy poverty, as well as on relevant aspects of other policies such as housing, municipal budgeting, and public procurement.

2.2.3. Energy Performance Contracting

The EED requires that, for all large (above 1000 m²) non-residential buildings subject to renovation, the implementers assess the feasibility to carry out renovation via energy performance contracts (EnPCs). The EED further requires strengthening of the role of intermediaries (one-stop-shops and facilitators) to support the uptake of energy performance contracting. Table 3 summarizes the elements of ESCO/EnPC legislation in Romania.

Provisions related to energy management and ESCOs have limited application in practice as the ESCO market is stagnant. Procurement by public bodies, including those at the local and regional levels, does not have legal, fiscal or financial incentives for concluding long-term

EnPCs that provide long-term energy savings when purchasing services with significant energy content. Common tools that can help strengthen the ESCO market include standardized EnPC contract primers, off-debt financing, tax and fiscal incentives, long-term and per-beneficiary budgeting provisions enabling retention of savings, super-ESCO vehicles helping manage financial and technical risks, tailor-made financing schemes favorable for guaranteed or shared savings schemes, etc. The need for standardized procurement procedures and contracts will potentially be covered under the pending secondary legislation.

Table 3. Energy Performance Contracting and ESCOs

Legal Documents, Laws, Secondary Legislation, Government Decisions, etc.	Policy Elements Covered
<p>Law 121/2014 on energy efficiency amendments; National Energy Efficiency Action Plan (NEEAP)</p> <p>Guidelines for Procurement of Measures Improving Energy Efficiency</p> <p>Framework Contract and Procurement Procedures for Energy Performance Services</p>	<ul style="list-style-type: none"> • Definition of energy performance contracting. ESCO sector regulation and ANRE transitioned to Ministry of Energy, which has no jurisdiction over buildings sector. • The proposed standard ESCO contract does not include a measurement and verification (M&V) protocol, which is needed for a clear EPC, and does not require verification staff to be M&V experts. • Two draft secondary regulations were drafted (under review as of October 2022) introducing (a) a Procurement Procedure For Energy Efficiency Management Services and Template Framework Contract¹⁵, and (b) Procurement guidelines for acquiring EE services.¹⁶

Generally, the lack transposition or partial transposition of Article 18 on Energy Services of the EE Directive has left a gap in the legal framework and adversely affected the development of such companies in Romania. The Ministry of Energy is working on reforms to the legal framework (not available for review at the time of drafting this report) that should introduce legal incentives for ESCOs and energy performance contracting; however, given the Ministry’s focus on the private sector and generation, the challenge will be to ensure that the law regulating ESCOs adequately addresses the application of the ESCO scheme in the buildings scheme. Specifically, the Ministry of Energy covers energy sector issues within the limits of energy generation (electric power plants, district heating generation and supply, and commercial energy consumers) but does not address energy end-use in public and residential buildings. This creates a regulatory paradox – for example, in the urban heat supply domain, where district heating systems within the buildings are outside of the scope of deep thermal renovations that are supported by the Ministry of Regional Development and Public Administration.

The maximum length of contracts is five years in theory, but only if the funds provided by the public entity are above 50% of the total cost; and five years may not be a sufficient time period for repayment of a loan for a complex energy efficiency retrofit. Due to unclear legislation and

¹⁵ Draft available at: http://energie.gov.ro/wp-content/uploads/2022/09/CPEn_anexa-1.pdf

¹⁶ Draft available at: http://energie.gov.ro/wp-content/uploads/2022/09/GHID_CPEn_ANEXA-4.pdf

a short political timeline for decision-making, local elections, and budgeting, public entities are reluctant to enter into contracts – specifically, those that secure the long-term continuity of ESCO contracting. This emphasizes the need for standardized ESCO contracts that properly define the timeline, M&V procedures, and qualification requirements. Other issues include:

- No accreditation or certification of ESCOs; and
- Mismatches in the legislation governing the procurement process and the rules governing (a) the budgetary allocations of municipalities and other territorial administrative units and (b) the statistical treatment of the energy performance contracts and accounting as debt.

2.2.4. Policies Regulating Multi-Apartment Housing and Homeowner Associations

The legal provisions governing multi-apartment housing are critical for collective decision-making, collection of maintenance fees, and initiating and financing capital repairs in building common spaces (including building envelopes, attics and basements). The policy provisions regulating these areas in Romanian legislation are summarized in **Table 4** below.

Table 4. HOA/MAB Housing Management

Legal Documents, Laws, Secondary Legislation, Government Decisions, etc.	Policy Elements Covered
<p>Law no. 196 of 20 July 2018 on the establishment, organization and operation of owners' associations and the administration of condominiums</p>	<ul style="list-style-type: none"> • Regulates establishment, operation, registration, obligation to organize building modernization, and procedures for written authorization for borrowing: • Requires homeowners of apartments in MABs to form and register homeowners' associations (HOAs) and open one bank account. • Stipulates that common spaces are under non-divided property (expressed as a percentage in the individual property contract). An HOA can borrow (with the approval of all owners); however, the common assets of the building cannot be used as collateral. • Stipulates that 100% written approval is required for borrowing to consolidate or modernize the building and technical systems. • Specifies types of multi-apartment building management schemes and the payment procedures, specifically the mandatory collection of maintenance fees and enforcement procedures.

Despite legal provisions in place, there is limited enforcement and practical interest in applying the legal opportunities for HOAs to borrow and invest. There is no mandatory collection of reserve funds for financing more-substantial capital repairs – funds that could potentially serve as a down-payment or as a basis for assessing the credit-worthiness of the HOA for potential bank borrowing.

2.2.5. Energy Poverty and Social Safety Nets

The EED requires that the national legislation provides a definition of “energy poverty” for subsequent targeting of social safety nets in mitigation of utility affordability burdens.

Table 5. Energy Poverty, Utility Tariffs and Subsidies

Legal Documents, Laws, Secondary Legislation, Government Decisions, etc.	Policy Elements Covered
<p>Law no. 123 of 10 July 2012 for electricity and natural gas amendments</p> <p>Law No. 196/2016 on minimum inclusion income</p> <p>Law no. 226/ 2021 on the establishment of social protection measures for the vulnerable energy consumer</p>	<ul style="list-style-type: none"> • Vulnerable consumer definition • Eligibility criteria as at risk of social marginalization • Definition of benefits as social services initiatives • Interventions in price setting: vulnerable consumer • Definition of energy community • Defining housing subsidies including heating and part of electricity costs • Subsidizing cost of EE equipment purchase • Share of the subsidy based on monthly income

The state’s social policies in the energy sector are predominantly socially oriented, delivering financial assistance and tariff subsidies. This means they lack the potential for long-term, sustainable improvement in utility affordability or elimination of energy poverty – while having a distortionary impact on the energy efficiency market by encouraging wasteful energy use, eliminating incentives for (and reducing the bankability of) EE investments.

The exception is the grant support for EE/RE equipment purchases, which has the potential to mitigate energy bills in the long run while reducing energy use and carbon footprint. However, these schemes, which are administered mainly through the Environmental Fund Administration, in stakeholder consultations have been referred to as complex and time-demanding for users with no technical background, which is why they have a limited utilization.

2.2.6. Public/Municipal Budgeting

The municipal budgeting provisions for capital investment programs and operational budgets have a significant input on the design and implementation of energy efficiency investments. For example, multi-year planning and per-unit budgeting are prerequisites of integrating repayment-from-savings into the investment schemes for building renovation. Similarly, the local and regional budgeting for renovation investments defines the leveraging features and potential to scale. The relevant provisions within Romanian legislation are summarized in Table 6.

Table 6. Public / Municipal Budgeting

Legal Documents, Laws, Secondary Legislation, Government Decisions, etc.	Policy Elements covered
<p>Decree no. 18 of 4 March 2009 on increasing the energy performance of blocks of flats amendments</p>	<ul style="list-style-type: none"> • Contribution rate of the state administration (60%), the local authority (30%), and HOA (10%) in building renovation; under projects funded by EEU Cohesion Funds (60%), 40% contribution from state or local authorities • Public buildings’ utility bills are covered based on factual energy consumption by the state/regional entities they report to (e.g. municipality and ministry).

The HOA co-financing has been a major challenge despite the low level (10%) required. Following the introduction of the NRRP, the HOA financing has been completely eliminated creating a market expectation of 100% grants in the foreseeable future.

The bill-based coverage of energy expenses eliminates the incentives for energy conservation and creates a split incentive. Furthermore, EE improvements will lead to reduced financing, which eliminates the economic potential for energy performance contracting.

2.2.7. Public Procurement

The national legislation on public procurement must ensure that public sector “buyers” achieve good value for the money spent from public funds. Considering the technical nature of building renovation works, procurement based on the least cost will not yield the best quality.

Table 7. Public Procurement

Legal Documents, Laws, Secondary Legislation, Government Decisions, etc.	Policy Elements Covered
<ul style="list-style-type: none"> • Law No. 98/2016 on public procurement • Law No. 99/2016 on sectoral procurement • Law No. 100/2016 on concessions of works and concessions of services • Law No. 101/2016 on remedies and appeals in the matter of awarding public procurement contracts • Government Emergency Ordinance No. 13/2015 regarding the establishment, organization and functioning of the National Agency for Public Procurement • Government Emergency Ordinance No. 98/2017 on the ex-ante control function of the procurement procedure/public procurement framework agreements • Law No. 199/2020 on electronic invoicing in public procurement • The Fiscal Code, and its implementing rules approved by Law 227/2015 	<ul style="list-style-type: none"> • Competitive tendering of public purchasing • Establishment of a National Agency for Public Procurement • Procedures for handling public procurement disputes • e-Invoicing

The legislation in some areas fails to ensure that purchasers get good value for money. External assessment of legal enforcement revealed some concerning values in common indicators, as follows:

- 41% of all contracts are awarded where there was just a single bidder, and rising;
- 22% of procurement procedures are negotiated with a company without any call for bids, and rising;
- Only 1% all contracts follow procurement procedures with more than one public buyer;
- 93% of procurement procedures are awarded solely because the offer was the cheapest available;
- 89-90 days is the mean decision speed (i.e., between the deadline for receiving offers and the date the contract is awarded) while less than 120 days is a positive indication; other EU Member States (Denmark, Island, Lithuania, Norway, Sweden) limit procurement decisions within 50-60 days.

The EU Public Procurement Directive (2014) makes reference to the encouragement of building information modelling (BIM)¹⁷ in public works, recognizing the benefit of the public sector using BIM to generate greater value for money (in public works) and encourage innovation. This directive has encouraged public procurers across Europe to consider the introduction of BIM, creating a need for information on BIM from the European public sector. As of July 2022, the Romanian public procurement legislation did not have respective provisions on BIM.

The above legal documents are enforced and prioritized when their implementation is operationalized within strategies, plans and programs for delivery mechanisms. These are discussed in the following sections, along with financing instruments, responsibilities and timelines for implementation.

2.3. Strategies, Plans and Programs Relevant to Building Renovation

The strategies, plans and programs relevant to renovation of buildings are summarized below with a focus on the presence of the provisions necessary to transpose the Energy Performance in Buildings Directive (EPBD) and EE Directive, as well as to provide the legal basis for the deployment of high-quality building-renovation practices.

2.3.1. National Energy Strategy of Romania for 2016-30, with an Outlook to 2050

The National Energy Strategy of Romania is designed for the period of 2016-30 but also looks forward to 2050. The Strategy sets the key national objectives, which the National Energy and Climate Plan (NECP) later elaborated on in areas related to efficiency, RES and decarbonization. The key objectives of the strategy are as follows:

- Clean energy and energy efficiency;
- Ensuring access to electricity and heat for all consumers;

¹⁷ Building information modelling (BIM) involves creating a digital representation of a facility's physical and functional characteristics. A BIM (model) is a shared knowledge resource for information about a building or facility that forms a reliable basis for decisions during its life cycle, defined as existing from earliest conception to demolition.

- Protection of vulnerable consumers and reduction of energy poverty;
- Competitive energy markets, the basis of a competitive economy;
- Modernization of the energy governance system;
- Increasing the quality of education in the field of energy and continuous training of the human resource;
- Enhancing Romania's energy security; and
- Increasing Romania's energy contribution to regional and European markets by capitalizing on national primary energy resources.

2.3.2. National Energy Efficiency Action Plan- IV

The key objectives of the 4th NEEAP of Romania are as follows:

- Energy audit and energy management;
- EE in the residential sector (through thermal rehabilitation works on the envelope and heating system);
- EE in governmental buildings and public services – through partial thermal insulation of the building envelope, replacement of exterior joinery with energy-efficient joinery, and complex works to enhance energy performance (in-depth renovation); and
- EE in the services sector through the thermal rehabilitation of buildings (offices, commercial areas), purchase of equipment and high-efficiency electrical appliances.¹⁸

According to the Romanian Energy Regulatory Authority's (ANRE) progress report for the 4th National Energy Efficiency Action Plan (NEEAP) from 2020¹⁹, there were impressive achievements reported for the 2018 targets. Specifically, the National Investment Plan targeted energy saving of 100 ktoe by 2018, and delivered 363 ktoe. The target for Promotion of High Efficiency Cogeneration was 242 ktoe in energy savings; achievement was 232 ktoe. Government Decision No. 495/2014 established the program for Industrial Energy Efficiency, which yielded 188 ktoe in energy savings instead of the committed 66 ktoe. More-recent indicators are not yet available but may indicate a deviation from the solid reduction trend in energy consumption due to the pandemic and geopolitical turmoil.

2.3.3. National Energy and Climate Plan

The Integrated National Energy and Climate Plan (NECP) for 2021-2030²⁰ covers the following areas:

- Energy audit and energy management;
- EE in the residential sector (through thermal rehabilitation works on the envelope and heating system);

¹⁸ National Plan Government of Romania: <https://legislatie.just.ro/Public/DetaliiDocumentAfis/216833>

¹⁹ Report on the progress achieved in the fulfilment of the national energy efficiency objectives,

2020 available at https://energy.ec.europa.eu/system/files/2020-09/ro_annual_report_eeed_2020_en_0.pdf

²⁰ Integral National Plan Government of Romania: <https://legislatie.just.ro/Public/DetaliiDocumentAfis/247875>

- EE in governmental buildings and public services through partial thermal insulation of the building envelope, replacement of exterior joinery with energy-efficient joinery, and complex works to enhance energy performance (in-depth renovation);
- EE in the services sector through the thermal rehabilitation of buildings (offices, commercial areas), purchase of equipment and high-efficiency electrical appliances;
- Decarbonization
- Clean energy and energy efficiency;
- Energy security
- Protecting vulnerable consumers and reducing energy poverty;
- Increasing the quality of education in the field of energy and continuous training of qualified human resources; and
- Internal Energy Market and Research Innovation and Competitiveness.

The NECP sets national goals and actions until 2030, with a carbon neutrality goal until 2050. The quantitative targets of the NECP until 2030 include:

• EU Emissions Trading System (ETS) emissions (% compared to 2005)	43.9%
• Non-ETS emissions (% compared to 2005)	2.0%
• Overall share of RES in gross final energy consumption	30.7%
• RES Share in Electricity generation	49.4%
• RES Share in Transportation	14.2%
• RES Share in Heating and Cooling	33.0%

Energy efficiency (% compared to the PRIMES 2007 projection for 2030):

• Primary energy consumption	45.1%
• Final energy consumption	40.4%
• Primary energy consumption (Mtoe)	32.3
• Final energy consumption (Mtoe)	25.7

The NECP builds on the National Energy Strategy goals. Decarbonization engagements are considered to be lagging in European terms, with regard to the energy efficiency of the building stock.

2.3.4. Long-Term Renovation Strategy (LTRS), 2020-50

The LTRS seeks to address the challenges of a low-efficiency building stock by making an impact on energy consumption and GHG emissions and other manifestations of energy poverty. It is organized into three agendas: 2030, 2040, and 2050. The LTRS provided the following key findings:

- The LTRS provides an overview of the Romanian building stock, with identification of the worst-performing buildings.
- National targets include the renovation of 6% of buildings by 2030; approximately 79% of buildings require renovation or complete reconstruction by 2050.
- Residential buildings comprise the largest share of buildings requiring renovation (91%).

- Based on this evidence, for the 2021-30 period, a significant reduction in energy consumption, GHG emissions and energy poverty can be achieved only if firstly MABs and SFHs, followed by public buildings, are included in rehabilitation programs.

The LTRS estimates the need to invest €12.8 billion in building renovations to achieve a reduction of 0.83 Mtoe in the final energy consumption by 2030 compared to the baseline scenario. Furthermore, the LTRS revealed substantial data gaps for policy making and emphasized the need for routine generation and maintenance of data on the building stock through an integrated national database which will be synchronized with the European Digital Buildings' Logbook.

The LTRS was aligned with the NECP and Energy Strategy during the drafting process. However, there seems to be limited coordination or alignment in implementation phase between these major policy documents and their responsible government agencies. The LTRS strongly emphasized the need for leveraging private/commercial financing to reach the investment goals, but the National Recovery and Resilience Plan (see next section) set a standard for 100% grant financing of renovation works within its timeframe (up to 2026), which is likely to have a lasting distortionary effect on the market for building-renovation investments. The LTRS also bases the investment cost and savings estimates on 2019 construction market data and energy prices, which have significantly changed under the current market conditions related to the post-pandemic developments and the war in Ukraine.

The LTRS operational action plan was drafted in 2022. Since adoption in 2020 the implementation was slow in leveraging financing. The recommended implementation provisions are lacking, including:

- Adequately resourced teams for program management and administration;
- Strengthened investment program with a strong overall program governance;
- Empowered institutional and coordination framework;
- Enhanced communication campaigns and more centralized resources;
- Clear indications of declining grant resources and requirements for increased co-financing;
- Redesigned financing schemes for each sector rolled-out on a national basis; and
- Better coordination with seismic and fire safety.

The priority building sectors and recommended cost-effective, moderate technical ambition levels are summarized below in Table 8.

Table 8. LTRS Intervention Ambitions by Building Type

Building Category	Intervention
<p>Existing residential multi-apartment buildings:</p> <p>A.1. Existing residential MABs connected to the DH systems – basement + ground floor + 10 floors</p> <p>A.2. Existing residential MABs not connected to the DH systems, with individual boilers functioning with gas for each apartment – basement + ground floor + four floors</p>	<p>Class A: Heating, DHW, Lighting</p> <p>Phase 1: Thermal insulation, TRV</p> <p>Phase 2: PV, SWH</p>

<p>B. Existing SFHs:</p> <p>B.1. Supplied by individual heat supply plant, functioning with gas</p> <p>B.2. With stoves functioning with solid biomass (wood)</p>	<p>Class B: heating, DHW, lighting</p> <p>Phase 1: thermal insulation, firewood stoves improvement (higher efficiency, filters)</p> <p>Phase 2: Solar DHW, PV, heat pump air-water/ground</p>
<p>C. Education institutions buildings:</p> <p>C.1. Connected to the DH systems</p> <p>C.2. Supplied by individual boiler, functioning with gas</p>	<p>Class A: Heating, DHW, Lighting, Mechanical Ventilation, AC</p> <p>Phase 1: Thermal insulation, Heat Recovery, AC, DH or heat pump air-water/ground</p> <p>Phase 2: Solar DHW; PV</p>
<p>D. Office buildings:</p> <p>D.1. Connected to the DH systems</p> <p>D.2. Supplied by individual boiler, functioning with gas</p>	<p>Class A: Heating, DHW, lighting, mechanical ventilation, AC</p> <p>Stage 1: Thermal insulation, Radiators for variable refrigerant volume, air-handling unit with heat recovery; DH or Heat pump air-refrigerant/other</p> <p>Stage 2: PV</p>

Note: DH = district heating, DHW = domestic hot water; MABs = multi-family apartment buildings; PV = photovoltaic; SFHs = single-family homes; TRV = thermal regulatory valve.

2.3.5. National Recovery and Resilience Plan (NRRP)

Romania's NRRP has requested €14.3 billion in grants and €15 billion in loans under the Resilience and Recovery Fund (RRF).

The Romanian plan is structured around six pillars: (i) the green transition, (ii) digital transformation, (iii) smart growth, (iv) social and territorial cohesion, (v) health and resilience, and (vi) policies for the next generation. Among others, the plan includes measures relevant to the Renovation Wave via supporting measures in education, healthcare, building renovation and the digitalization of public administration. Projects in the plan cover the entire lifetime of the RRF until 2026. The plan proposes projects in all seven European flagship areas²¹. The priority for RRF Component 5 – Renovation Wave – envisions €2.2 billion dedicated to building blocks constructed before 2000, with a final energy consumption higher than 300 kWh/m² year and a final energy consumption for heating higher than 200 kWh/m² year. By 2026 all MABs are planned to have been renovated with a documented reduction of consumption of at least 30%. The plan also aims for a higher degree of in-depth renovations (including seismic consolidation) and a higher degree of integration for efficiency measures. The NRRP sets forth a combination of reform and investment measures:

²¹ Power up, Renovate, Recharge and Refuel, Connect, Modernise, Scale-up, and Reskill and Upskill. See https://ec.europa.eu/commission/presscorner/detail/en/IP_20_1658.

- **Reform 1.** A simplified and updated legal/regulatory framework to support the implementation of investments in building renovation for the transition to green and resilient buildings
- **Reform 2.** Support the seismic resilience of the buildings stock
- **Investment 1.** Establishment of a Renovation Wave fund to finance works to improve EE of the existing building stock to enhance, renovate and provide all multi-family buildings and public buildings in Romania:
 - **Axis 1:** Investments in MABs for green and resilient transition
 - **Axis 2:** Investments in public buildings for green and resilient transition
- **Investment 2.** Implementation of the National Building Registry
- **Investment 3.** Strengthening the professional capacity of professionals and workers in renovation by developing trainings on EE in the construction sector

Component 10 of the RRF, the Local Fund, is dedicated to the promotion of Sustainable Urban Mobility. However, it also strongly emphasizes efforts which will support the Component 5 efforts under the Renovation Wave – specifically those dedicated to digitalization (including an online platform and/or mobile application to map energy consumption at the neighborhood or city level); a “smart” electricity grid that may be deployed in different areas of collective housing; development of broader frameworks for sustainable urban and rural planning and transformation; and construction of youth housing,

The NRRP brings a massive flow of investments for building renovation. While limited in its scope until 2026, this program will seek to trigger the market by reviving cash flow in construction industry and helping the construction market enhance its building renovation services; mitigate the economic crisis while encouraging the recovery of the construction sector; and build skill and momentum in building-renovation efforts. All this, along with the envisioned legal reform, can serve as a foundation for a gradual transition to more market-based financing of similar investments. Furthermore, the NRRP’s reform elements address key gaps in building energy-efficiency and seismic-consolidation areas which will prepare the market for further renovation programs beyond the scope of the NRRP.

2.3.6. National Housing Strategy 2022-2050

The National Housing Strategy for the period 2022–50 is based on four pillars:

- **Pillar 1** – inclusive housing, which includes actions to improve the housing conditions of marginalized communities and vulnerable groups, including informal settlements.
- **Pillar 2** – accessible housing and quality public services, including:
 - Addressing the challenges of the energy crisis and the impact on household consumers, including socially vulnerable groups through energy renovation works to reduce energy consumption and GHG emissions.
 - Increasing the number of new nearly-zero-energy buildings (nZEBs), where energy consumption is almost zero or very low and is covered by renewable energy at least up to 30%.
 - Improving access to housing and quality public services at bearable costs.
- **Pillar 3** – green transition / safe and sustainable housing:

- Ensure full correlation with the principles of the EU Renovation Wave Strategy, the National Long-Term Renovation Strategy and the National Strategy for Seismic Risk Reduction, from the perspective of an integrated approach for achieving the climate, energy and seismic consolidation objectives.
- Increase the quality, safety and sustainability of housing, ensuring the achievement of environmental objectives and the green transition.
- Ensure adherence to principles proposed through the EU Renovation Wave Strategy, the National Long-Term Renovation Strategy and the National Strategy for Seismic Risk Reduction, from the perspective of an integrated approach for achieving the climate, energy and seismic consolidation objectives.
- Increase the energy performance of existing residential buildings through energy renovation works to reduce energy consumption and greenhouse gas emissions. **For MABs, all the renovation works are expected to be addressed through the NRRP (also state budget or local budgets). For SFHs, it will be addressed through public funding by the Ministry Of Development, Public Works And Administration (MDLPA) and Environmental Management Fund (EMF).**
- Promote good practices through the MAB trust fund, in combination with support for HOAs provided by Local Public Administrations (LPAs) for the maintenance of condominiums – through regular meetings with LPAs, extending financial support, etc.
- **Pillar 4** – strengthening administrative capacity, including:
 - Support for the development of demonstration projects for the testing and implementation of environmentally friendly construction techniques;
 - Elaboration of a guide dedicated to condominium management by owners' associations, which will contain types of interventions, examples of good practices, legislative and financial mechanisms and others;
 - Strengthening the role of the National Housing Agency;
 - Strengthening administrative capacity, with a view to increasing cooperation and improving the governance structure of the housing sector.

The Housing Strategy emphasizes the need to increase the energy performance of existing residential buildings through energy renovation works, in order to reduce energy consumption and greenhouse gas emissions. The strategy also proposes revisions of Housing Law No. 114/1996 to address some of the legal issues related to HOAs.

All the renovation works are expected to be addressed through the NRRP for Multifamily Apartment Building (also supported through state or local budgets). For SFH through public funding by the MDLPA and Environmental Fund Administration.

2.3.7. Seismic Risk Strategy

The objectives of the Seismic Risk Strategy are as follows:

- Bringing Romania's building stock to earthquake resilience by 2050;
- Mitigating the seismic risk, minimizing human loss and suffering, and protecting the building stock through prioritized and efficient investments;
- Creating co-benefits of building resilience investments by improving energy and health efficiency conditions;

- Increasing resilience by integrating seismic/multi-risk risk considerations into territorial and sectoral planning and ensuring resilient processes of post-earthquake recovery and reconstruction;
- Mobilizing inclusive participation and action by increasing the level of public awareness about seismic risk management and increasing the level of ownership in the implementation of risk reduction measures; and
- Strengthening institutional capacity in the field of seismic risk management and the quality and number of human resources involved in activities related to risk management.

The proposed intervention solutions to reduce seismic risk, including consolidation, will have to be cost-effective and have the potential to be replicated more widely for a group of buildings requiring similar interventions. The strategy includes the integration of seismic risk reduction measures with measures to restore energy efficiency and other functional improvements. Public funding for private and public buildings is the main financing solution for the proposed interventions to reduce seismic risk.

While the document does not elaborate on specific requirements for EE, a reference was made to NRRP Component 5 (the Renovation Wave), specifically the “Guide for carrying out integrated intervention works on multi-family residential buildings and public buildings”.

2.3.8. National Strategy for Heat Supply to Localities through Centralized Production and Distribution Systems

The 2005 strategy had provisions on recovery and maintenance of the district heating (DH) systems but had limited implementation. The DH sector’s long-term vision was partially redefined in the Long-term Energy Strategy (2016-2030), where the focus is not only on maintaining the efficiencies of the DH, but also on integrating renewables and high-efficiency cogeneration.

The 2005 strategy lacked implementation. The new principles prescribed in the 2016-2030 Energy Strategy also lack enforcement due to the interdisciplinary nature of the DH sector and inclusion of this sector under Ministry of Energy, while the main consumption and the DH networks are within housing sector, and many of the DH systems belong to the local authorities. The modernization and renovation projects consequently often omit DH due to the lack of jurisdiction by the authorities engaged in the investments.

Based on the detailed analysis of the legislation (see Annex 1) and the above summary observations, the following key policy and regulatory gaps have been identified as hampering the acceleration of investments in building renovation.

2.4. Summary of Key Gaps in Policy and Regulatory Framework

The above policies and strategies lay a strong legal foundation for building thermal renovation. Some of these policies will need to be continuously improved and updated with respect to market prices and state-of-art methodology (e.g., cost-optimality calculation methodology, LTRS investment needs, building-energy performance), while in other areas there are legal gaps to be addressed, such as the delays in the building registry and the lack of incentives for EnPC/ESCOs. The ambitious recent reforms, such as the EPC or municipal energy planning, will

deliver lasting impact if enforcement is accelerated. Table 9 summarizes the identified barriers and their causes based on policy gap or lack of enforcement.

Table 9. Policy and Regulatory Gaps

Barrier/Gap	Barrier/ Gap Type	Resulting From
Limited coordination between multiple sectoral policy and strategy documents	Policy Gap	Due to their cross-cutting nature, EE targets appear in energy, climate, sustainability and other political documents.
Slow enforcement of LTRS	Policy Gap	Lack of operational procedures, limited coordination, institutional capacities and enforcement mechanisms
Potential need for changes in the public commitment for co-financing funds for renovation investments	Policy Gap	The growing construction and energy costs have raised the demand for public subsidies reducing the availability of public funds for co-financing renovation. At the same time the construction costs have risen, while the seismic renovation costs may be higher than 15% of total cost of intervention, while the energy savings expected may be lower due to significant underheating prior to renovation
Lack of legal incentives and promotional initiatives for the development of the ESCO market	Policy Gap	Continued delay in adoption of effective regulatory framework for energy service companies (ESCOs) and energy performance contracting, limited timeframe of ESCO contracts, lack of standardized ESCO contracts & M&V framework.
Limited digitalization of building energy information, including integrated building registry, EPCs, and building renovation passports, building information modeling (BIM)	Policy Gap	No centralized and digitalized building registry, no integration with EPC registry and building renovation passports
Lack of Application of EE Obligation Scheme and Incentives for Obligated Parties to achieve energy savings in buildings	Policy Gap	Regulatory disincentives related to treatment of costs of implementing obligation schemes.
Limited policy instruments for reducing the share of grant financing, building direct grant dependency of the market	Policy Gap	Political messaging on 100% grant financing availability, lack of political will in leveraging more ambitious delivery models
Lack of long-term policy and enforcement with regard to retention of DH efficiencies and economic viability, and poor policy regulation of DH in relation to building energy performance requirements and lack of flexibility for building renovation in combination with DH EE retrofits	Policy Gap	District heating efficiencies are undermined by permitted disconnections, in some places leading to nearly half of the building households being disconnected to the DH, undermining the economic viability of the system, affecting the balance and cost of the energy supply.
Outdated building energy performance calculation methodology	Outdated Policy/ Regulation	The building energy performance assessors require significant time to familiarize with changing methodologies. Sufficient time is necessary for the sector to become familiar and competent in the methodology

Cost-optimality framework outdated, needs reassessment	Outdated Policy/ Regulation	Due to market dynamics related to inflation, changes in the cost of construction materials and labor, and supply chain disruptions, the market estimates underlying the current cost-optimality framework are no longer valid
Limited utilization of RES opportunities in residential sector via prosumer schemes	Policy Gap	Lack of incentives for prosumer, EE-integrated, renewable-energy installations for household energy use; regulatory failure to provide for mechanisms for monetarization of surplus electricity supplied to the grid under prosumer scheme
Weak HOA/condominium policy framework and enforcement	Policy Gap	Legal gaps and complexities regarding the enforcement of HOA legislation on collective decision-making, collection of maintenance fees, generation of capital repair funds, signing of contracts, borrowing from banks, maintenance of common spaces, etc.);
Energy Performance Certification (EPC) monitoring mechanism is weak	Enforcement Gap	The current procedures have unclear registration, lack of structured format and mechanisms for digital database, missing or misleading information, etc.
Poor enforcement of existing regulations and standards on energy efficiency	Enforcement Gap	Lack of monitoring and verification during and after implementation of programs. Selection of contractors based on the lowest cost criteria (in combination with the application of obsolete standards of costs leading to under-dimensioning of renovation investments) caused poor quality of buildings renovation works. Procurement focuses only on pre-listed measures and no alternative energy efficiency measures were supported.
Poor enforcement of municipal energy management provisions	Enforcement Gap	Despite legal obligation for large towns to introduce municipal energy management and develop/adopt a municipal energy plan, very few towns have such plans
Insufficient MRV, ex-post evaluation of completed renovation projects	Enforcement Gap	Lack of policy provisions and enforcement capacity ensuring proper MRV of renovation projects, completion of renovation passports, in addition to ex-post EPCs
Lack of regulatory framework and clear technical criteria on NZEB	Policy Gap	Ambiguous definition and procedural framework for nZEB. Delays in implementing legal obligations for new buildings at local level.

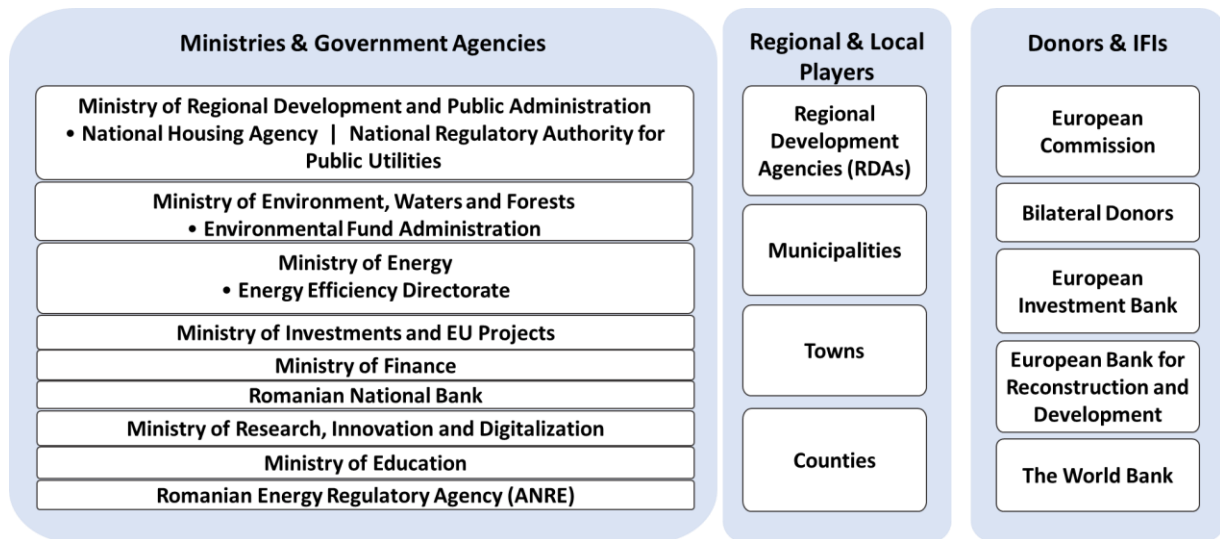
The above policy and enforcement gaps result in slow identification investment project sites as well as delayed, or low-quality, building renovation program implementation.

Section 3. Institutional Capacities

The building renovation initiatives have a large number of stakeholders in terms of government agencies (state, regional, and local), donors, and international financial institutions (IFIs).

The diagnostic assessment reviews the capacities of the public institutions, donors and IFIs in initiating and implementing building renovation programs (see Figure 12).

Figure 12. Mapping of Key Institutional Capacities in Building Renovation



The functions and roles of government agencies, local public authorities, regional managing authorities, and the European Commission and other donors/IFIs are summarized in Table 10.

Table 10. Summary of Key Institutions and their Functions in the Building Renovation Value Chain

Stakeholder category	Function/Role	Building Renovation Impact
Government institutions/Entities		
Ministries & Government Agencies		
Ministry of Regional Development and Public Administration (MRDPA)	Implementing state policy in urbanization and architecture, dwellings, residential units, residential buildings, thermal insulation of buildings, real estate management and development, for public works, construction, central and local public administration, decentralization, administrative and territorial reorganization and reorganization, local taxes and finance, dialogue with the associative structures of local authorities, and donors/IFIs	Executing and managing agency for LTRS, NRRP and RPs, responsible for transposition of EPBD, setting and accomplishing sectoral targets, certification of energy auditors, approval of energy audit methodology, etc.
Ministry of Energy	Implementing the Energy strategy and the Government Programs in Energy Efficiency. DEE is in charge of the transposing EU EE directives, developing primary and secondary EE legal framework, NEEAP monitoring, energy auditors' authorization, energy managers' certification; maintaining the list of qualified energy services suppliers, monitoring implementation of EE programs, collaboration with the National	Directorate of EE in the MoE is responsible for Energy services contracting, EPC/ESCO, financial instruments, incentives, grants, facilitating loans from financial and banking institutions, supporting EE projects and ESCO companies; energy labelling system, quality, information

		Authority for Regulating and Monitoring Public Procurement for efficiency of public expenditures (value for money) and sectoral strategies.	dissemination, National Energy and Climate Plan and the continuity of the NEEAP objectives.
	Ministry of Finance	Regulation of building renovation financing from State Budget	Design of financial instruments
	Ministry of Environment, Waters and Forests	The Ministry of Environment carries out policies at national level in the fields of environmental protection, green economy, biodiversity, protected natural areas, climate change. Through the Environmental Fund Administration (AFM), several categories of projects eligible for financing can be implemented, including production of energy from renewable sources or reduction of greenhouse gas emissions.	Financing programs for private and public buildings through Environmental Fund Administration (Green House, Energy Efficient House etc.)
	Ministry of Investments and EU Projects	The management of European funds is carried out through Operational Programs (OPs) managed by Managing Authorities (MA). Within the Ministry of Investments and European Projects, there are four managing authorities – for the Large Infrastructure Operational Program, the Human Capital Operational Program, the Competitiveness Operational Program and the Technical Assistance Operational Program.	Oversight and reporting on the matching funds blended with state and municipal finance.
	Energy Regulatory Agency (ANRE)	ANRE's main activity is to develop, approve and monitor the application of all mandatory regulations at national level necessary for the functioning of the electricity, heat and natural gas sector and market under conditions of efficiency, competition, transparency and protection of consumers. In 2010, ANRE took over the activities of the Romanian Agency for Energy Conservation (ARCE), assuming responsibility for monitoring and implementing energy in this field.	Licensing, regulating tariff policy and utility subsidies; responsible for the co-generated heating systems.
	National Regulatory Authority for Public Utilities Community Services (ANRSC)	Subordinate to the Ministry of Regional Development and Public Administration. Regulating and monitoring, at central level, the activities in the field of community services of public utilities under its attributions. Relevant areas of regulation over distribution and supply of thermal energy in a centralized system, with the exception of the activity of producing thermal energy in cogeneration.	Issuance of licenses for district heating operators which function with heat-only-boilers, supervising their compliance with the national legislation and issuing the secondary legislation.
	Romanian National Bank (RNB)	Licensing and regulatory powers in the banking field, being responsible for prudential supervision of credit institutions	Conducts the authorization, regulation and prudential supervision of credit institutions. Under NRRP, the National Development Bank (NDB) shall be established as a 100% state-owned credit institution operating under RNB supervision. The National Development Bank shall have a share capital of RON 3 billion (ca. €600 million).

Regional and Local Players			
Local Government			
	Municipalities, towns, communes, counties	Local authorities are essential actors of the Renovation Wave, a proper inclusion of the local level in the “Renovate” components of the National Recovery and Resilience Plans (NRRP) is hence crucial for their success.	Organization of project identification, application, procurement, MRV
Regional Managing Authorities			
	Regional development agencies (RDAs)	The financing of the organization and operational expenses of the RDAs is ensured from the European Regional Development Fund (ERDF). The financing level is approved by the Regional Development Council. The eight RDAs are not part of the government, but have received attributions and the role of managing authorities, a situation that will allow them to directly manage programs financed from European funds.	Development of regional operational programs, administration of regional development programs, definition of schemes, calls, applicant guides, selection criteria that would enable the implementation of 2021-27 Cohesion policy programs, prioritization of projects, targeting and delivery of public support, etc.
International Stakeholders			
Donors			
	European Commission	Renovating both public and private buildings is an essential element of the European Green Deal through its financial and technical assistance institutions – JASPERS, ELENA, InvestEU, etc.	The EC has singled out building renovation after the COVID-19 pandemic as a crucial sector where investments can help local businesses, boost economic recovery through financial and reform supports for building renovations.
	Bilateral Donors	Supporting reform and best practices	Financial support for technical assistance and investments
IFIs			
	European Bank for Reconstruction and Development	Lending facility for residential and commercial building EE	Green Economy Financing Facility lending for EE and RES investments in households and SMEs
	European Investment Fund	Lending facility for public and residential building EE	Sovereign and sub-sovereign lending
	World Bank	Helps strengthen many of Romania’s economic sectors and promotes faster convergence and inclusive growth. The Bank has utilized its full range of financing and advisory instruments, from Development Policy Loans and investment operations to Advisory Services and Analytics, including Reimbursable Advisory Services.	Technical assistance, advisory support and potential investment support for Renovation wave

3.1. Government Agencies

The above review of agency jurisdictions and in-country interviews with stakeholders revealed that the government institutions have fairly limited, often understaffed, teams of experts that are tasked with the fast-moving reform agenda and, even more importantly, enforcement. Furthermore, the distribution of roles between government agencies creates lack of coordination in cross-cutting areas – such as district heating, which is under the jurisdiction of the Ministry of Energy on the energy generation side, while the heating infrastructure within residential and public buildings is under jurisdiction of the Ministry of Regional Development and Public Administration. Similarly, the regulations of MABs/HOAs within the housing policy or governance of public buildings/institutions is not fully aligned with the energy efficiency, district heating, or on-site RES integration policies, etc. The existing stakeholder coordination mechanisms have been limited in cultivating productive dialogue and coordination of cross-cutting issues, particularly in coordinating the implementation of the LTRS, as well as engaging stakeholders external to the public government in the public discourse of policies and programs.

3.2. Regional Development Agencies and Local Authorities

Based on the online survey of the regional development agencies (RDAs) and local public authorities conducted by WB experts (summarized in “Annex 2. Survey and Capacity Assessment of Regional Development Agencies and Local Public Authorities”) the renovation partners ranked with lowest capacity were households and HOAs, followed by banks, local authorities and construction companies. When asked about their capacity building needs, 60% of RDAs and 75% of surveyed local authorities (Las) noted they required capacity building in project identification/preparation and simplification of application procedures.

The capacities of RDAs and LAs have a direct impact on the ability of local authorities to deploy investment resources. The deployment rate of the EU funds has highlighted the limited local institutional capacities regarding the implementation of investment programs. The deployment rate of European Regional Development Fund (ERDF) funds has grown: from 34% in 2019 to 55% in 2021. However, the rates remain low due to lack of adequate capacity for planning, disbursing, and managing approved projects.

It is also noteworthy that the deployment could be slowed down by the limitations of state and municipal budgets to match the EU funds, given that Romania’s budget deficit is estimated to be €17-20 billion.

Furthermore, there is a great heterogeneity in local authorities’ ability to spend the funds made available. Only some regions managed to get up to 50%, while others failed to spend even 10% of the total funds obligated. Under the circumstances of ample availability (and underutilization), the local authorities continue to rely heavily on government grants (including EU funds) for all building types, which are commonly matched with own funds from local budgets. The utilization of loans and guarantees is only marginal.

When respondents were questioned about financing instruments mainly utilized by the LAs and their status of implementation, the feedback revealed that most funding was received

under regional government operational programs and the EU, the NRRP is the main source of financing, and the programs are expected to scale up given the large share of applied and pending financing for building renovation projects.

More than half of the surveyed local authorities (51%) have included public buildings in their operational programs, with only 30% also including MABs. This reflects not only the political priorities and the expected positive impact of public-building EE on the public budgets, but also the relative simplicity of implementing renovation projects in public buildings benefiting from unified ownership and decision-making. By contrast, in MABs where multiple owners would have to make a decision – in a context of mixed incomes, absentee households, and vague ownership over common spaces – the decision-making process has been reported to be cumbersome and time-consuming, leading to a lower share of such projects in the regional programs (RPs).

The WB experts have held direct consultations with RDA teams dedicated to building renovation in the Center, Bucharest-Ilfov, West, Southeast, South-Muntenia and Southwest Oltenia development regions. Southeast, South, Southwest, South Muntenia and Center were also actively represented in the online survey.²²

All teams commented on their technical assistance needs, as well as the limited capacities of the local authorities. The specific TA needs noted by the RDA experts included:

- With the EC updating the requirements, the RDAs need to prepare updated documentation for implementation of the 2021-27 RP projects financed under the Cohesion Policy for efficient and responsible management of the approved programs and projects. These include:
 - Program planning and administration
 - Technical guides
 - Project evaluation guidelines
 - Conformity grid assessments
 - Rules for selecting, contracting
 - Monitoring and verification procedures
- Rules and criteria for prioritization of projects and possible targeting of financing, based on:
 - Applicants' local social circumstances and energy poverty
 - Building designation and occupancy
 - Level of technical ambition (EE and RES measures, moderate vs. deep renovation, with or without seismic consolidation)
 - Cost-effectiveness of proposed interventions and financial viability
 - Simplified cost options
 - Managing comprehensive renovation with limitations for ineligible expenses related to repairs which are related to critical infrastructures
 - Renovation of cultural heritage buildings
 - Consent from households for MAB applications

²² North West and North East regions did not respond to the survey participation invitation and interview requests from the WB office in Bucharest.

- Eligibility for “Just Transition Fund” for countries with regions with high carbon intensities and related socio-economic indicators, and a differentiated approach²³
- Financing instruments and arrangement of potential lending instruments through the State Treasury accounts;
- Maintaining complementarity of the RP with the NRRP, as many regions reported on projects being pulled out of the RP and submitted to the RRF for financing;
- Applying the pending new Methodology for Building Energy Performance Evaluation and aligning projects already identified under the acting methodology;
- Greenhouse gas emission reduction strategies;
- “Do no significant harm” principle, environmental impact assessment and climate-proofing;
- Means of conducting public procurement in a centralized manner, with particular attention paid to EE evaluation (organizing EE procurement through the Romanian electronic public procurement portal²⁴);
- Contracting and contract management;
- Financial management and reporting;
- Grievance redress;
- Technical capacities of beneficiaries to conduct quality assurance; and
- Development and implementation of awareness campaigns.

The RDAs also commented that local authorities need technical assistance and capacity building in the following key areas:

- Quality assurance for energy audits (oversight of energy audits being conducted in accordance with regulatory requirements), energy performance certification and deep renovation;
- Building lasting capacity for evaluation and oversight of projects, since most of the external consultants that authorities engage are short-term;
- Preparation of feasibility studies, which are a bigger challenge for smaller communities; and
- Developing technical specifications and terms of references for organizations of public procurement of building renovation projects.

3.3. Digitalization in Public Sector

Digitalization is cross-cutting in terms of the policy framework and institutional capacities: legal requirements will be required in the national policies, while public and market players will need the respective capacities to adequately transition to doing business digitally. The above discussion of limited capacities of local government and managing authorities in administration of programs is largely linked to one-off projects and lack of learning from past experiences, which can be remedied through the wide-spread adoption of digital processes

²³ For more information on Just Transition Fund see: <https://www.europarl.europa.eu/factsheets/en/sheet/214/just-transition-fund>

²⁴ Portals URL: <https://www.sn-seap.ro/oficiul-national-pentru-achizitii-centralizate-o-n-a-c/>

on mainstream construction projects. Therefore, adoption needs to be at scale, with a skilled workforce equipped with the digital competences and capacity to operate across the value chain and across projects of differing size, complexity and type.

Digitalization of the construction sector is increasingly recognized as a potential game-changer that could contribute significantly to sustainable development within the European Green Deal and the “Europe fit for the digital age” priorities. It is estimated that full-scale digitalization in construction would lead to significant cost savings (10–20% of capital project expenditure in building construction) in terms of both engineering and construction, as well as in the operations phase.

Although the level of digitalization is critical to the facilitation of public-program implementation, in Romania the rate of digitalization in the economy remains low. For example, Romania and Bulgaria are the only EU Member States where construction permits are still not issued digitally. Romania is also the only country in EU that has not yet completed putting in place a digital registry of properties.²⁵ According to the European Commission’s Digital Economy and Society Index (DESI) 2021, Romania, with a score of 32.9, ranks 27th out of the 27 EU Member States (EU-27 average score: 50.7). The digitalization level is particularly low in public services (ranks 27th), human capital (ranks 26th), and integration of digital technology in businesses’ activities (ranks 25th). These indicators directly affect the speed and effectiveness of public procurement of construction services from the private sector vendors.

Under the NRRP the Romanian government has allocated 20.5% towards digital-related measures, including public services, digital connectivity, cybersecurity, and digital skills, human capital and internet use.

The usage of Building Information Modelling (BIM) in Romania is relatively limited²⁶. The Ministry of Regional Development and Public Administration is developing a construction code which includes BIM, which was not available for review at the time of writing(July 2022). The NRRP also calls for development of guidelines to facilitate the implementation of the BIM. In the meantime, BIM remains mostly used in private projects where its use is often required by foreign investors in construction projects. In order to raise awareness, the Society of Construction Law in Romania offers seminars on BIM. Still, more training is required to increase the currently low level of its application in Romania.

3.4. Summary of Institutional Capacity Gaps

Based on the above analysis, the gaps in institutional capacities are summarized in Table 11.

Table 11. Institutional Capacity Gaps

Barriers	Resulting From

²⁵ Source: EC report on Digitalization in Construction Sector, 2021. Available at: <https://ec.europa.eu/docsroom/documents/45547/attachments/1/translations/en/renditions/native>

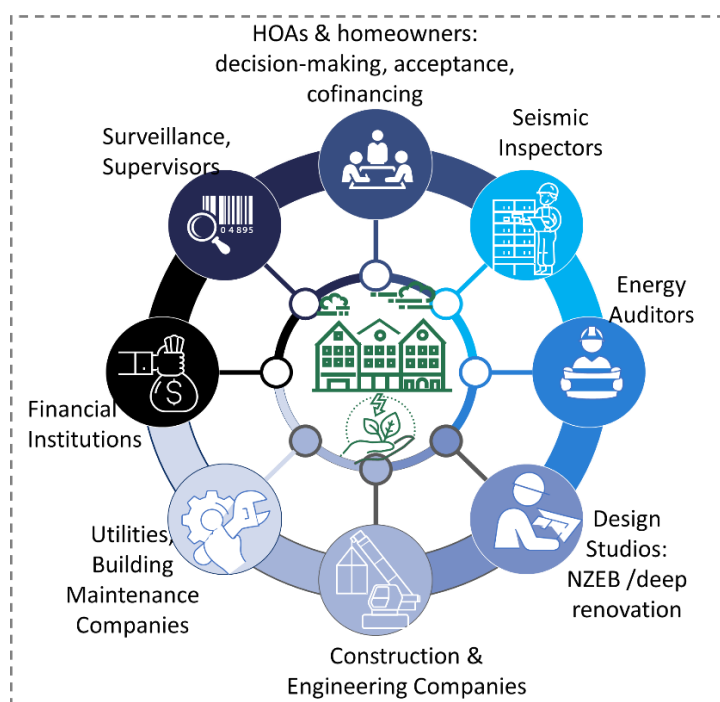
²⁶ For more information on BIM refer to Handbook for the introduction of Building Information Modelling by the European Public Sector, by EUBIM Taskforce, available at <http://www.eubim.eu/handbook>.

Limited institutional support and coordination of LTRS implementation at the state government level	Limited staffing and institutional capacities in providing proper implementation support, oversight and institutional coordination. Limited capacity (not enough human resources and need to increase correlation between different reforms)
Insufficient inter-agency coordination on the promotion of EE in buildings	Energy efficiency and building renovation are a cross-cutting subject and is on the agenda of multiple institutions, which are restricted in
Lack of staff and institutional capacity for facilitating renovation programs at the level of regional managing authorities and local public authorities	Lack of standardized tools and procedures for facilitation of project identification and implementation, including guidelines, audit/procurement templates, applicant guides, selection and prioritization criteria of projects, calibration of public support based on predefined criteria, standard technical specifications, case studies, list of accredited firms, etc.
	Complex technical procedures related to programming, planning, selection and evaluation criteria, procurement, management, MRV and other procedures related to the Cohesion Policy and Regional Operational Program administration.
Delivering energy efficiency through public procurement is slow and complex	Lack of staff and technical capacities among local authorities working with complex technical specifications, including design detail related to energy efficient renovation; limited digitalization.
Insufficient monitoring and reporting procedures on implemented building certifications, renovations	Lack of clear reporting requirements, procedures and oversight milestones to enforce reporting requirements.
Lack of digitalization	Slow rate of digitalization of documentation on buildings (building renovation passports, EPCs, building registry, etc.)

Section 4. Market Capacities

Interacting with public institutions and donors/IFIs, market players deliver goods and services while also serving as the beneficiaries of building renovation. The supply chain of building renovation services involves a large number of professionals and businesses (Figure 13). The decisions made by beneficiaries and the engagement of financing – combined with the quality of project identification and design analytics, the quality and competitiveness of construction bids and implemented works at the building envelope and utility infrastructure level, the diligence and transparency of surveillance and inspection, integrity of monitoring, and reporting and verification upon completion – these define the long-term improvements in the thermal performance and resilience of the renovated building stock.

Figure 13. Building Renovation Value Chain



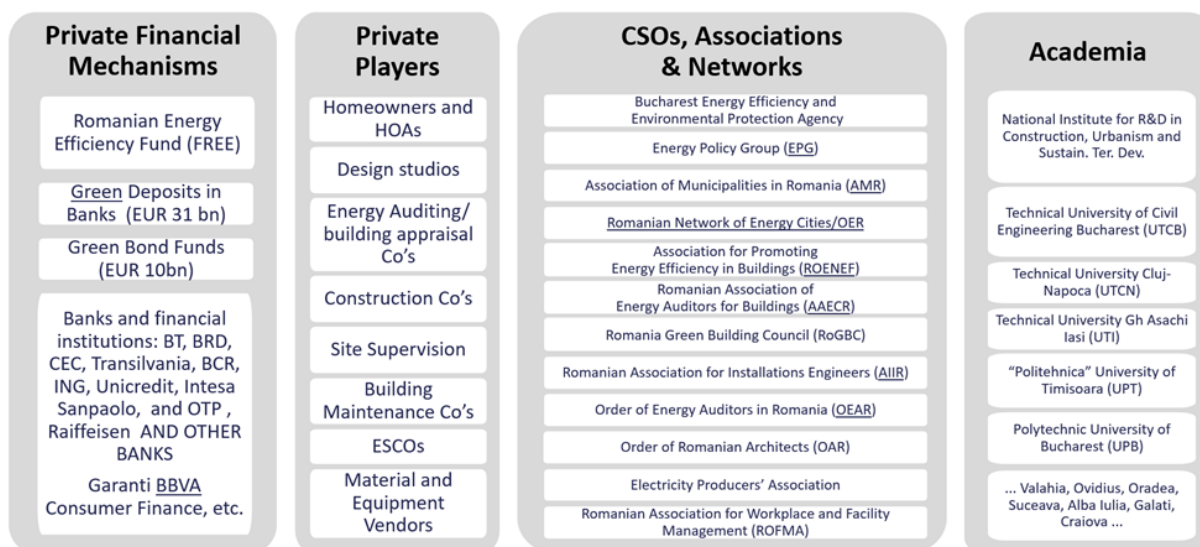
Source: Authors.

This section reviews the market players including academia and civil society organizations (CSOs), private sector firms (in construction, energy auditing, design, building maintenance, technology vendors, etc.), networks and associations, as well as homeowners associations (HOAs) and citizens.

While policies and public institutions are critical for setting the framework for investments, the supply chain of building renovation includes financial institutions, intermediaries, material and service vendors, buildings and facilities maintenance and management companies, CSOs and academia, as well as homeowners (HOs) and HOAs.

Figure 14 summarizes the outline of the market landscape in Romania, with an emphasis on the key players in building renovation activities.

Figure 14. Building Renovation Market Landscape



Source: Authors.

This section analyses the readiness of the above market players to adequately deliver the scale and quality of services necessary for the scale-up of the Renovation Wave in Romania.

4.1. Energy Service Companies

Legal barriers, the high level of grant financing, and the lack of inter-agency coordination has had an impact on ESCO market development in Romania. The ESCOs' main target clients are commercial and public buildings, as well as industrial enterprises. ESCOs depend mainly on donor/IFI grants since banks do not offer any proper financing. The NEEAP also mentions the creation of a funding instrument for financing ESCOs/EnPC (based on public and private funding) equivalent to €50 million/year until 2020 and €25 million until 2030, although this has not materialized.

Public buildings, which are commonly the easy target for energy performance contracting in other countries in the region, rarely have the legal mandate to implement energy efficiency interventions, either directly or through ESCOs. Even if they could, there is no certainty that the financial savings could be retained by the beneficiary institution, since public institutions' financing is based on energy bills from public institutions which appear in the overall budgets of their line ministries or local/regional authorities. The energy savings leading to financial savings are not trackable. Furthermore, the public buildings' budgets and respective financing received from the supporting authority are based on an operational budget that itself is based on actual energy costs; this eliminates the long-term incentive to invest in EE, since the savings will simply lead to budget reduction. Furthermore, due to the availability of 100% grants from public sources, public institutions lack an incentive for investments in EE under repayment from savings schemes with guaranteed or shared savings. The lack of awareness of the key beneficiaries, and the limited availability of tailor-made financial products for ESCOs, has limited the scale of ESCO sector development in Romania.

The EC Joint Research Center's regular surveys of the ESCO market revealed that the ESCO market in Romania had accelerated since 2007 with a few donor-funded pilot projects, then reached its peak in 2015, after which the market has been struggling. In 2017-18 there were a

few contracts, mainly in the private sector, and limited engagement in short-term public lighting projects (Table 12). The ESCO market needs active and constant stimulation from local and central State authorities. Furthermore, neither the individual ESCOs nor the Romanian Association of ESCO companies, ESCOROM, are engaged in national policy development dialogue for energy efficiency actions, which limits their ability to influence the sector's development. The ESCOs' engagement in private sector has also been limited, largely due to the subsidized energy prices and lack of tailor-made financing instruments for EnPC which could create favorable conditions for ESCOs and third-party investments.

Table 12. ESCO Market Dynamics

	2007	2010	2013	2015	2016	2017 ²⁷	2018 ²⁸	2019	2020 ²⁹
ESCO companies	2	14	15-20	20	10-15	<10	7-13	7-13	3-5 ³⁰
ESCO market (reported by ESCOROM members)				2 pilot projects	Buildings, public lighting	€47mln 10-15 contracts (mainly industry, 1 public lighting)	Industry, 1 social housing EE	4 contracts Lighting DH	Non-existent market, No public sector contracts

Source: adapted from JRC annual surveys of EU ESCO /EnPC market, compiled by WB authors.

Most of the ESCOs in Romania are small (less than 50 employees) and provide a combination of services, from energy supply to soft services related to engineering, auditing, consultancies and market studies. The typical projects have been in public buildings – hospitals, education and cultural buildings, social housing, public lighting, as well as commercial/industrial buildings.

After a temporary rise in the market triggered by the adopted new strategic policies for the ESCO sector, donor and IFI support, the market went down due to ample grant financing for public sector EE projects, limited legal incentives, and ambiguities in the legislative framework, combined with the limitations of the banking system, which hampered the ESCO development. In 2021 the Romanian ESCO market readiness was assessed by JRC³¹ as 3+ out of 10 points used for EU countries, specifically due to lack of demand-driven or quality labels

²⁷ Source; Boza-Kiss, B., P. Bertoldi, M. Economidou. EC JRC Survey, 2017. *Energy Service Companies in the EU: Status review and recommendations*.

²⁸ Source: Boza-Kiss, B., Toleikytė, A., Bertoldi, P. EC JRC Survey, 2019. *Energy Service Market in the EU: Status review and recommendations*.

²⁹ Source: EC JRC, Moles-Grueso S., P. Bertoldi, B. Boza-Kiss. *Energy Performance Contracting in the Public Sector of the EU – 2020*. Available at: <https://www.managenergy.org/file/2023/download?token=E2JB5syp>

³⁰ The ESCO association has five members, while the ANRE roster of ESCOs lists three companies: <https://portal.anre.ro/PublicLists/ListeEficienta/PrestatoriServiciiPJEF>

³¹ Source: Report on ESCO Market Readiness in EU, 2018. Available at <https://publications.jrc.ec.europa.eu/repository/bitstream/JRC104394/kjna28405enn.pdf>

for improved energy performance. Furthermore, there was also no proper monitoring and verification for ESCO projects. The experience of the Romanian EE Fund (FREE), while limited in scope, indicates the economic viability of such investments (whereby the fund is replenished from repayments on disbursed loans) and demonstrated profitability of EE investments in public and private buildings, as well as leveraged commercial bank financing.

To scale up building renovation, Romania needs to eliminate the distortionary grant financing in economically viable energy efficiency investments. This would reclaim the market for energy performance contracting and ESCOs, allowing local authorities to leverage financial instruments and scale up the investments. The positive experiences of past ESCO projects need to be documented and replicated. Also, the critical tools required for proper functioning of ESCO/EnPC projects include (a) a proper legal framework enabling long-term budgeting and retention of savings from EnPCs in the public/municipal sector, (b) proper measurement and verification (to document and monetize the savings), and (c) financial instruments that are tailor-made for EnPC terms.

4.2. District Heating

District heating (DH) is an important component of the urban energy landscape in Romania. Since 1992, the DH market has shrunk from a customer base of 8.5 million to 3.8 million in 2014, and only 1.3 million left in 2020 in 60 localities across the country, of which nearly 1/3 are in Bucharest. Since 2009, the DH market has annually registered 2-5% new disconnections compared to each previous year. The disconnections are caused by poor service quality and high prices, which are a result of little investment in the sector, inefficiency, souring losses, unreliability.³² **Without drastic measures, this sector's decline is inevitable, which will eliminate the potential for low-carbon district heating solutions in the future, such as low-temperature heat, district cooling, RES-based district energy supply, etc.**

The massive investment resources channeled into modernization through the NRRP³³ are currently not targeting the DH sector due to the limitations of the per-unit investment costs, lack of integrated district solutions, and limited coordination between the key government agencies in this domain. Although the thermal energy demand will drop in the DH-connected buildings after renovation, the energy losses in the heat generation and supply networks will remain or even intensify. Furthermore, without end-use metering and demand-side management possibility, the renovated buildings will be overheated and effectively be cooled by opening the windows, discrediting the overall purpose of the renovation.

Deep building renovations must include efficiency upgrades of building engineering infrastructures, including the internal heat distribution systems. No less important are the elimination of losses and inefficiencies at the district heating substation and on the connecting heating supply main, as well as the automation of temperature controls.

³² Source: Sinea A., G. Jigla. Energy Poverty in Urban Context: Policy Brief. Center for the Study of Democracy. Retrieved from: https://www.democracycenter.ro/application/files/7916/2686/2125/Energy_poverty_buildings_-_report.pdf

³³ Official website for the Romanian National Recovery and Resilience plan: <https://gov.ro/ro/stiri/unda-verde-de-la-comisia-europeana-pentru-pnrr&page=1>

4.3. Homeowners and Single-Family Homes

The majority of Romanians live in small, single-family homes (SFHs), which comprise about 58% of the total housing area³⁴. The SFH energy consumers' energy consumption patterns are heavily influenced by subsidized energy prices. Especially in rural areas, there is a heavy reliance on unregulated and unsustainable solid fuel use (coal, biomass) in low-efficiency heaters, often in poorly built homes. The limited access to sustainable heating alternatives (district heating, natural gas) leads to high carbon footprint of the generated thermal energy, as well as health threats through indoor air and local atmosphere pollution.

The Romanian government, through the Environmental Fund Administration (*see the section on National financing schemes (governmental level) in Annex 3. Summary of Financial / Investment Programs Related to Building Renovation*), offers a number of financing mechanisms for integration of EE and RE schemes. Nevertheless, the limited awareness of the general population on the financial benefits of energy saving measures, the high technicality of the eligibility criteria and application procedures of financing mechanisms, the need for up-front expenses in project development and co-financing, as well as higher consequent operation and maintenance costs of cleaner, more sustainable heating options hamper their transition to more efficient energy performance. Furthermore, in case of older housing, EE expenses will need to be combined with significant structural repairs. In cases with extremely depreciate single-family homes the State must consider development of low-energy social housing for potential resettlement.

In addition to tailor-made, simple and accessible financing programs coupled with social safety nets for the low-income population, the homeowners need awareness raising, technical advice and guidance on the technical solutions available for building renovation and their benefits. Without such technical support and public outreach, the pace of SFH renovation is unlikely to accelerate.

4.4. Homeowners' Associations and Households in Multi-Apartment Buildings

Due to a number of legal, institutional, social and cultural conditions, HOAs face a number of difficulties in securing the necessary funding to invest in MAB thermal modernization (EE improvements, renovation):

- Aging building stock and large maintenance and renovation costs
- Low monthly maintenance fee rates, limited cash flow; typically, no fees for renovations
- No capital reserve funds
- Limited borrowing capacity (lack of collateral) and credit history
- Insufficient institutional capacities to design and implement complex investment projects
- Difficulty achieving majority (2/3) vote to support HOA EE improvement investment decisions.

³⁴ Source: LTRS

While the HOAs are legally allowed to hire private maintenance/management companies, it is not common for the building management to be completely outsourced. The HOAs commonly hire private firms for small repair projects.

In the long-run, the HOAs must prepare and engage in borrowing for investments in building renovation, but in the near-term, while the NRRP is tailored to grant financing, HOAs need to engage in the discussions and decision-making related to their MABs. While MABs are sometimes omitted in the decision-making, oversight, commissioning and acceptance of renovation works, even when included, the HOAs/ MAB management lack the capacities or skills to develop a bankable project, properly organize the financing and procurement, and oversee the quality of services and works in the project pipeline, which includes:

- Detailed Energy Audit
- Design Documentation
- Tender Works
- Tender Site Supervision
- Tender Monitoring, Reporting, and Verification (MRV)

While the Government can opt out of full prepayment of such investments, the households must contribute to the repayment of the investment costs. Also, under the current circumstances, it would be strongly advisable that the investment funds come through commercial financial instruments to allow for scaling up of the renovation wave.

Considering the absence of collateral assets at HOAs, to be eligible for bank lending, these loan instruments require de-risking mechanisms for banks, such as loan guarantees. No less important is the technical de-risking of these projects through the delivery of needed technical assistance to HOAs in the identification, design, procurement and implementation of renovation investments.

4.5. Homeowners’ Utility Affordability and Energy Poverty

According to the Eurostat data, in 2020 a total of 10% of the Romanian population was unable to keep their homes adequately warm (Table 13).

Table 13. Inability to Keep Home Adequately Warm: Eurostat Data

Location / Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
EU - 28 countries	9.8	10.8	10.7	10.3	9.4	8.7	7.8	7.3	6.7	n/a
Bulgaria	46.3	46.5	44.9	40.5	39.2	39.2	36.5	33.7	30.1	27.5
Croatia	9.8	10.2	9.9	9.7	9.9	9.3	7.4	7.7	6.6	5.7
Romania	15.6	15.0	14.7	12.9	13.1	13.8	11.3	9.6	9.3	10.0

Source: Eurostat https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_mdes01&lang=en.

Romanian Government is expected to spend nearly 3% of GDP (RON 40 billion or €8 billion) on energy subsidies in 2022.³⁵ In addition to other much-needed short-term national measures, such as emergency income support for households and state aid for companies,

³⁵ See for example <https://www.romania-insider.com/ro-govt-energy-subsidies-jul-2022>

energy efficiency measures are critical in the long run to avoid disruptions in the ongoing energy transition. As required by the recast EED, it is necessary to introduce a legislative framework that will act as long-term insurance for citizens and businesses alike against the recurring energy price volatility, by reducing energy consumption across the economy.

Although the sharp spike in energy prices has negative ramifications for the population and the economy, it improves the economic viability of energy efficiency measures, since it helps all energy consumers reduce their energy bills – which is particularly challenging for vulnerable consumers in Romania, where energy poverty is a widespread phenomenon.

The social risk is not evenly distributed. As shown in Table 14, some development regions have higher rates of severe material and social deprivation than others: the South-East and South-Muntenia regions have the highest rates of social deprivation (50-55%), while in other regions, such as North-West, Center or West, the rate is somewhat lower (29-31%). More recent statistics are not available for 2021-2022, but up to 2020 there is a marked decline in the share of population with severe social risks in all development regions.

Table 14. Severe material and social deprivation rate, by development regions

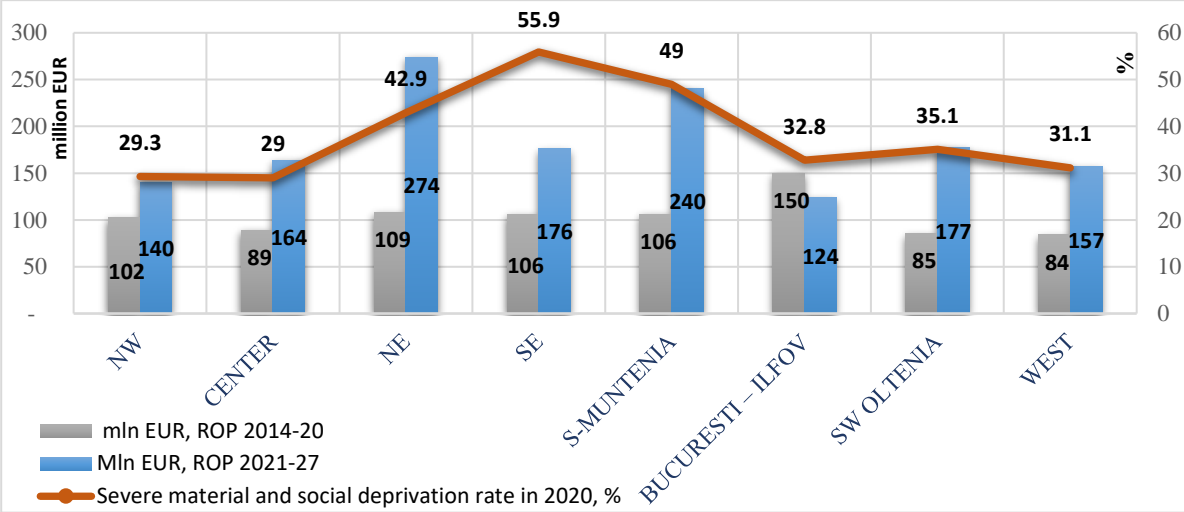
Macro-regions and development regions	Years				
	2016	2017	2018	2019	2020
	Share: %				
TOTAL	50.6	47.7	42.6	38.7	38.9
Region NORTH-WEST	49.5	40.3	33.3	25.6	29.3
Region CENTER	38.0	32.6	27.0	23.7	29.0
Region NORTH-EAST	58.5	54.0	49.9	45.3	42.9
Region SOUTH-EAST	64.2	60.7	58.7	56.2	55.9
Region SOUTH-MUNTENIA	57.4	58.0	52.9	50.6	49.0
Region BUCURESTI – ILFOV	40.5	43.3	36.9	34.7	32.8
Region SOUTH-WEST OLTENIA	51.4	53.1	46.6	36.7	35.1
Region WEST	35.8	31.2	27.2	29.0	31.1

Source: INSSE

When compared to the Romanian and EU contribution to the Regional Operational Programs' budgets for 2014-20 and draft Regional Program budgets for 2021-2027, the funding contribution for North-East (population ~3.2 million, €85.6/capita) and South-Muntenia (population ~2.9, €82.7/cap) has been among the highest for 2021-27, but for the most socially challenged South-East region (population ~2.4 million, €73.3/capita), the funding contribution (both total and per capita) is significantly lower than in the latter two regions (see Figure 15).³⁶

³⁶ Source for population data: <https://www.citypopulation.de/en/romania/admin/>

Figure 15. Severe Deprivation and RP Investment Contributions, by Development Region

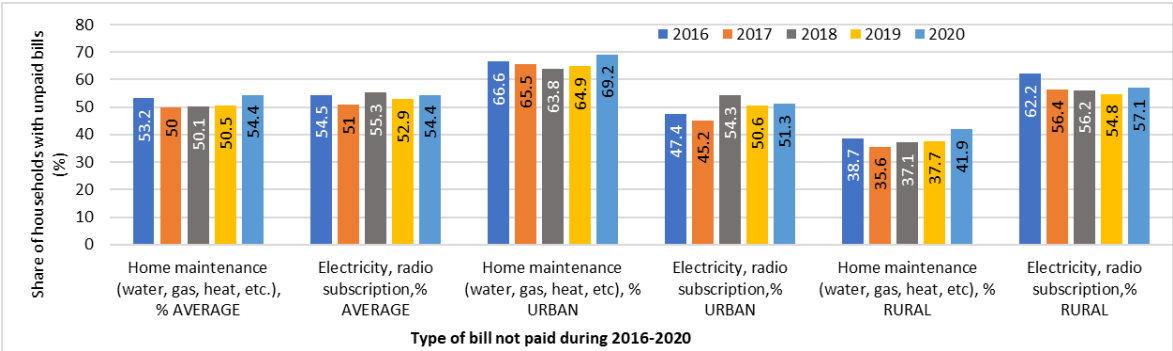


Source: National Agency for Payments and Social Inspection.

As the figure shows, there also is a significant difference between urban and rural poverty. Urban population struggles have higher arrears for water, gas and heat bills (69.2% of bills not paid in 2020) and less for electricity (51.3% of bills not paid in 2020), while rural population has lower arrears for water, gas and heat (41.9%) and higher – for electricity (57.1%).

The share of energy poverty is a critical variable in the design and further development of building renovation programs. Gradual phase-out of grant assistance is necessary to scale up renovation efforts, which will require homeowners to contribute financially. The low-income households, which struggle to pay their energy bills, will be unlikely to possess adequate savings for co-financing, or be sufficiently credit-worthy to enroll in loan instruments for participation in the investment projects. To mitigate the investment risks related to the socially vulnerable households, while still aiming to leverage private sector participation, the financing instruments must transition from uniform grant coverage to partial grants, while targeting socially vulnerable households with larger or full grant coverage.

Figure 16. The share of households that could that could pay their bills on time (by type of expense), 2016-2020



Source: National Agency for Payments and Social Inspection.

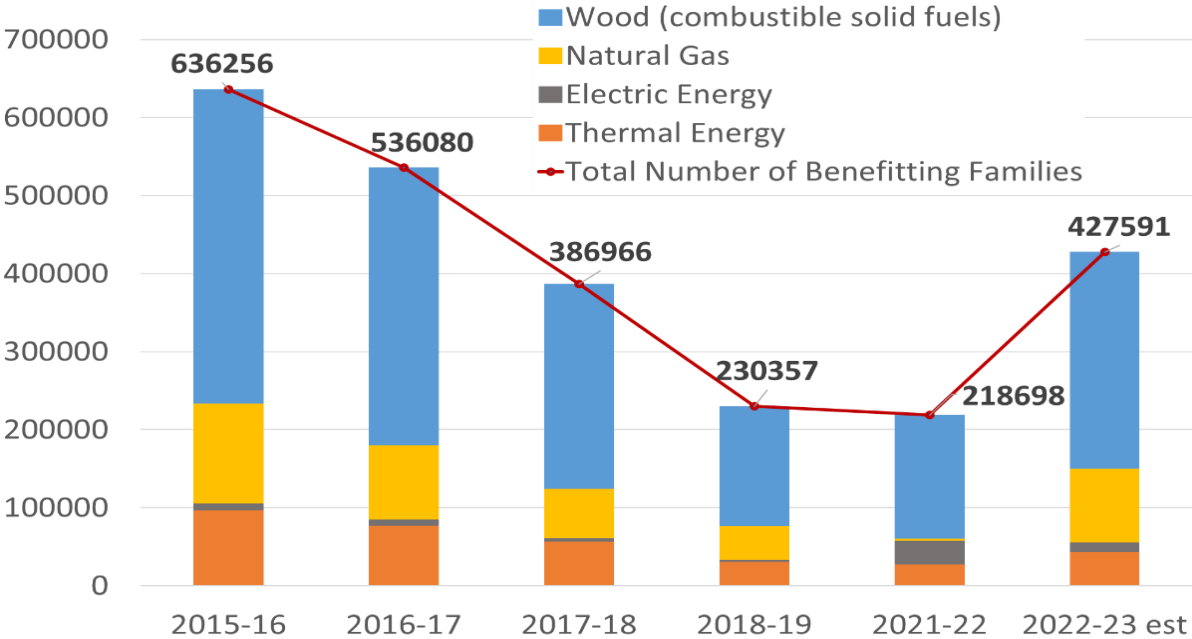
According to the 2016-20 data, the largest share of aid was for wood, increasing from 63% to 67% at the end of the reference period, followed by the share of aid for gas and heat, which did not register major fluctuations.

In the 2022-23 heating season, the number of beneficiaries is estimated to double. As can be seen in Figure 15, more than 427,000 families are estimated to become beneficiaries of home heating aids from the State for the 2022-23 heating season. The monthly public spending on energy assistance will nearly triple (from 15.78 million LEI/month in 2021-22 to 43.23 million LEI/month in 2022-23). More than half of the state home heating aid subsidies cover the cost of combustible solid fuels in the light of the energy crises resulting from the Ukraine war.

Such a large share of energy poverty also poses risks for the viability of building renovation investments, specifically:

1. Socially vulnerable households generally tend to have underheated dwellings, because of comfort sacrifices triggered by limited affordability. This creates lower baseline for energy efficiency investments. Insulation often leads to indoor comfort improvements, while financial savings are limited. **The MRV protocols must also account for comfort improvements, which will have health and social benefits.**
2. Application of loan instruments for whole-building investments in MABs will face bottlenecks related to low borrowing capacity of socially vulnerable households, creating a credit risk for financiers. **Targeted grant subsidies for the vulnerable households participating in whole-building lending schemes will be necessary to eliminate this risk.**
3. Larger demands for public funds for energy subsidy needs compete with the financing demands for building renovation. However, **renovation policy must acknowledge that energy efficiency can not only help tackle the present energy crisis, but also alleviate energy poverty in a more coherent and lasting way than direct energy subsidies. The resulting savings in heat subsidies must be accounted for and rechanneled for further reinvestment in energy efficiency improvement measures.**

Figure 17. Number of Families Receiving Home Heating Aid, by Fuel Type



Source: National Agency for Payments and Social Inspection.

4.6. Construction Sector

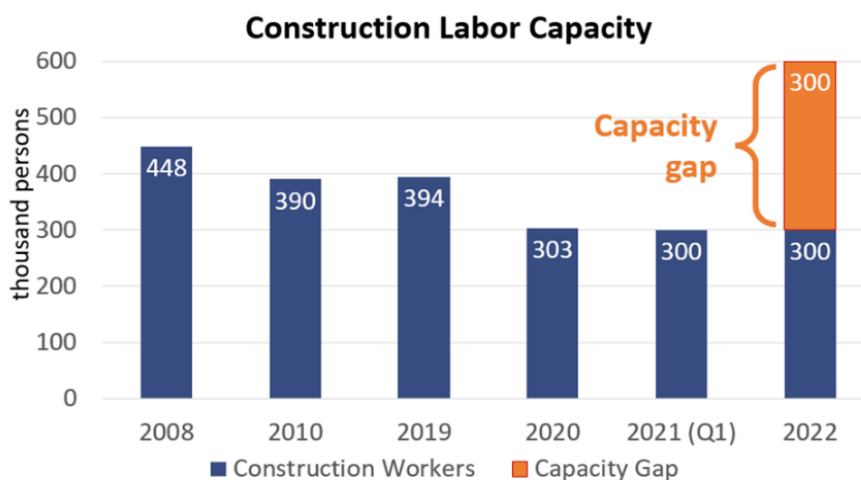
There were 611,748 persons employed in the Romanian construction sector in 2020, which was 3.5% above the 2010 level. The growth has mainly been attributable to subservices in construction sector, including 22.6% more employees in architectural and engineering activities (i.e. designers, auditors, certifiers, supervisors, etc.), 15.0% in real estate activities and only 4.5% in narrow construction³⁷. The narrow-construction workers represent less than 50% of the labor force in the sector.

The adverse consequences of COVID-19 also included thousands of companies applying for insolvency, while new company registrations largely opted for limited liability companies. In the first half of 2021, construction sector registered 542 company bankruptcies, the largest among all economic sectors.

4.6.1. Construction Labor

Despite the increase in the volume of activity, the European Construction Industry Federation reports that the average number of employees in narrow construction registered a decrease of 23% (303,000 in 2020 compared to 394,000 in 2019). 72,000 jobs were lost in 2020,³⁸ leading to serious labor-shortage challenges for Romanian construction companies. Due to relatively low wages compared to Western neighbor countries, there is significant migration to western European countries, reducing the number available in Romania (Figure 18).

Figure 18. Available Construction Workers and Capacity Gap



Source: Eurostat.

Furthermore, the number of tertiary students in engineering, manufacturing and construction has been consistently decreasing over the past decade (decreased by 38.1% from 37,596 in 2010 to 23,263 in 2019), which limits the country's ability to replenish the labor market with

³⁷ The "narrow" construction labor refers to construction workers who perform physical labor on construction sites or operation of construction machinery, site management, etc., which "soft" labor refers to related services such as architecture, engineering, design, audits, site supervision, brokerage and other associated works, which are discussed further in the report.

³⁸ Source: European Construction Industry Federation FIEC 2021 Statistical Report for Romania available at: <https://fiec-statistical-report.eu/2021/romania>

new forces. Romania does not have sufficient capacities of vocational schools that could prepare a new generation of construction workers. As per European Construction Market Observatory, to implement the already announced short-to-medium-term construction projects, including the NRRP and LTRS, Romania needs an additional 350,000 workers to supplement the existing ones.

Consequently, some construction companies chose to contract migrating workers from the East (Central Asia, Southeast Asia), which are not skilled and, once legalized in Romania, often migrate further West. This could limit the capacity of the construction sector to deliver the proper volume of building renovations targeted in the LTRS.

Employers' Federation of Building Companies (FPSC), Romanian Association of Construction Entrepreneurs (ARACO), reports that the minimum wage in the Romanian construction industry is RON 3,000 (€615), RON 700 more than the national minimum wage.

Several initiatives will strongly stimulate the construction sector, including:

- Romanian government's First Home Program providing affordable loans to more than 260,000 with grant co-financing of €5.2 billion
- As a part of NRRP, the Romanian government has allocated €2.6 billion for building infrastructures such as the construction of new social housing and retirement homes, hospitals and healthcare facilities, and preschool facilities; and €2.7 billion for the energy-efficient renovation and seismic renovation of multi-apartment buildings and public buildings. In the context of digitalization, the government has allocated around €1.5 billion for the digitalization of public administration in key areas such as public procurement, skills development, employment and social protection, etc.
- Both the NRRP and the European Fund for Strategic Investments (EFSI) have lined up nearly €7 billion for civil engineering projects, road construction, railway modernization, development of zero-carbon rolling stock.

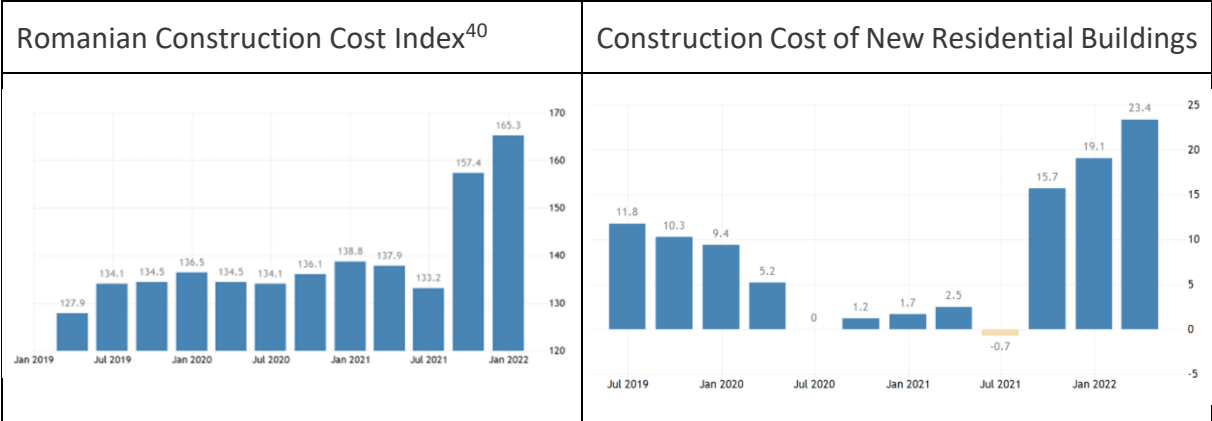
The key contractors in the Romania construction market are Webuild SpA (with over 50% of the market share), Finast Srl, Spedition Umb SRL, FCC Construcción SA, STRABAG SE, Electromontaj SA, Lemacons, PORR AG, Tirrena Scavi SpA, and Mapa Group. The key consultants in the Romania construction market are SKB Kontur group, WorleyParsons Ltd, ICE Germany, SC Tecnic Consulting Engineering Romania SRL, Consitrans, Ernst & Young Global Ltd, Egis International, Search Corporation SRL, Spea Ingegneria Europea SpA, and S.C. Metroul SA.³⁹

4.6.2. Construction Costs

The construction costs increase, reported by Eurostat (Figure 19), registered a 25% in 2020 and 41% for the first quarter of 2021.

³⁹ Source: Global Data report for Romania as of April 2022 available at: <https://www.globaldata.com/store/report/romania-construction-market-analysis/>

Figure 19. Construction Costs Index (left) and Unit Cost of New Housing Construction (right)



Source: Eurostat.

Under these circumstances, an increase in energy costs and base materials due to both import difficulties and increases in global prices would lead to even higher costs and discourage investment in new construction. The Romanian economy is not strongly connected to that of Russia, Ukraine or Belarus, with imports from all three countries totaling at less than 5% of all imports into Romania in 2019 and exports to them totaling less than 2.5% of all exports in 2019 (last year unaffected by the pandemic, source: NSI). However, there are some segments where trade intensity is much higher: energy and ores. In 2019, 37% of all mineral fuels and oils and 40% of ores came from one of these three countries. Evolving trade difficulties would negatively impact the availability of fuel and materials and, thus, the price of construction.

While construction costs impact supply, the other two issues (interest rates and inflation) work together to negatively impact demand. The National Bank of Romania increased the reference rates to 3%: the 5th raise since September 2021. This will have a knock-on effect on the costs of consumer and new mortgage loans, making them more expensive, at a time when the residential real estate prices are highest since 2008 with asking prices for apartments up 20% in March 2022, compared to the same month of 2021 (source: imobiliare.ro). Coupled with record levels of inflation, especially related to fuel, heating and food, this would make financing new home purchases exceedingly difficult, and will push demand down for new construction. This creates better market conditions for construction companies to take interest in renovation contracts while the new housing development has slowed down.

Increased construction costs make public investment in renovation more difficult. **The increasing current account deficit, the need for subsidies to counter the effects of inflation and energy costs** on the most vulnerable citizens, and increased defense spending (to 2.5% of GDP in 2023, from 2% in 2022) are all eroding the public funding available for construction of civil engineering projects. The building renovation funding from the Romanian Government and the EU played an important support role for the construction industry, creating the much-needed influx of capital to the sector struck by the pandemic. However, the market volatility

⁴⁰ Construction Cost Index is an indicator of the average cost movement over time of a fixed basket of representative goods and services related to Construction Industry. It is the monthly or quarterly measure of Construction Cost movement for the Romanian Industry released by Trading Economics, based on Eurostat available at: <https://tradingeconomics.com/romania/construction-cost-idx-input-prices-for-materials-eurostat-data.html>

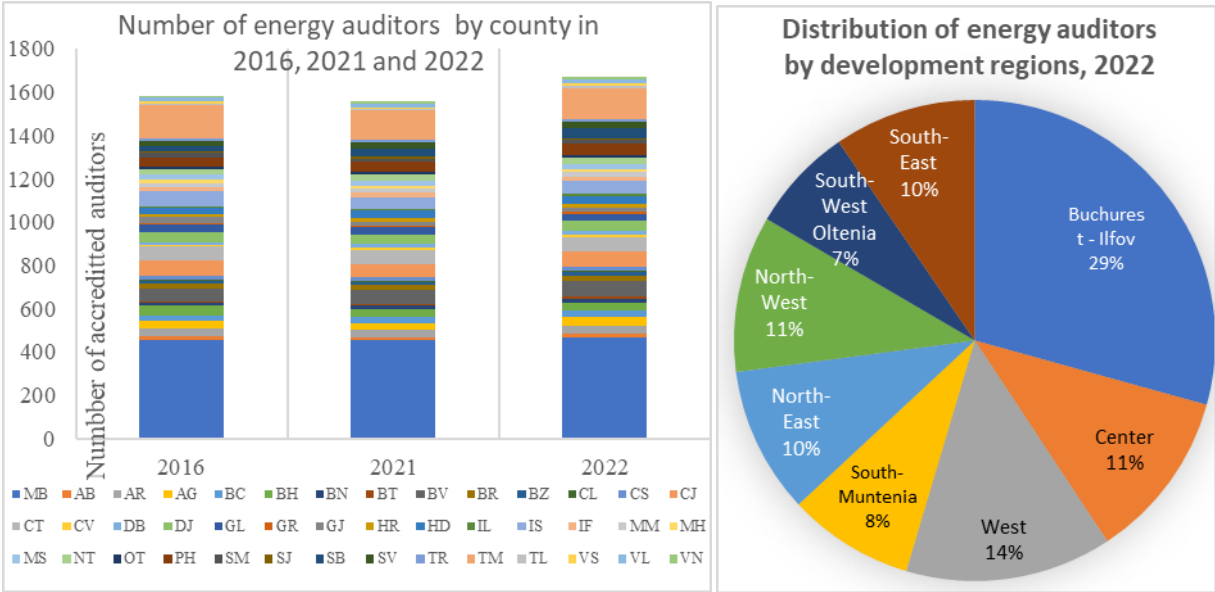
created new challenges due to the escalating costs of construction.⁴¹ Global supply chain disruptions due to sanctions, rising energy and transport costs are happening at a time when there is a moderate worker shortage and increased pressure from employees for more remote work options.

Given the vital role of the construction industry in renovation programs, special programs are necessary to support the development of workforce, supply chain recovery, insurance against cost-overrun risks, and risk management tools in procurement procedures.

4.7. Technical Service Vendors: Auditors, Architects, Assessors, Supervisors, and Certifiers

Similar to the ESCO market, the markets for energy auditors, architects, energy performance certifiers, and site supervisors have their challenges. Two types of energy auditors are accredited: (1) residential & EPCs, and (2) all buildings. As reported by the Association of Energy Auditors for Buildings (AAEC) and the Order of Energy Auditors (OAER), the identification of technical measures for building renovation are fundamentally based on the skills and integrity of energy auditors that assess the buildings. There have been 1583 accredited auditors in 2016, 1560 in 2020 and 1671 – in 2022.⁴² The number of energy auditors is presented in Figure 20, grouped by county and development region.

Figure 20. Energy auditors by county in 2016, 2021 and 2022 (left) and Spread by Development Regions (2022)



Source: Ministry of Regional Development and Public Administration, <https://www.mdlpa.ro/pages/auditorienergetici>.

⁴¹ Source: <https://buildecon.blog/category/romanian-construction/#:~:text=Construction%20costs%20already%20grew%20at,costs%20compared%20to%20January%202021>.

⁴² Total number of all auditors', regardless of their accreditation status.

As can be seen in the figure, the countries that are home to technical universities have a larger population of energy auditors, and 40% of all auditors are in Bucharest-Ilfov and Center. In interviews with the other regions indicated a local shortage of energy auditors. With South-Muntenia and North-Eastern development regions having the highest demand for investments, which are embedded in the regional operational funds, these regions have a smaller share of auditors compared to other regions, which can pose a limitation for the identification and development of quality projects.

The existing regulatory framework and oversight mechanisms do not have sufficient filters to ensure proper quality of energy audits.⁴³ There is no official building energy performance calculation software: the tools used by the experts come from the private domain and are not cross-referenced or validated with the national legislation. With the registered climate change, there is emerging need to integrate cooling as part of the building renovation to cope with high summer temperatures in some localities as part of renovation. However, with cooling integrated the set targets of 30% or 60% energy saving will not be possible to achieve. The internal heating systems are also often omitted from the energy audit reports based on clients' requests. Furthermore, the training programs from the universities do not always adequately prepare the professionals to properly conduct the calculations. There are **limited quality assurance mechanisms for energy audit reports, combined with a poorly enforced penalty mechanism and the absence of a mechanism for revoking expert accreditation**. The consulted CSOs expressed concerns on the quality of registered energy auditors, which produce audit reports without proper data gathering, site visitation, failing to comply with the minimum energy performance requirement ($SEC \leq 100 \text{ kWh/m}^2$). The required 10% sample verification of all energy audits is not applied, and there is no validated MRV protocol, no digitalized building registry or BIM to facilitate proper data access, EPC, and quality assurance in general. As an exception, the experience of the loan-funded EIB building energy efficiency program in Bucharest was noted,⁴⁴ which has applied a thorough quality assurance and quality control system, which could be replicated.

The absence of a unified, digitalized building registry reduces the efficiency of technical analysis across the sector. A system, which can be designed and utilized by the sector's professionals, must be inter-operable with geolocation software, building cadastre data, building renovation passports, EPCs, electronic public procurement platforms, etc.

The consultations with the market stakeholders also revealed concerns about the quality of seismic appraisals conducted for buildings subject to renovation. Due to the fixed ceiling for ancillary (including seismic) expenses eligible for the grant financing, **building owners have no incentive to conduct a thorough assessment of the buildings' structural resilience**, which could lead to the buildings' exclusion from the moderate renovation programs. Furthermore, the screening techniques used to appraise the buildings' structural integrity are insufficient for identifying covered technical flaws in the buildings' bearing structures. This creates the

⁴³ Romania EE Policy Profile available at: <https://www.odyssee-mure.eu/publications/efficiency-trends-policies-profiles/romania-country-profile-english.pdf>

⁴⁴ EIB statement on Bucharest EE program available at: <https://www.eib.org/en/press/all/2016-352-eib-continues-to-support-investments-improving-the-energy-efficiency-of-residential-buildings-in-bucharests-sector-6.htm>

need for a more-thorough assessment of the buildings’ structural resilience and the introduction of a secondary quality assurance to ensure that costly thermal modernization investments are not made on structurally compromised buildings without due seismic reinforcements. Furthermore, the current cap on ancillary costs is leading to misrepresentation of genuine structural flaws leading to massive investments in potentially compromised structures without proper reinforcement which contradicts the National Seismic Strategy as well as the economic logic of EE investments which require the building lifespan to be adequately long to allow for investment payback.

When energy audits and seismic appraisal are concluded, the technical design documentation (TDD) must be developed by architects and engineers in preparation for the construction. There is acute need for enhancing the skills of the architects and engineers engaged in designing renovation projects. To accelerate the development of high-quality renovation projects at scale, **standardized solutions are necessary for common building types, with exemplary technical specifications for guiding both the design and the construction. This will help ensure the proper deployment of both EE technologies and seismic reinforcement interventions.**

4.8. Key Gaps in Market Capacities

Based on the above findings regarding the capacities of market players, the conclusions on market barriers are summarized in the Table 15.

Table 15. Market Barriers

Barriers	Resulting From
Lack of proper understanding among consumers on the cost-reflective energy prices, energy security and demand-management concerns, benefits of energy efficiency and comprehensive building renovation	Insufficient outreach and communication to energy consumers on the need for elimination of subsidies, cost-recovery energy prices and the need for investments in demand-side energy efficiency
Potential financial savings may be lower than estimated due to growing energy prices and underheating; as well as potentially higher construction costs and higher-than-expected reinforcement/consolidation costs	Many of the dwellings are underheated. The energy savings in the energy audits are calculated based on the "normalized" energy consumption assuming the normative level of thermal comfort.
Limited willingness and capacities of HOAs to engage in building renovation projects	Low maintenance fee rates, low collection rates, limited cash flow; No capital reserve funds; Limited borrowing capacity and credit history Insufficient institutional capacities to design and implement complex investment projects Difficulty achieving majority (2/3) voting on investment decisions, many absentee households
Limited willingness and capacities of SFHs to engage in building renovation projects	Limited borrowing capacity, lack of awareness on the benefits of EE and lack of tailor-made financing instruments

Lack of standardized technical solutions for SFHs promoting RES-integration	Limited experience and publicized success stories on the optimal interventions from but cost and sustainability perspective
Declining ESCO market and limited energy performance capacities	Distorted market where public finance is available without repayment obligations and
Interrupted supply chains and lack of ready-made solutions	Disrupted supply of imported construction materials and internal
Insufficient awareness among private banks on the potential market demand for EE lending	Lack training of municipalities/banks/contractors
Lack of qualified energy auditors, and limited quality assurance on energy audit reports	There is a lack of accredited energy auditors, especially in regions outside of larger cities home to technical universities. Quality assurance of energy audits is lacking, eliminating professional quality assurance of auditors' work integrity.
Lack of qualified construction workers and construction market capacities	Limited vocational training facilities, strong emigration trends, post-Covid market recession.
Limited capacities of design institutions and architects in developing comprehensive thermal modernization technical design documentation	Limited university training on integrated EE-seismic retrofitting, limited quality assurance and lack of standardized solutions
Insufficient consideration of seismic risk	Stakeholder consultations reported that independent structural assessment is often not thorough, potentially leading to moderate renovation of buildings with unidentified structural risk. Considering the high seismic risk in the country (and especially Bucharest), considered to be a risk

Section 5. Mapping of Ongoing Financing Programs and Initiatives

This section summarizes the various funds that have been or can be utilized to finance building renovation. First, it provides an overview of past and current funding resources and their use in building renovation projects in the four building sectors – multi-family residential buildings, single-family homes, public buildings, and commercial (and industrial) buildings. Since much of the prior funding for renovation has been provided by EU funds, mostly under the Cohesion Policy, this section summarizes the major funds. It then identifies and addresses the potential funds available in the near future for building renovation.

5.1. Cohesion Policy of the European Union and Related Funds

The Cohesion Policy promotes economic, social and territorial cohesion among the Member States and regions of the EU. Cohesion Policy priority areas (objectives) for 2021-27 include:

1. A more competitive and smarter Europe
2. A greener, low-carbon transitioning towards a net zero carbon economy
3. A more connected Europe by enhancing mobility
4. A more social and inclusive Europe
5. Europe closer to citizens by fostering the sustainable and integrated development of all types of territories

According to the legislative package 2021-2027 proposed by the European Commission, through European Structural and Investment Funds (ESIF) the allocations dedicated to Romania from the cohesion policy funds amount to approximately **€31 billion** and are distributed by funds as follows:

- European Regional Development Fund ERDF – €19 billion
- European Social Fund Plus - €6.7 billion,
- The Cohesion Fund - €4.5 billion, including the allocation to be transferred to the Connecting Europe Facility (CEF) - €1.1 billion, of which only 70% is available to the Member State,
- Just Transition Fund – €1.8 billion.

The energy sector investments aimed at improving energy performance in houses have reached and improved energy consumption in 33,905 households. Overall, from the 93,082 households initially included in political decisions, the approved plans backed by financing will reach additional 51,006 households.⁴⁵

In public buildings, investments support by EC have led to reduced consumption of 2,324 MWh/year. In investment projects which have already been approved on the political level as much as 343 974 MWh/year can be saved, however only projects with annual energy saving potential of 270,232 MWh/year have already been planned and backed with financing.⁴⁶

⁴⁵ Source: EC's Open Data Platform for EU Structural Investment Funds.

⁴⁶ Source: Open Data Portal for the European Structural Investment Funds - European Commission | Data | European Structural and Investment Funds (europa.eu), <https://cohesiondata.ec.europa.eu/countries/RO/14-20>.

Eight development regions of Romania will benefit from Regional Programs (RPs) financed by European Cohesion funds and funds from the local budget, which are developed to provide an investment framework for the regions' development priorities in the period 2014-2020 (Table 16), based on the directions, actions and priorities of the Regional Development Plan (PDR) 2021-2027 (Table 17).

Table 16. EU and National Contribution to the 2014-2020 Regional Operational Programs

Region	Fund	Category of region	EU contribution (Mln EUR)	National contribution (Mln EUR)	Total (Mln EUR)
ROP Bucharest-Ilfov	ERDF	More developed	587	880	1,466
ROP SE	ERDF	Less developed	1,265	223	1,489
ROP SW Oltenia	ERDF	Less developed	1,019	180	1,199
ROP South-Muntenia	ERDF	Less developed	1,340	237	1,577
ROP Center	ERDF	Less developed	1,177	208	1,384
ROP NE	ERDF	Less developed	1,488	263	1,751
ROP NW	ERDF	Less developed	1,220	215	1,436
ROP West	ERDF	Less developed	1,002	177	1,179

Source: Ministry of Finance, Romania.

Of the above budgets, the capital investments and technical assistance initiatives directed to energy efficiency and building renovation are presented in Table 17.

Table 17. EU and National Contribution to 2021-2027 RPs, Energy and Carbon Impact

Region	EU contribution (Mln EUR)	National contribution (Mln EUR)	Total (Mln EUR)	Baseline primary buildings energy use (MWh/year in 2021)	Target primary buildings energy use (MWh/year in 2029)	Target primary energy savings (MWh/year)	GHG Emission reduction (tCO ₂ eq /yr)
ROP Bucharest-Ilfov	105	19	124	599,078	329,492	269,586	56,613
ROP SE	150	26	176	197,539	86,874	10,665	20,353
ROP SW Oltenia	150	27	177	154,580	58,109	96,471	16,784
ROP South-Muntenia	204	36	240	279,800	167,825	111,975	47,084
ROP Center	140	25	164	36,708	17,437	19,271	2,550
ROP NE	233	41	274	192,305	92,363	99,942	19,912
ROP NW	119	21	140	222,380	106,675	115,705	22,894
ROP West	133	24	157	208,194	101,056	107,138	19,222
Total	1,234	218	1,452	1,890,584	959,831	930,752	205,412

Source: Ministry of Finance of Romania -retrieved from <https://mfe.gov.ro/minister/periode-de-programare/perioda-2021-2027/>

5.2. State, Donor and IFI Financing in Building EE, RES and Renovation

In addition to the RPs, there are a large number of ongoing financing programs and plans directing investments toward energy efficiency, renewable energy utilization and building renovation in general. The Ministry of Regional Development and Public Administration and the Environmental Fund Administration have continuously offered financing for various EE, RES and renovation investments in residential buildings as well as individual households, while the EBRD-supported loans have offered EE&RE project finance not only to households and SMEs (Green Economy Finance Facility), but also municipal borrowers (Municipal Energy Efficiency Financing facility). Ministry of Energy as well has targeted SME investments in EE.

The ongoing investment programs are summarized in Table 18. Descriptions of both ongoing and recently closed financing programs appear in Annex 3. Summary of Financial / Investment Programs Related to Building Renovation.

Table 18. Summary of Key Financing Instruments Available for Building Renovation

Category	Program Title	Total Funds Available (million EUR)	Funding Source / Implementer	Eligible Projects	Notes	Reference
Renovation	MDLPA- Multiannual national program on increasing the energy performance of blocks of flats	15	Ministry Of Development, Public Works and Administration (MDLPA)	<ul style="list-style-type: none"> • installing efficient windows • external wall insulation • installing EE HVAC 	<ul style="list-style-type: none"> • The HOA pays 20% of the total cost of the rehabilitation works. The remaining 80% is provided from the state and local budgets. 	https://www.mdpla.ro/pages/pn-crestereperformanta
Renovation	Environmental Fund Administration- EE in public buildings	283	Environment Fund Administration	<ul style="list-style-type: none"> • thermal rehabilitation of the building envelope elements, heating system/ hot water supply system; • alternative electricity and heat generation; • installation/ rehabilitation of HVAC • EE lighting • installation of integrated energy management systems for buildings • more 	<ul style="list-style-type: none"> • 3 million LEI for communes with a population of up to 5,000 inhabitants inclusive; • 6 million LEI for communes with a population of over 5.001 inhabitants; • 8 million LEI for cities; • 14 million LEI for county councils, municipalities of rank 0 and 1 • 10 million LEI for the second rank municipalities; • 12 million LEI for the administrative-territorial subdivisions of Bucharest municipality. 	https://www.afm.ro/eficienta_energetica_cladiri_publice.php
Renovation	The Casa Verde Plus program	80	Environment Fund Administration	<ul style="list-style-type: none"> • EE (insulation) in single-family dwellings • 100% grant financing is granted 	<ul style="list-style-type: none"> • currently unavailable • Individual grants of up to 40,000 LEI, but not more than 120 LEI / sqm for insulation. 	https://www.afm.ro/casa_verde_plus.php

Renovation	The Casa Eficienta Program - Energy Efficient House - Residential households	47	Environment Fund Administration (AFM)	<ul style="list-style-type: none"> installing efficient windows external wall insulation installing EE HVAC solar PVs and EE lighting 	Co-paying up to 60% of total costs, maximum co-pay of 70000 LEI	https://www.afm.ro/casa_eficienta_energetic.php
Renovation	National Recovery and Resilience Plan	2,700	European Recovery and Resilience Fund	renovation of public and residential buildings	Operational Period 2021-27	https://ec.europa.eu/info/sites/default/files/factsheet-romania_en.pdf
EE&RES	Green Economy Finance Facility (GEFF)	162	European Bank for Reconstruction and Development	<ul style="list-style-type: none"> Residential, commercial, HOA and Municipal energy efficiency and renewable energy project lending 	<ul style="list-style-type: none"> Residential credit line facility of up to €70 million to participating financial institutions in Romania to on-lend for energy efficiency and renewable energy in the residential sector. Commercial: €75 million credit line Municipal: Municipal Energy Efficiency Financing facility (MFFEE) is a €17 million credit line 	https://ebrdgeff.com/romania_facilities/#:~:text=Green%20Economy%20Financing%20Facility%20(GEFF,energy%20in%20the%20residential%20sector.
EE&RES	Municipal Energy Efficiency Financing facility (MFFEE)	17	European Bank for Reconstruction and Development	energy efficiency and renewable energy measures for municipal buildings	A credit line facility to participating financial institutions for on-lending to municipal borrowers	https://ebrdgeff.com/seff_facilities/municipal/
RES	Casa Verde- PV Panels	57	Environment Fund Administration (AFM) through Casa Verde Fotovoltaice	solar PV installation	The maximum for individual subsidies is 20 000 LEI or up to 90% of the cost for solar panels with at least 3 kW in capacity.	https://www.afm.ro/sisteme_fotovoltaice.php
RES	Interreg Europe 2021 2027 Program (RO BG, RO HU, RO RS, HU SK RO UA, RO MD, RO UA)	57	ERDF	solar panels for heating homes, especially houses.	70 or 80% co-financing of eligible projects	https://www.mdipa.ro/pages/interegeurope20212027

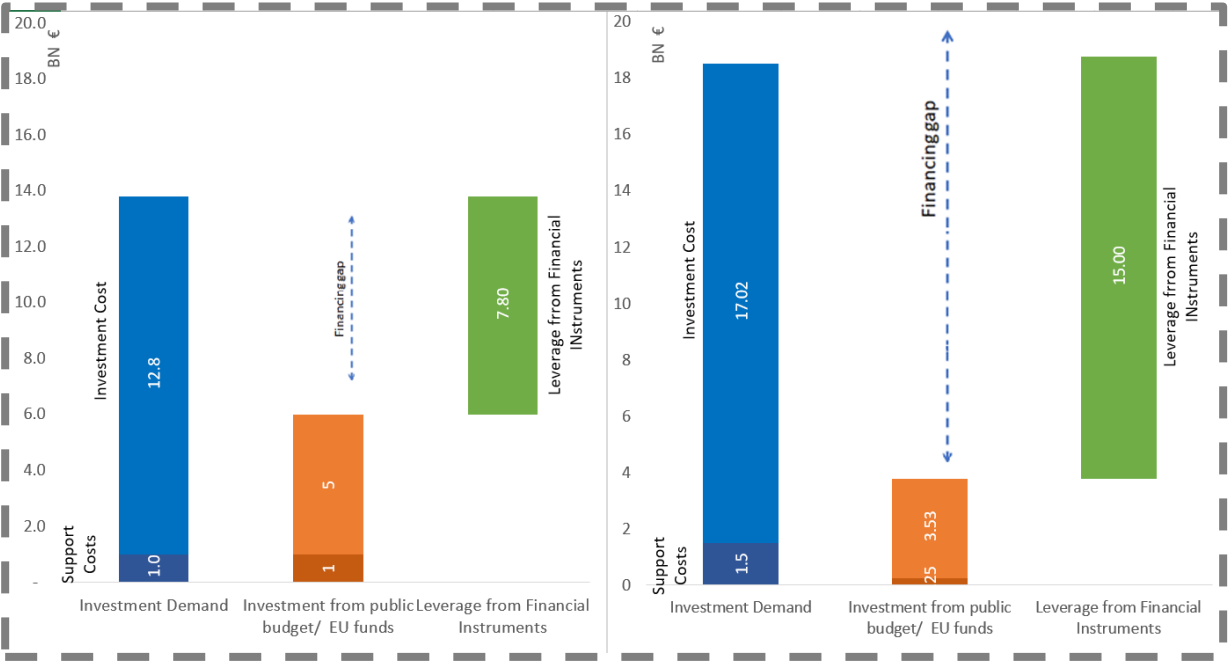
RES	Min. Energy- "ElectricUp" – financing program for SMEs and HORECA field	109	Ministry of Energy (ME)	solar PV installation	Maximum individual grants - 487 000 LEI	http://energie.gov.ro/electricup/
	Total	3,532				

5.3. Key Gaps in the Financing Schemes

Whereas the LTRS investment demand is an estimated €12.8 billion, only €3.12 billion has been allocated to date under ongoing or pending programs (see at left in Figure 21). This indicates that if €5 billion is committed from public funds for capital investments in building renovation, and €1 billion in technical assistance, Romania will need an additional €7.8 billion from commercial/private finance.

The recent spike in the construction costs and current inflation trends have already led to a 36% increase in the construction cost index⁴⁷ and require re-assessing the investment need. Prorating the LTRS investment demand based on changes in the construction index will be necessary to establish a new, up-to-date target for investment needs. Potential new estimates can be within the range of €16-18 billion⁴⁸, while the acceleration of the deployment will require not only more financial instruments, but also substantially more TA. The mapping of all financing schemes indicates that there is insufficient financing to meet LTRS goals. The “Investment gap” between financing needs and committed financing availability is currently over €15 billion , or over 80%, as shown on the right of the Figure 21.

Figure 21. Financing Need for LTRS Implementation: 2019 LTRS estimated (left), and Preliminary Prorated Need based on Construction Cost Changes (right)



Source: adapted from LTRS supplemented with the WB experts’ calculations.

⁴⁷ According to Eurostat, compared to the baseline of January 2020, the construction cost index has grown by 36% in June 2022, reaching a record high of RON 182.40 points. See summary analytics at: <https://tradingeconomics.com/romania/construction-cost-idx-eurostat-data.html>

⁴⁸ Preliminary estimates by WB experts.

In addition to the lack of funds, the other financing gaps and barriers include:

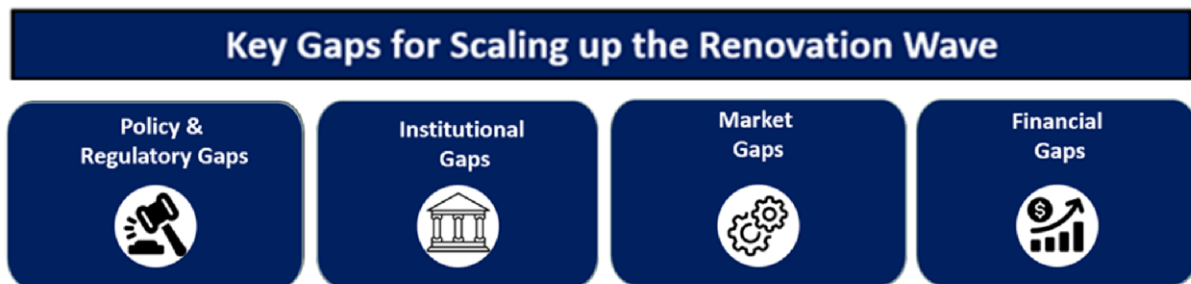
- Lack of initiatives from public authorities to establish the financial instruments which will replace the grant-funded programs for building renovation, both for residential MABs and public buildings.
- Reluctance of homeowners in MABs to seek financial instruments, which has been further aggravated by the recent high intensity of grant assistance. By creating unrealistic expectations among building owners, this discourages them from considering financial instruments, leading to the risk of the market “going to sleep” in the absence of grant financing.
- Homeowners are unclear about what funds/programs are available: the only available programs are under the Environmental Fund Administration (Casa Verde, Casa Efficiente) and are considered to have long and complex application processes, leading to underutilization of the funds.
- The limited range of bank financial instruments designed to address building renovation has created a strong reliance on grant financing. And vice versa, the recent availability of grants will be prohibitive for acceleration of bank financing, unless grants are used to leverage lending.
- High project development costs related to the costs of energy audits, project design, permitting, etc. create a disincentive for building owners (SFHs and MABs), while also demanding technical skills they do not have.
- Limited financing available for distributed renewable energy systems (RES) resulting from the limited market offering, which is largely due to the limited demand. If proper net metering schemes and monetary compensation provisions were put in place, the households could actively seek financing, thus signaling market demand for respective loan instruments.

Section 6. Roadmap of Options and Initiatives to Address the Gaps

6.1. The Roadmap

Based on the review of the policy, legislation and regulations related to building renovation, the building stock, and renovation market, the current and planned building renovation funds and programs, and the identification of the gaps described in the previous sections of this report, **a roadmap is here presented to guide the Romanian Government, and public and private sector stakeholders**, in choosing options and initiatives to overcome the critical gaps and barriers identified. As shown in Figure 22, it will focus on gaps in (i) the legal and regulatory framework, (ii) institutional capacities; (iii) the market landscape, and (iv) financing for ongoing and planned building renovation investment programs.

Figure 22. Key Gap Areas for Building Renovation



The overall objective of the current exercise is to publicly declare a **gradual decrease in grant financing** for energy renovations by 2030 and broadly communicate that **alternative implementing models and financial mechanisms will be designed including using public funding to leverage private capital, while also targeting vulnerable or energy-poor households.**

It is important to emphasize that the diagnostic assessment has also documented a large number of **strong policy efforts in transposition of EPBD and EED**, promising planned reforms under NRRP, successful investment programs with **loan-financed investments** and even partial repayment through **renovation taxation, revolving financing** through the Romanian Energy Efficiency Fund with leveraged private sector financing, **deployment of nZEB solutions** in public and private sector reconstruction and new construction, introduction of **green mortgages** in the banking sector, and more. Many of these initiatives have produced models which can be replicated throughout Romania to help address some of the identified gaps. For others, there are successful models for replication from other countries across the region for areas such as lending for HOA/MAB renovation, centralized public procurement of building renovation, district-level DH-integrated building community renovation programs, residential EE for improving low-income utility affordability programs, one-stop-shop advisory centers, revolving funds, ESCO/EnPC for public building renovation, awareness and outreach campaigns, etc.

The proposed interventions should be viewed from different perspectives: some of the measures that can be implemented and start producing energy savings, emission reduction,

social and economic impacts in the short and medium terms, while others target market transformation, establishing a level playing field for all parties, building the right knowledge and skills, introducing economic incentives for accelerating commercial investments in building renovation and energy consumers' behavioral change in the long-run.

The World Bank team stands ready to support government authorities, public and private sector stakeholders in finalizing an actionable roadmap as soon as practicable, and subsequently to support the effective implementation of the proposed roadmap.

The roadmap defines the following for each of the four building types (and for the common gaps for all building types) and the four types of gaps identified:

- Statement of the gap
- Options and initiative to address the gap
- Identification of the entities that could be responsible for actions related to the options and initiatives
- Complementarity to existing strategic documents, plans or programs, and initiatives
- Indicative time frame for action.

The roadmap described in this Section provide a **comprehensive listing of all options and initiatives** for scaling up building renovation, including those that are:

- Recommended in the Romanian LTRS implementation plan (draft);
- Recommended in National Recovery and Resilience Plan (NRRP);
- Proposed by the World Bank Team; and
- Any proposed modifications, elaborations or additional suggestions on activities planned under LTRS or NRRP.

6.2 Key Message and Main Action Areas

The key message of this assessment for the Romanian counterparts is that it is urgent to (a) develop and communicate to all stakeholders a long-term plan to gradually decrease the grants share in financing building renovations, while providing support to vulnerable or energy-poor households; and (b) broadly communicate that alternative implementing models and financing mechanisms will be designed, including using public funding to leverage private capital.

The specific elements of such a long-term plan shall include actions related to addressing policy and regulatory gaps, institutional gaps, market gaps and financing gaps in all of the building sectors.

The presented roadmap is recommended for further discussion with the Romanian Government for potential ranking and prioritization of interventions, as well as identifying specific areas wherein the Team can effectively and efficiently support government authorities and public and private sector stakeholders in undertaking the needed actions for implementing key elements of the proposed roadmap, as summarized below.

The above four gap areas can be addressed using international best practices in policy reform, capacity building and market strengthening, design and deployment of investment schemes.

6.3. Prioritization of Action Areas

This assessment has pointed out that there are large gaps in funding, floor area to be renovated, energy savings, and emission reductions between the LTRS targets and the current plans, programs and committed funding to achieve these targets. Therefore, there is a need to take some immediate actions to address the gaps. The roadmap in this section provides a detailed list of the options and initiatives that need to be undertaken in Tables 19-22.

The proposed roadmap includes a large number of options and initiatives (total of 63) which are all needed for the achievement of the intended market transformation and scale-up of building renovation. In order to prioritize these to assist the Romanian government identify the most important policy and regulatory, institutional, market development and financing actions, the World Bank Team developed a prioritization scheme that consisted of six criteria:

1. Energy savings and related co-benefits
2. Timing of outcomes
3. Benefits to vulnerable populations
4. Implementation and operational cost
5. Complexity and implementation risk
6. Market transformation impact.

Each of the options and initiatives in the roadmap was assessed against each of the six criteria on a scale of High, Medium and Low. Based on the assessment, a final rating of High, Medium or Low was assigned. The process of applying these six criteria to the identified options and initiatives was limited to a qualitative assessment (based on the collective authors' professional judgement and experience of the Team) due to the lack of quantitative indicators and is largely context-dependent and involves subjective assessment. Annex 4 provides a detailed description of the prioritization which was guided by international best-practices, critical prerequisites for market transformation, synergies between activities, as well as dynamic flexibility, accountability, national policies, current energy cost burden of society, existing scientific opportunities, the experiences available in the country, adequate staffing and infrastructure.

The following section provides a summary roadmap of proposed activities and interventions that can help scale up the Renovation Wave.

Figure 23. Intervention Areas for the Roadmap

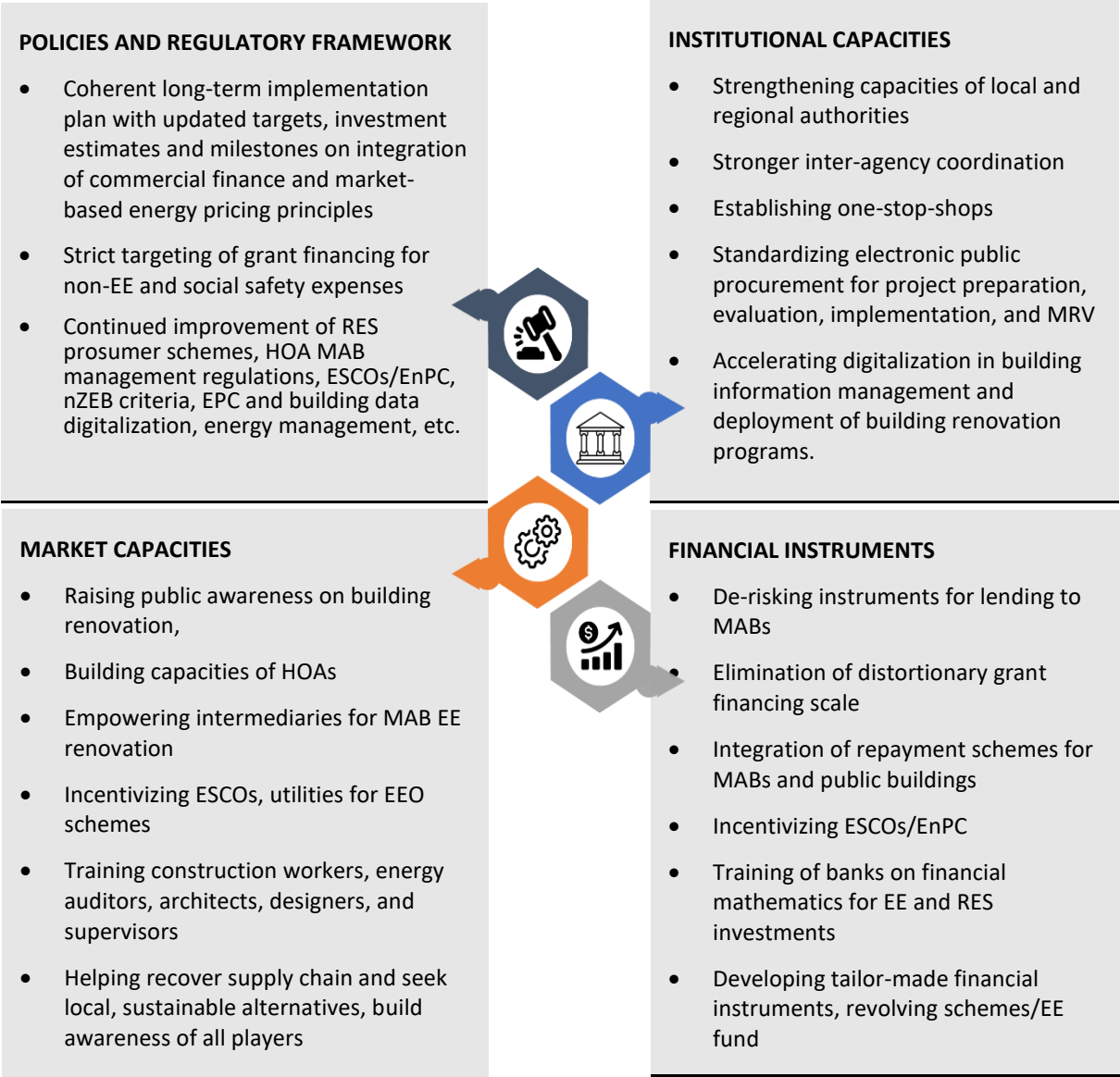


Table 19. Roadmap for Addressing Policy and Regulatory Gaps

#	Barrier/ Gap Type	Activity/Measure Recommendation	Complementarity	Timeline	Responsible Entities	Sector
1	Limited coordination between Multiple sectoral policy and strategy documents	Enhance and accelerate the work of the inter-agency coordination Steering Committee, Develop and adopt detailed multi-stakeholder action plan and roadmap with allocation of decision-making powers, roles, timelines, financing mechanisms on national, regional and local level; synchronize and coordinate achievement of targets in overlapping policy documents such as the National Energy Strategy, National Energy and Climate Plan (NECP) and Long-Term Renovation Strategy (LTRS).	MDPWA Action Plan (AP),	2022-23	MDPWA, in cooperation with line ministries, CSOs and academia	Cross-cutting
		Establish inter-ministerial coordination body for LTRS action plan implementation coordination and linkage with NECP.	Supplemented by WB Renovation Wave (RW) TA.			
2	Slow enforcement of LTRS due to lack of operational procedures	Develop detailed Action Plan for LTRS implementation as required by EPBD recast, with detailed operational program with elaborated detail on eligibility, preparation, financing and implementation arrangements for each sector with particular focus on quality assurance, replicability and leveraging of private finance for: <ul style="list-style-type: none"> i. Public buildings: central government and municipal, ii. Multi-apartment buildings, iii. Single-family houses, iv. Commercial buildings 	MDPWA AP, WB elaboration	2022, Q3	MDPWA, with TA support	Cross-cutting
		Conduct reassessment of LTRS investment needs (see below)				
3	Potential Need for changes in the public commitment for co-financing funds for renovation investments	As part of the detailed Action Plan supplementing the LTRS (required by EPBD recast), conducting re-assessment of LTRS investment needs based on new construction costs, need for acceleration of market-based financing instruments, in line with construction cost and energy price dynamic, availability of public finance, in the light of changing market conditions, adjust the strategy for deployment of financial instruments.	WB Proposal	2022, Q4	MDPWA, with TA support	Public, MABs, SFBs

4	Lack of legal incentives and promotional initiatives for the development of the ESCO market	<p>(1) adopt energy performance contracting framework;</p> <p>(2) Introduce a procedure for registration and certification of ESCO companies to overcome informational gaps and enhance trust towards ESCOs, as well as create uniform requirements to ESCOs that qualify for public/IFI support⁴⁹;</p> <p>(3) Legal requirements for M&V protocol, as well as training of experts in M&V</p> <p>(4) Proper PPP framework to enable ESCO/EPC and building energy management by qualified private companies;</p> <p>(5) Support the ESCO association for offering regular trainings to the Association members on M&V;</p> <p>(6) Maintain a regular working group on ESCO development issues, potentially as part of integrated policy coordination group;</p> <p>(7) Consider revolving fund scheme (or scaling up FREE) for public building ESCO/EPC contracts;</p> <p>(8) Through designated instruments, encourage building renovation for ESCO scheme (viable in cases where commercial viability is the highest))</p> <p>(9) Develop simple ESCO model for public sector project, prepare project paperwork, template contracts (primer) and documentation, pilot on typical project case, refine based on lessons learnt and produce a replicable model to a standardized set of documents for scale-up (joint effort by MDPWA).</p>	Proposed by WB	2022, Q4	Ministry of Energy, in cooperation with MDPWA, ESCOROM	Public, MABs
5	Limited digitalization of building energy information including integrated building registry, EPCs, and building renovation	Developing a centralized and digitalized National Register of Buildings, georeferenced information System logbook according to the Renovation wave strategy) AND Gradually implementation of the energy passport of buildings, (synchronized with the Structure of the EPC database developed by INCD	NRRP, I2., WB elaborated	2023-2024	MDPWA, LPAs, INCD URBAN-INCERC	Cross-cutting

⁴⁹ Certification of ESCOs that carry out EnPC was set up in 2015 following the provisions of Law no. 121/2014. The register of EPC providers is based on the European EPC Code of Conduct developed by the Transparens Project. ESCOROM established a certification structure for its members, which was expected to be formally used by ANRE.

	passports, building information modeling (BIM)	<p>URBAN-INCERC⁵⁰, EU Building Stock Observatory, EU Odyssey project and adapted to the revised EPC scheme, complementary to the INSPIRE geoportal, linked and interoperable with local urban databases and other national systems and registers), integrated with EPCs, MRV, building renovation passports, and public procurement platforms.</p> <p>National Building Registry Development and Implementation, including integration with:</p> <p>(1) national building stock data (census),</p> <p>(2) building technical passport;</p> <p>(3) building energy passport and energy certificates;</p> <p>(4) renovation passport;</p> <p>(5) energy audit reports;</p> <p>(6) public procurement of building-specific services and works</p>				
6	Lack of Application of EE Obligation Scheme and Incentives for Obligated Parties to achieve energy savings in buildings	Create regulatory incentives and flexible schemes for encouraging application of EE obligation scheme by utilities, as well as allowing utilities to account for individual measures implemented by their customers (financed by customer, reimbursed by utility, claimed against tariff) to encourage utilities to invest in demand-side energy efficiency measures, combined with tailor-made social safety mechanisms ¹¹¹	WB Proposal	2023, Q3	MDPWA, MoE, ANRE, with TA support	Cross-cutting
7	Limited policy instruments for phasing out the share of grant financing building direct grant dependency of the market	Clear timeline on gradual partial phase-out of the share of investment grant subsidies (e.g. -20-30% per programming period) could pull the renovation market: motivate early movers and eliminate false expectation leading to market distortion, leverage private sector participation and commercial finance, to scale up investments and help fill the investment gap for building renovation	WB Proposal	2023, Q2	MDPWA, MoE/ EE Directorate	Cross-cutting

⁵⁰ National Institute for Research-Development in Construction, Urbanism and Sustainable Territorial Development Urban-Exercise.

8	Lack of long-term policy and enforcement on retention of district heating efficiencies and economic viability, and poor policy regulation of district heating in relation to the building energy performance requirements and lack of flexibility for building renovation in combination with DH EE retrofits	<ul style="list-style-type: none"> Update urban heating strategy and develop local district heating strategies (plans) to develop a holistic approach for maintaining economic efficiencies of DH, fuel diversification opportunities, transition to low-temperature heat, through restriction of disconnections and ranking of settlements based on density of consumption and specific cost of heat supply with particular focus on MABs; Develop regulatory incentives for end-use metering, consumption-based billing, and demand-side management in coordination with ANRE, Ministry of Energy and MDPWA for integration of DH-DSM opportunities in line with building renovation for all building types. These can primarily be introduced in renovation projects funded by public funds, with further scale up across all building renovation projects, including those with commercial financing. Design standard eligible intervention types for combined, district-level DH and MAB end-to-end modernization projects for financing with public grant co-financing Design standard eligible intervention for district-level DH-combined building renovation projects (end-to-end), potentially through EnPC 	WB Proposal	2023-24	MoE, MDPWA, ANRE, LPAs, with TA support	Cross-cutting
9	Outdated Building Energy Performance Calculation Methodology	<p>Upgrade and enforce Building Energy Performance Calculation Methodology, Introducing BIM, SRI, IEQ and circularity.</p> <p>Develop detailed compliance framework and engage CSOs, professional networks and associations, technical institutions in quality assurance checks on regular samples of EPCs through access to unified digital database;</p>	MDPWA AP, WB elaborated	2022	MDPWA, with TA support	Cross-cutting
10	Cost-optimality framework outdated, needs reassessment	Re-launch market cost-based updating and evaluation procedure based on current market costs for reference buildings for energy performance requirements for renovated buildings. Link cost-optimal levels assessment with mandatory minimum energy performance classes for each type of buildings.	WB proposal	2023	MDPWA, with TA support	Cross-cutting
11	Limited utilization of RES opportunities in	Creation of regulatory incentives for net-metering, simplified grid-connection procedures, opportunities for monetary compensation provisions for prosumer systems operating at surplus with the grid.	NES, WB elaborated	2022-23	MoE, MDPWA, ANRE	SFBs; MABs

	residential sector via prosumer schemes					
12	Weak HOA/condominium policy framework and enforcement	<ul style="list-style-type: none"> Continue the reform of the HOA legislation, supplemented with necessary secondary legislation on collective decision-making procedures, borrowing, contracting, management of common-space, capital repair funds, etc. Introduce more flexible approaches for apartment owners to participate in government-supported renovation programs, allowing a number of options/delivery mechanisms for authorized intermediaries to implement renovation project on behalf of apartment owners, leverage grant and loan financing, organizing procurement, etc. 	National Housing Strategy	2023-24	MDPWA, National Housing Agency	MABs
13	Energy Performance Certification (EPC) monitoring mechanism is weak	Develop detailed compliance framework and engage CSOs, professional networks and associations, technical institutions in quality assurance checks on regular samples of EPCs through access to unified digital database;	WB RW	2022-25	MDPWA, CSOs, Academia	Cross-cutting
14	Poor enforcement of existing regulations and standards on energy efficiency	Enhance quality control in site supervision, commissioning, MRV and ex-post EPC	MDPWA AP, 2022, Q2, WB	2023	MDPWA	Cross-cutting
15	Poor enforcement of municipal energy management provisions	Development of standard intervention guidelines and unified, digital database of standardized technical interventions based on market experience, cost-optimal technical interventions;	WB/ RW/TA	2023-25	MDPWA, with TA support	Public
16	Insufficient MRV, ex-post evaluation of completed renovation projects	Enforce a requirement for an electronic, online building renovation passport, inter-operable with the unified building registry, with long-term milestones for renovation, updated after renovation, supplemented with ex-post energy audit, EPC and labeling	MDPWA AP, 2022-25, WB elaborated	2023	MDPWA, with TA support	Cross-cutting
17	Lack of regulatory framework and clear	Defined criteria for nZEB (in particular RE share), clarify the process of building authorization to enable nZEB levels check at design phase, ensure	Proposed by WB	2023 Q1		Cross-cutting

	technical criteria on NZEB	inter-ministerial work with Ministry of Energy and ANRE for the calculation of emissions and primary energy transformation for buildings.			MDPWA, with TA support		
18		Developing Guidelines, implementation and monitoring procedures for promotion of NZEBs and Non-Invasive NZEB projects;	NRRP, 91, R1	2022, Q1			Cross-cutting
19		Clarify the conditions to apply the defined criteria for nZEB (in particular RE share), clarify the process of building authorization to enable nZEB levels check at design phase (procedural framework for local administrations and better correlation of EPB law with building code. Ensure inter-ministerial work with Ministry of Energy and ANRE for the calculation of emissions and primary energy transformation for buildings.	MDPWA AP				

Table 20. Roadmap for Addressing Institutional Gaps

#	Barriers	Activity/Measure Recommendation	Complementarity	Timeline	Responsible entities	Sector
20	Limited institutional support and coordination of LTRS implementation on State Government level	Building on Activity #1 above, develop a detailed action plan and role allocation with particular focus on cross-cutting issues (e.g., DH, ESCOs, HOAs), with integration of industry associations, CSOs and academia	LTRS AP, WB elaborated	2022, Q4	MDPWA	Cross-cutting
21	Insufficient inter-agency coordination on promotion of EE in buildings	Develop a comprehensive implementation plan with timelines, detailed responsibilities, operational guidelines and outputs for various engaged stakeholders with regular reporting procedures and recurring meeting schedule	LTRS AP, WB elaborated	2022, Q4		Cross-cutting
22	Lack of staff and institutional capacities for facilitation of renovation programs on regional and local authority level	Establishment of regional one-stop-shops for centralized and lasting sources of technical, economic, contractual, procurement and other solutions to households, MABs, and public building. Such one-stop-shops can also become hubs for collecting and analyzing information, carrying out quality assurance of technical documentation (audits, energy passports, EPCs, MRV reports), while facilitating data collection on energy performance, benchmarking, construction costs, etc. These one-stop-shops can be established on the basis of RDAs, local authorities, active community NGOs, academia, construction and EE market representatives etc. for promoting building renovation, including structural assessment, energy audit, design documentation, business planning, construction tendering, design admission, construction, site supervision, quality assurance, and close-out building energy certification and labeling.	LTRS AP, WB elaborated	2022-23	MDPWA, RDAs, LPAs, with TA support	Public, MABs, SFBs
23		Training programs for both for RDAs as well as LAs on: <ul style="list-style-type: none"> i. procurement and contract management, ii. financial management and reporting, iii. GHG emission reduction strategies, 				

		<p>iv. environmental and social aspects (DNSH),</p> <p>v. gender, public consultations, grievance redress.</p>				
24		<p>Develop exemplary technical procedures, selection and evaluation criteria, procurement rules, management, MRV and other procedures related to Cohesion Policy and Regional Operational Program administration, including:</p> <ul style="list-style-type: none"> • Program planning and administration, • Technical guides, • Project evaluation guidelines, • Conformity grid assessments, • Rules for selecting, contracting, • Monitoring and verification procedures • Rules and criteria for prioritization of projects and possible targeting of financing based on: <ul style="list-style-type: none"> • applicants' local social circumstances and energy poverty, • building designation and occupancy, • level of technical ambition: EE and RES measures, moderate vs. deep renovation, with or without seismic consolidation) • cost-effectiveness of proposed interventions and financial viability, • simplified cost options • managing comprehensive renovation with limitations for ineligible expenses related to repairs which are related to critical infrastructures, • renovation of cultural heritage buildings, • consent from households for MAB applications, 	NRRP, WB elaborated	2022, Q4	MDPWA, RDAs, LPAs, with TA support	Public buildings, MABs & SFHs

		<ul style="list-style-type: none"> • eligibility for “Just Transition Fund” for countries with n regions with high carbon intensities and related socio-economic indicators, and differentiated approach • Financing instruments and arrangement of potential lending instruments through the State Treasury accounts, • Applying the pending new Methodology for Building Energy Performance Evaluation and aligning projects already identified under the acting methodology, • Greenhouse gas emission reduction strategies, • “Do no significant harm” principle, environmental impact assessment and climate proofing, • Means of conducting public procurement in a centralized manner with particular attention to EE evaluation (organizing EE procurement through Romanian electronic public procurement portal), • Contracting and contract management, • Financial management and reporting, • Grievance redress, • Technical capacities of beneficiaries to conduct quality assurance, • Development and implementation of awareness campaign. • Quality assurance on energy audits (oversight of energy audits being conducted in accordance with the regulatory requirements), energy performance certification and deep renovation, • Building lasting capacity for evaluation and oversight of project since most of the external consultants that authorities engage are short-term, • Preparation of feasibility studies, which are a bigger challenge for smaller communities, • Developing technical specifications and terms of references for organization of public procurement of building renovation projects. 				
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25	Delivering energy efficiency through Public Procurement is slow and complex	<ol style="list-style-type: none"> 1) Enhance the digitalized public procurement platform with standardized templates, technical specifications, eligibility and selection criteria, price schedules, terms of references for facilitating and accelerating procurement of building renovation services through quality assured and expedited procedures (e.g., Lithuanian or Irish example). 2) Development of quality-assured, standard intervention guidelines (for various renovation ambition levels) and unified, digital database of standardized technical interventions based on market experience, cost-optimal technical interventions which will be endorsed for application in procurement procedures for expedited processing, 3) Establishment of minimum technical criteria for appraisal in addition to the lowest cost principle to allow for the most competitive of the most efficient solutions to be selected (e.g., introduce lifecycle cost, NPV, IRR, etc.). 4) Review procurement procedures, develop standard document, specification and criteria for selection based on lowest price and on the most economically appealing proposal. 5) Gradual increase of the share of mandatory e-procurement, requirements for multiple bidders, consortia, etc. to increase the competitiveness and effectiveness of public purchasing 	Proposed by WB;	2023, Q1	MDPWA, National Agency for Public Procurement, Electronic System for Public Procurement, with TA support	Public, MABs, SFBs
26	Insufficient monitoring and reporting procedures on implemented building certifications, renovations	<p>Establish routine reporting procedures for implementers/promoters of building renovation projects on implemented building renovations including:</p> <ol style="list-style-type: none"> 1) Ex-post energy audit; 2) Building energy passport and certificate; 3) Update of building data in EPC database and building registry; 4) Protocol of tracking energy consumption and utility subsidy dynamics in renovated buildings, annual reporting after heating season Cadaster 	LTRS AP, WB RW TA	2023, Q2	MDPWA, with TA support	Cross-cutting
27	Lack of Digitalization	<ol style="list-style-type: none"> 1) Assess legal, institutional, capacity, and related gaps for digitalization, develop measures to address these gaps for accelerating rate of digitalization, 	WB proposal	2022, Q4	MDPWA, RDAs, LPAs,	Public buildings, MABs & SFHs

		<ul style="list-style-type: none"> 2) Digitalizing building technical data (EPC, building renovation passport, building registry) inter-operable with data, GIS, public procurement orders and building technical documentation, 3) Streamlining administrative procedures through e-procurement, 4) Train civil servants, RDA and LPA employees on technical elements of e-procurement, real benefits to the government in enhanced transparency, competition, effectiveness, etc. 			with TA support	
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Table 21. Roadmap for Addressing Market Gaps

	Barriers	Activity/Measure Recommendation	Complementarity	Time-line	Responsible entities	Sector0
28	Lack of proper understanding among consumers on the cost-reflective energy prices, energy security and demand-management concerns, benefits of energy efficiency and comprehensive building renovation	Design and implement a multi-faceted Nationwide Communication and Outreach campaign on benefits of building renovation, delivery mechanisms, costs and opportunities, as well as linkages with green economy transition, low-carbon pathways, energy security; to motivate consumers in all sectors to invest in EE, to enroll and empower citizens, achieve change of mindset and behavior, catalyze private sector investments.	NRRP, WB elaborated	2023-25	MDPWA, with TA support	Cross-cutting
29	Potential financial savings may be lower than estimated due to growing energy prices and underheating; as well as potentially higher construction costs and higher-than-expected reinforcement/consolidation costs	Clearly separate the potential financing architecture based on project design, disaggregating revenue-generating measures and capital renovation expenses; link financing instruments, repayment-from-savings and other non-grant financing mechanisms to the measure delivering monetary energy savings	WB proposal	2023, Q1	MDPWA, with TA support	Cross-cutting
30	Limited willingness and capacities of HOAs to engage in building renovation projects	1) creating fiscal incentives for modernization investments in MABs (tax reductions), especially for renovations delivering beyond minimum energy performance standards (MEPS);	WB proposal	2022-23	MDPWA, with TA support	MAB
31		2) carrying out targeted information campaign on the MAB/HOA renovation project development and implementation procedures;				
32		3) engaging HOAs in project development, decision-making on the level of renovation ambition, supervision of works, acceptance;				

33		4) Provide centralized TA and project facilitation to HOAs through condominium advisory centers, one-stop-shops or other institution (e.g., National Housing Agency, or setting up regional housing agencies, regional advisory centers, one-stop-shop support services, resource centers to help HOAs identify, design, implement and monitor housing renovation investments)				
34		5) Developing reserve funds (Bausparkasse) and diverting non-service fee revenues for loan repayment				
35		6) Using investment programs as motivation for better self-organization, higher collection of fees, down-payments				
36	Limited willingness and capacities of SFHs to engage in building renovation projects	Develop tailor-made financing instruments coupled with outreach and marketing campaigns that offer:	WB proposal	2022-23	MDPWA, with TA support	SFHs
37		- Establishment of advisory centers (one-stop-shops, resource centers on the basis of local CSOs or academia) to provide technical assistance for the appraisal of the technical and economic benefits of EE and RE investments;				
38		- Provide grant co-financing for loans in the amount necessary to improve the bankability of the investments under current energy prices.				
39	Lack of standardized technical solutions for SFHs promoting RES-integration	Develop and promote awareness campaign on exemplary technical solutions, delivery mechanisms and benefits of:	WB proposal	2023	MDPWA, with TA support	SFHs
		- High-efficiency home-heaters				
		- Rooftop SWHs and prosumer PV systems				
40	Declining ESCO market and limited energy performance capacities	Establish an open source with revolving financing scheme, establish requirements for EnPC contracts for high-occupancy, high energy intensity buildings, eliminate distortions for the ESCO-market, starting with public sector with partial grant financing from EC funds to ensure bankability of investments, potentially scaling replicable solutions for other sectors.	WB proposal	2023-2024	MoE, MDPWA, with TA support	Public, Commercial

41	Interrupted supply chains and lack of ready-made solutions	Support rehabilitation of imported material supply chain, promote development and production of innovation, pre-fabricated technical solutions for expedited deployment	MDPWA action plan, supplemented by WB	2023-2024	MDPWA, with TA support	Cross-cutting
42	Insufficient awareness among private banks on the potential market demand for EE lending	Training of banks on economics of building renovation, success stories for delivery of financing to MABs/HOAs, financial mathematics of energy efficiency investments, basics and criteria for high energy performance buildings and deep energy renovation.	WB proposal	2023-2024	MDPWA, with TA support	Cross-cutting
43	Lack of qualified energy auditors, and limited quality assurance on energy audit reports	Training program for auditors and quality assurance of energy audits utilizing the capacities of CSOs, academia, networks and associations. Establish a continuous education and training framework for energy auditors and building experts (e.g., credits system for extending the right of practice)	Included in NRRP, elaborated by WB	2023-2024	MDPWA, with TA support	Cross-cutting
44		Development of Regional training centers for energy auditors.		2023-2024		
45	Lack of qualified construction workers and construction market capacities	Development of nation-wide training / lifelong-learning program for potential workers on the foundation of vocational education institutions in the country.	NRRP target: 8000 workers	2023-Q4	MDPWA, with TA support	Cross-cutting
46	Limited capacities of design institutions in developing comprehensive thermal modernization technical design documentation	Development and approval of guidelines on the design of integrated building renovation with consideration of NZEB requirements, execution and supervision of works during construction	WB proposal	2023-2024	MDPWA, with TA support	Cross-cutting
47	Insufficient consideration of seismic risk	Develop standardized seismic reinforcement guidelines,	Included in NRRP, and draft LTRS Action Plan	2022-2024	MDPWA, with TA support	Cross-cutting
48		Introduce control mechanisms on seismic assessment procedures allowing for: <ul style="list-style-type: none"> i. secondary seismic evaluation during renovation works (after basic visual assessment); 				

		<ul style="list-style-type: none">ii. ad-hoc assessment procedure in case of potential identified threats during construction;iii. preliminary in-depth structural appraisal of all worst performing buildings based on building registry data				
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Table 22. Roadmap for Addressing Financial Gaps

#	Barriers	Recommendations	Complementarity	Time-line	Responsible entities	Sector
49	Insufficient financing to meet LTRS goals	Re-assess the investment need, public funds availability, and financing gap in the light of increased pressures on public budgets due to Covid and energy price increase; inflation; growing construction costs; documented seismic reinforcement costs (from operational period 2014-20) to re-assess the investment gap to be filled by private sector finance	WB proposal	2023, Q1	MDPWA, with TA support	Cross-cutting
50		Design and implement financial instruments and leverage commercial financing through gradual phase-out of grant financing, revolving fund mechanisms, loan guarantee facilities, on-bill payments, renovation taxes, third-party financing, factoring, vendor credits, etc.			MDPWA, with TA support	
51		Develop a mechanism for tracking the impact of EE on energy subsidy demands, and directing the savings towards added EE investments (e.g., EE Fund)			MDPWA, with TA support	
52	Reluctance of homeowners in MABs to seek financial instruments.	Provide a clear signal that grant financing will be gradually phased out in future programs;	NRRP, WB elaborated	2023	MDPWA, with TA support, Housing Agency, RDAs, Local authorities	MABs,
53		Develop prefinancing arrangements with follow-on recovery of costs through flexible mechanisms, while coupled with social safety nets for vulnerable households.				
54		Using cash flow generated from regular maintenance fees, external revenues (e.g., rented space) to secure finance				
55		Developing tailor-made financial instruments with blended financing, external guarantees				
56		Supplement with public outreach and awareness campaign on benefits of MAB EE, HOA legislation, regulatory provisions for investments in MABs/HOAs, etc.;				

57	Homeowners are unclear about what funds/programs are available	Develop financial instruments for the non-grant component of the needed financing	WB proposal	2023-Q3	MDPWA, with TA support	MABs, SFHs
58		Train financial institutions in assessing the EE/RES project financial mathematics, adjust the borrower risk with consideration of repayment from savings possibilities, as well as work with the Government to develop respective social instruments to support participation of vulnerable households/				
59	Limited financial instruments from banks for addressing building renovation	(1) Develop loan de-risking instruments (e.g., guarantee funds) for securing the risks of banks in the early stages of building renovation loans to HOAs, SFHs, municipalities, and private/commercial borrowers.	WB proposal	2023-Q3	MDPWA, with TA support	Cross-cutting
60		(2) Eliminate market distortion opening the market niche for financial instruments such as market-based or subsidized loans, vendor finance, factoring, leasing (for RES), etc.				
61	High project development costs	Utilize technical assistance grants to “shoulder” project preparation costs, recruit one-stop-shops for centralized preparation and development of eligible projects, quality assurance and facilitation which will optimize the costs, as well as ensure consistent quality.	WB proposal	2023, Q2	MDPWA, with TA support	Cross-cutting
62	limited financing available for distributed renewable energy systems (RES)	Develop monetary compensation schemes for surplus electricity fed to the grid under net metering;	NRRP, WB elaborated	2022-23	MDPWA, with TA support	Cross-cutting
63		Work with financial institutions to develop leasing instruments for RES installations				

Annex 1. Mapping of Policy and Regulatory Framework

Transposition of the Energy Performance in Buildings Directive (EPBD)

The Romanian national legislation has established a building energy certification system, including an electronic energy performance certificates (EPC) database that contains the following:

- Reference information (number, type, owner, age)
- Buildings geometry (physical measurements)
- Type of EPC (measured or calculated, validity)
- Energy performance data (specific energy consumption, label)
- Recommendations and expected energy savings
- Other (RES, carbon emissions, etc.)
- Qualified Expert details
- Calculation input

Residential and non-residential and/or public buildings are certified by qualified and licensed trained professionals. The licenses are issued with a term limitation, to renew which the qualified experts need to prove their experience (e.g., number of EPCs issued). The licenses are issued by the Ministry of Regional Development and Public Administration, and are based on qualified training completion and a written recommendation from a relevant professional association, which they are member of.

However, the digitalized EPCs should form basis for a unified digitalized Building Registry, which has not yet been developed in Romania. Furthermore, there is sufficient implementation of organized quality assurance and verification of EPCs (the sampling and consistency of quality checks is insufficient).

Energy Performance of Buildings Directive: Overview

The 2010 Energy Performance of Buildings Directive (EPBD) is aimed to reducing the energy consumption of buildings. It sets obligations to Member States (MS) to ensure that (i) all new buildings must be nearly zero energy buildings (NZEB) by 31 December 2020, (ii) minimum energy performance requirements must be set for new buildings, for the major renovation of buildings and for the replacement or retrofit of building elements (including heating and cooling systems), and (iii) compulsory inspection schemes must be established for heating and air conditioning systems (or equivalent measures). EPBD has had two recasts (the latest still pending adoption). These include:

2018 revision: aimed at accelerating building renovation rates by reinforcing provisions on long-term building renovation strategies (LTRS) with milestones (indicative) for 2030, 2040 and 2050; an overview of the national building stock; cost-effective approaches to renovation; policies and actions to stimulate cost-effective deep renovation of buildings, including staged deep renovation; targeting of the worst-performing segments, split-incentive dilemmas and market failures, alleviation of energy poverty; promotion of smart technologies and well-connected buildings and communities; promoting skills and education in the construction and energy efficiency sectors, an estimate of expected energy savings and wider benefits, such as those related to health, safety and air quality. The Commission presented its Renovation wave strategy, as part of the European Green Deal, in October 2020 concrete regulatory, financing and enabling measures to boost building renovation to at least double the annual energy renovation rate of buildings by 2030 and to foster deep renovation.

Proposed 2021 revision: translates the Renovation Wave strategy into concrete legislative action to strengthen the provisions of the EPBD, including (i) aggregation of projects and packaged, (ii) establishment of TA facilities/one-stop shops, financial and economic actors, including SMEs; (iii) introduction of minimum energy performance standards to trigger renovation of the worst performing buildings, while upgrading class “G” to class “F” by 2027 for non-residential buildings and by 2030 - for residential buildings, (iv) a new standard for new buildings and a more ambitious vision for all new buildings to be zero-emission by 2030, (v) enhanced LTRs into National Building Renovation Plans, and fully integrated into National Energy and Climate Plans, and roadmaps for phasing out fossil fuels in heating and cooling by 2040 with a pathway for zero-emission building stock by 2050, while banning fossil fuel use in buildings, (vi) mandatory enforcement and increased reliability, quality, and digitalisation of Energy Performance Certificates, on harmonized scale from “A” to “G” by 2025. (vii) a definition of deep renovation; (viii) introduction of building renovation passports; (ix) modernisation of buildings and their systems, and better energy system integration (for heating, cooling, ventilation, charging of electric vehicles, renewable energy). The new rules encourage the use of information and communication technology (ICT) and smart technologies to ensure buildings operate efficiently, and calls for digital building databases to be established. Regarding mobility, the proposal supports the rollout of charging infrastructure for electric vehicles in residential and commercial buildings and makes more dedicated parking space available for bicycles.

Law 372/2005 on energy performance of buildings amended with Law no. 101/2020

The Law 372 and 101^[4] are providing the main primary legislative basis for the transposition of EPBD. The most recent amendments have added or changed definition of several key terms:

- **Buildings with nearly zero energy consumption, or nearly-zero-energy buildings (nZEB)** - buildings with superior energy efficiency, where the energy needs are either very low or almost zero and can be met as follows:
 - a. at least 30% of the energy from renewable sources, including renewable energy produced on site or nearby, within a radius of 30 km from the GPS coordinates of the building, starting in 2021;
 - b. the minimum requirement for the share of electricity supply that comes from renewable energy resources, electricity from renewable sources produced on site or nearby, within a radius of 30 km from the GPS coordinates of the building, for the periods 2031-2040, 2041-2050 and after 2051, shall be established by Government Decision;
 - c. the level of energy needs for nZEB, including that provided from renewable sources, shall be determined by technical regulations. The share of renewable energy use will be determined differently by the functions of buildings and areas with renewable energy potential;
 - d. mayors of localities with more than 5,000 inhabitants initiate multi-year local plans to increase the number of new and existing buildings whose energy consumption is very low or almost zero, depending on the climatic zones and the functions of the buildings;
- **Energy audit of the building** – encompasses all the specific activities which help collect data and technical specifications about the actual level of energy consumption of an existing building / building unit; identify solutions to improve energy efficiency; determine the extent of the energy consumption and economic efficiency resulting from the proposed solutions; finalize with the audit report, according to the methods
- – an expert certified by the MRDPA in accordance with the legal provisions in force, who has the right to draw up energy audit reports and/or energy performance certificates for buildings/building units, in accordance with the specific methodology adopted at national level approved by order of the MRDPA. The energy auditor for buildings is the expert who works as a representative of agencies or as an independent specialist;
- Added definitions for key terms such as: building automation and control system, roadmap - customized energy renovation plan of the building, trigger points, deep renovation, passport for energy renovation of buildings, decarbonized building stock, energy performance contract
- Adding the description of the Calculation Methodology (CM) essential parts and the main indicators of the energy performance calculated with the CM.
- Additional specification for a **study on the technical, economic and environmental feasibility of using alternative high-efficiency systems** are prescribed into new

building construction permits, in addition to the requirement to comply with the minimum energy performance standards.

- Specification on the Smart Readiness Indicator (SRI) and self-regulating devices for distinctly regulating the temperature and indoor air quality⁵¹
- Electric vehicle parking requirements

The Energy Performance Certificate (EPC) includes values calculated, in accordance with the acting technical regulations on primary and final energy consumption, including from renewable energy sources, and CO₂ emissions, which allow the investor / owner / manager of the building / building unit to compare and assess the energy performance of the building / building unit.

In transposition of the EPBD, the Ministry for Regional Development and Public Administration (MRDPA) of Romania has developed Guidelines for the building sector⁵²:

- MRDPA Guidance GEx 011-2015 for the design of ventilation / air-conditioning in buildings
- MRDPA Guidance GEx 012-2015 for designing lighting systems / protection in buildings
- MRDPA Guidance GEx 013-2015 for the use of renewable energy in new and existing buildings

Transposition of the Energy Efficiency Directive (EED)

The EED transposition in Romania is implemented through the following key policy acts:

- ANRE Decision no.2794/2014 - Regulation for certification of energy managers and energy service provider companies and Regulation for authorizing industrial energy auditors
- ANRE Decision no.2123/2014 Guide for energy audit, including minimum criteria for energy audits according to Energy Efficiency Directive 27/2012/CE;
- ANRE Decision no. 8/DEE/12.02.2015 on Model for developing the Program for increasing energy efficiency for industrial units
- ANRE Decision no. 7/DEE/12.02.2015 for approving the Model for developing the Program for increasing energy efficiency of establishments with a population exceeding 5000 inhabitants.
- ANRE Decision no. 13/DEE/2015 on approval of the syllabus of specialized courses in the field of energy management and energy audits development.
- ANRE Decision no 1765/2013 regarding the approval of the layouts for the total energy consumption statement and the analysis questionnaire of the energy consumer.
- ANRE Order No. 95/2015 amending the approval of contribution for high-efficiency cogeneration and certain provisions on its invoicing;

⁵¹ For more detail see: https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/smart-readiness-indicator/sri-explained_en

⁵² Source: <https://legislatie.just.ro/Public/DetaliiDocument/227200>

Energy Efficiency Directive (EED)

The 2012 EED established binding measures to help the EU reach the 20% energy efficiency target for 2020, which included: annual reduction of 1.5% in national energy sales; obligations to make EE renovations to at least 3% per year of buildings owned and occupied by central governments (Article 5); National LTRS for the building stock in each EU country; mandatory EE certificates accompanying the sale and rental of buildings; the preparation of national EE action plans (NEEAPs) every three years; obligation schemes for energy companies to achieve yearly energy savings of 1.5% of annual sales to final consumers; and large companies conducting energy audits at least every four years.

In 2018, as part of the '**Clean energy for all Europeans package**', the amended EED (2018/2002) updated the policy framework to at least 32.5% EE by 2030 and beyond. Member States are required to draw up integrated 10-year **National energy and climate plans (NECPs)**. The 2018 EED includes: stronger rules on metering and billing of thermal energy; requirements for transparent, publicly available national rules on the allocation of the cost of heating, cooling and hot water consumption in multi-apartment and multi-purpose buildings; and monitoring efficiency levels in new energy generation capacities.

With the **European Green Deal**, the EU's ambition is to at become the first climate-neutral continent by 2050. As a part of the **Fit for 55** package, in July 2021 the Commission proposed a third revision of the EED, to meet the emissions reduction target of at least net 55% by 2050. Main changes in the EED proposal include:

- A new Article 6 mentions that Member States shall ensure that at least 3% of buildings owned by public bodies shall be renovated each year to at least **nearly zero-energy buildings (NZEB)**.
- The annual Member States energy savings obligation for 2024-2030 is increased, from 0.8% to 1.5%.
- Higher target for reducing primary energy consumption (39%) and final consumption (36%) by 2030 (Article 9).

The 2021 revision of the EED is the opportunity to strengthen Article 5 in order to achieve Renovation Wave goal of increased rate and depth of renovation across Europe: Member States shall ensure that the total final energy consumption of all public bodies combined is reduced by at least 1,7% each year, when compared to the year X-2 (with X as the year when this Directive enters into force).

Moreover, by June 2022, the Commission will look into the possibility to develop green public procurement criteria for public buildings such as office buildings and schools related to life-cycle and climate resilience.

ANRE Order No. 61/2015 on approving the calculation method for establishing the quantity of electricity produced by high-efficiency cogeneration in for certification by guarantee of origin;

- ANRE Order No. 10/2015 on the approval of the Methodology for monitoring and reporting data regarding the support scheme on the promotion of high-efficiency cogeneration based on the useful heat demand,

The most recent amendments in the legislation to further harmonization include the following:

Law 121/2014 on energy efficiency⁵³ amendment

Information and awareness program for end customers

The Energy Efficiency Directorate of the Ministry of Energy is:

- a) ensuring the dissemination of clear and easily accessible information on:

⁵³ Source: <https://legislatie.just.ro/Public/DetaliiDocument/221493>

- (i) the available **contracts for energy services** and the clauses to be included in these contracts, in accordance with Annex no. 10, in order to guarantee energy savings and the rights of final customers;
- (ii) financial instruments, incentives, grants, facilitating loans from financial and banking institutions, where appropriate, aimed at supporting energy efficiency projects and the activity of energy service companies such as **ESCO**;
- b) encouraging the use of the **quality labelling system**, including by professional associations;
- c) making available to the public by publishing on its website and constantly updating the list of **available energy service providers that are qualified and/or certified** and their qualifications and/or certifications, or using an interface through which energy service providers can provide information;
- d) supporting the public sector in **applying for energy service offers** by providing information on best practices for energy performance contracting;
- e) carrying out the qualitative analysis, together with the competent authorities, on the current and future **evolutions of the energy services market**, according to the objectives stipulated in the Integrated National Energy and Climate Change Plan and the continuity of the objectives of the National Energy Efficiency Action Plan.

Law no. 220/ 2008 recast on establishment of the system for the promotion of the production of energy from renewable energy sources

Law no. 220 of 27 October 2008 (revision) for the establishment of the system for the promotion of the production of energy from renewable energy sources⁵⁴- amended for energy production from renewable sources

Methodology of 23/02/22 on rules for the marketing of prosumer electricity produced under 400kW

Methodology of 23 February 2022 laying down rules for the marketing of electricity produced in power plants from renewable sources with an installed electrical power of not more than 400 kW per consumption place belonging to prosumers⁵⁵

- a) the requirements to be met by a final customer, whether a natural or legal person, in order to obtain the status of prosumer;
- b) the electricity measurement requirements for determining the quantity of electricity produced from renewable sources and delivered to the electricity grid by prosumers;
- c) the method of bearing the costs of purchasing, assembling, checking, sealing and reading the electricity metering groups in the prosumers' installations, as well as those at the point of delimitation between the installations of the prosumer and those of the distribution operator;
- d) the way of achieving the quantitative compensation/financial settlement between the electricity produced and delivered to the electricity network by the prosumers and the electricity consumed by them from the electricity network;

⁵⁴ Source: <https://legislatie.just.ro/Public/DetaliiDocument/98742>

⁵⁵ Source: <https://legislatie.just.ro/Public/DetaliiDocument/252374>

- e) framework contracts for the sale of electricity produced from renewable sources and delivered to the electricity grid in power plants from renewable sources with an installed electricity power of not more than 400 kW per consumption place belonging to prosumers

ESCO/Energy Performance Contracting

Law 121/2014 on energy efficiency⁵⁶ amendments

ESCO

- The Ministry of Energy, in collaboration with the other competent authorities, promotes the development of the energy services market and regulates the access to it through financial instruments, incentives, grants, facilitation of loans from financial and banking institutions, where appropriate, aimed at supporting energy efficiency projects and the activity of energy service companies such as ESCOs;
- Energy Efficiency Directorate within the Ministry of Energy has the responsibility to develop the legal framework regarding the approval and to implement the Energy Performance Framework Contract and of the legal framework for the regulation of the Energy Service Companies (ESCO). The process has not been concluded on schedule committed to the Government. The stakeholders from the private sector, academia and CSOs have also commented that the process has been ongoing behind closed doors without open discourse with the partners.

HOA/MAB Housing Management

Law no. 196 of 20 July 2018 on the establishment, organization and operation of owners' associations and the administration of condominiums⁵⁷

This Law regulates the legal, economic and technical aspects regarding:

- The establishment, organization and operation of owners' associations within condominiums consisting of at least 3 real estate units;
- The administration, maintenance and use of real estate or groups of buildings in condominiums that have in their structure dwellings or spaces with a destination other than that of dwelling, owned by at least 3 natural or legal persons, each owner having an individual property and an undivided share of the common property.

The owners are obliged to take measures for the consolidation and modernization of the condominium, the modernization of the equipment, installations and related facilities, the installation of meters for the individualization of the consumptions at the level of individual property, the thermal rehabilitation in order to increase the energy performance, as well as the structural-architectural rehabilitation of the condominium envelope in order to increase its architectural-environmental quality, according to the legal provisions, under the

⁵⁶ Source: <https://legislatie.just.ro/Public/DetaliiDocument/221493>

⁵⁷ Source: <https://legislatie.just.ro/Public/DetaliiDocumentAfis/234654>

conditions maintaining the harmonious and unitary appearance of the entire condominium, regardless of the nature of the interventions.

The general assembly of the HoA based on the written agreement of all the owners adopts decisions on the **contracting of loans from banks** in order to cover the expenses for the consolidation and modernization of the condominium, the modernization of the related installations and facilities, the thermal rehabilitation in order to increase the energy performance, as well as for the structural-architectural rehabilitation of the tire in order to increase the environmental-architectural quality of the condominium

Energy Poverty, Utility Tariffs and Subsidies

Clean Energy for all Europeans (CEP) package requires the Member States to integrate energy poverty into their programs in transition to green economy. The EED demands⁵⁸ that Member States take into account the need to alleviate energy poverty in accordance with nationally defined criteria. The defined energy poverty groups should be targeted in priority order under a defined segment of the national energy efficiency policies or programs. The Internal electricity market directive (EU) 2019/944 requires the Member States to protect the vulnerable and energy-poor consumers. The recast Renewable Energy Directive demands that Member States improve the accessibility of renewables for self-consumption to energy-poor consumers⁵⁹.

The Romanian legislation energy poverty (vulnerable consumers) through a number of laws and secondary legislation that define what vulnerability is and identify type and magnitude of social assistance pertaining to that group.

Law no. 123 of 10 July 2012 for electricity and natural gas amendments

Vulnerable consumer definition- single person / family, final customer belonging to a category of household customers who, due to health, disability, age, insufficient income or lack of energy sources, are at risk of social marginalization and who, will benefit from social services initiatives, including of a financial assistance, to ensure at least their minimum energy needs are met. Social service initiatives, as well as the eligibility criteria for them, are established by normative acts⁶⁰;

Interventions in price setting: The protection of household customers **in energy poverty** and of vulnerable customers is achieved through social policy or any other legal means other than public interventions in the setting of electricity supply prices.

Different definitions on several key terms: vulnerable consumer, energy community etc.

Law No. 196/2016 on minimum inclusion income

Through the **Law on minimum inclusion income (VMI) - Law nr. 196 from 31 October 2016**, in force since 2018, housing subsidies are granted in the form of financial aid with the purpose

⁵⁸ Article 7(11) of the amended Energy Efficiency Directive (2018)

⁵⁹ Policy Paper on Energy Poverty. Adelphi, 2021.

⁶⁰ Source: <https://legislatie.just.ro/Public/DetaliiDocument/139677>

of fully or partially covering the expenses for heating the house during the cold season to single persons or families whose income falls within the limits provided by law.

According to the data recorded by the Ministry of Labor and Social Protection, in the period 2015-2019, the total number of people benefiting from aid for heating the house through GD 70 decreased from 1.52 million in 2015 to 582,000 in 2019, but also the share of aid for each type of heating recorded various values. The granting thresholds were changed in 2020, but the number of beneficiaries is currently unknown. The Ministry of Labor estimated an increase in the number of beneficiary families from 400,000 to 800,000 through VMI, compared to previous similar programs, and a decrease in the number of vulnerable people by 580,000 by 2020. However, there is no report indicating the results of the program.

According to the data, every year out of the 4 analyzed, the largest share of aid is for wood, increasing from 63% to 67% at the end of the reference period, followed by the share of aid for gas and heat, which did not register major fluctuations.

Law no. 226/ 2021 on the establishment of social protection measures for the vulnerable energy consumer

The Law no. 226 of 16 September 2021 on the establishment of social protection measures for the vulnerable energy consumer establishes the criteria for classifying families and single persons in the category of vulnerable energy consumers and regulates the social service measures for them regarding the access to energy resources in order to meet the essential needs of the household, and prevent and combat energy poverty.

The financial social protection measures (state/local budget or EU funds) consist of assistance programs to ensure their minimum energy needs are met, such as assistance with:

- Heating the house;
- Paying for a portion of household's energy consumption throughout the year;
- The purchase of energy-efficient equipment necessary for the lighting, cooling, heating and provision of hot water, with the replacement of technically outdated household appliances by energy-efficient household appliances, as well as with the use of energy-efficient means of communication;
- The purchase of products and services that will improve the energy efficiency of the buildings or for connection to energy sources.

Conditions to implement the social assistance initiatives are also defined by the Law No 226, specifically the aid is meant to be granted on the basis of the *average net monthly income per family member or single person*, as the case may be, and the amount corresponding to the percentage compensation shall be supported by the State budget, as follows:

- 100% of the reference value, but not more than the invoiced consumption, if the average net monthly income per family member or single person is up to RON 200;
- 90%, if the average net monthly income per family member or single person is between RON 200.1 and RON 320;
- 80%, if the average monthly net income per family member or single person is between RON 320.1 and RON 440;
- 70%, if the average monthly net income per family member or single person is between 440.1 LEI and 560 LEI;

- 60%, if the average monthly net income per family member or single person is between 560.1 LEI and 680 LEI;
- in a proportion of 50%, if the average monthly net income per family member or single person is between RON 680.1 and RON 920;
- 40%, if the average monthly net income per family member or single person is between RON 920.1 and RON 1,040;
- 30%, if the average monthly net income per family member or single person is between RON 1,040.1 and RON 1,160;
- 20%, if the average monthly net income per family member or single person is between RON 1,160.1 and RON 1,280;
- 10%, if the average monthly net income per family member is between RON 1,280.1 and RON 1,386;
- in a proportion of 10%, if the average monthly net income of the single person is between 1,280.1 LEI and 2,053 LEI.

The average net monthly income up to which the heating aid is granted is 1,386 LEI / person, in the case of family, and 2,053 LEI in the case of single person.

The reference value, depending on the heating system used, shall be updated by Government Decision and may not be less than:

- 250 LEI/month, for natural gas;
- 500 LEI/month, for electricity;
- RON 320/month, for solid and/or petroleum fuels.

The energy poverty support tools for vulnerable households offer financial support from the State and/or local budget (referred to in Article 2 (2)), for full or partial coverage of energy-related expenses, specifically:

- Aid for domestic heating - expenses for heating the house. The aid shall be granted to vulnerable customers of centralized heat, electricity, natural gas, solid fuels and/or oil. It is granted only for one heating system, which is the main one used;
- Energy supplement - for lighting the dwelling, to support cooking facilities and to provide hot water in the dwelling, to ensure continuity in the supply of electrical equipment on which the lives of individuals depend, for health reasons, and the use of means of communication involving the use of energy.

Government Decree No. 118 of 4 October 2021 established a compensation scheme for the consumption of electricity and natural gas for the cold season 2021-2022. ANRE President's Order no. 27/1996 established a grant-scheme for household consumers who reside or work in some localities in the Apuseni Mountains and in the "Danube Delta" Biosphere Reserve for a unitary compensation in the amount of no more than 0.291 LEI / kWh, in the case of electricity, and amounting to no more than 33% of the value of the natural gas price component from the supply contract of the beneficiary customer, in the case of natural gas, under the conditions stipulated in this emergency ordinance. The value in LEI of the compensation for a place of consumption shall be determined as a product between the unit value of the compensation provided and the invoiced consumption for the period of granting the compensation, if it is less than or equal to the reference consumption, and applies in each

invoice issued to household customers by the suppliers of electricity and natural gas for the consumption in the period from 1 November 2021 to 31 March 2022.

The **Emergency Ordinance on social protection measures during the cold season of 2011 (GD No. 70 from 31 august 2011)** instituted the granting of monthly financial aid to cover part of the expenses related to the heating of the house during the cold season. Such aid shall be granted on the basis of a request from the vulnerable consumer and a statement of the composition and income of the household. The subsidy for heating the house in the cold season was granted regardless of the type of heating used: central heating, natural gas, solid fuels (wood, coal) or electricity (when the dwelling has no other form of heating).

Public / Municipal Budgeting

Decree no. 18 of 4 March 2009 on increasing the energy performance of blocks of flats⁶¹ amendments

These programs will be funded as follows:

- 60% of the funds will be allocated from the state budget, within the limit of the annually approved funds for this purpose in the budget of the Ministry of Regional Development, Public Administration and European Funds;
- 40% of the funds will be allocated from the local budgets and/or from other legally established sources, as well as from the repair fund of the homeowners' associations (HoA) and/or from other legally established sources.

The **contribution rate of the local public administration** authorities shall be established on the basis of socio-economic criteria, within the limit of a quota of maximum **30%** of the value of the execution of the energy efficiency improvement initiatives and shall be approved by decision of the local councils, and individual sector councils of Bucharest municipality.

The **contribution rate of the HoA** may not be less than **10 %** of the cost of the energy performance initiatives referred to in Article 4 and shall be ensured by it during the implementation of energy efficiency enhancement programs, on the basis of the statements of works.

The works can be covered by exception by National Recovery and Resilience Plan (NRRP).

The local public administration authorities may provide funding to cover **the expenses related to the contribution quota** that belongs to the homeowner /owners' association once financing application submitted by the HoA, based on the decision of the local council, within the limit of the annually approved funds for this purpose. These funds advanced by the local public administration authorities to ensure the share of own contribution of the homeowners / owners' associations, will be paid back from **the repair fund or through the thermal rehabilitation tax**, established by the decision of the local councils, no later than within 10 years of receiving said funding assistance. **Exceptions are envisioned for social cases.** The local public administration authorities **may also decide to take over the expenses** related to the energy performance initiatives, corresponding to the contribution quota.

⁶¹ Source: <https://legislatie.just.ro/Public/DetaliiDocument/103284>

Public Procurement

Public procurement in Romania has been reformed and an online platform for competitive tendering of public procurement was established. The most recent and substantive changes were introduced into the Romanian public procurement legislation by the Emergency ordinance No. 45/2018 entered into force from the date of its publication in the Romanian Official Gazette, namely from 4 June 2018, which was amended and supplemented four (4) laws and two (2) government emergency ordinances as follows⁶²:

- Law no. 98/2016 on public procurement;
- Law no. 99/2016 on sectoral procurement;
- Law no. 100/2016 on concessions of works and concessions of services;
- Law no. 101/2016 on remedies and appeals in the matter of awarding public procurement contracts, sectoral contracts and concession contracts for works and concession of services, as well as for the organization and functioning of the National Council for Solving Complaints;
- Government Emergency Ordinance no. 13/2015 regarding the establishment, organization and functioning of the National Agency for Public Procurement⁶³;
- Government Emergency Ordinance no. 98/2017 on the ex-ante control function of the procurement procedure/public procurement framework agreements, sectoral framework contracts/agreements and works concession and service concession contracts.
- As a member of the EU, Romania has transposed the Directive 2014/55/EU through the Law 199/2020 on electronic invoicing in public procurement on 8 September 2020.
- The Fiscal Code, in force from 1st of January 2016, and its implementing rules approved by Law 227/2015 are governing the electronic invoicing (e-Invoicing) in Romania.

Nonetheless, the overall “performance” of Romania across 12 indicators, which cumulatively measures whether purchasers get good value for money, ranks as “red”, accounting for less than “3” out of 12 possible points. Some of the concerning values in the common indicators are as follows:

- 41% of all contracts are awarded where there was just a single bidder, and rising;
- 22% of procurement procedures were negotiated with a company without any call for bids, and rising;
- Only 1% all contracts follow procurement procedures with more than one public buyer;
- 93% of procurement procedures are awarded solely because the offer was the cheapest one available;
- 89-90 days is the mean decision speed, i.e., between the deadline for receiving offers and the date the contract is awarded – while less than 120 days is a positive indication,

⁶² Source: EU Single Market Scoreboard available at https://single-market-scoreboard.ec.europa.eu/policy_areas/public-procurement_en

⁶³ Source: <https://iclg.com/practice-areas/public-procurement-laws-and-regulations/romania>

other EU Member States (Denmark, Island, Lithuania, Norway, Sweden) limit procurement decisions within 50-60 days.

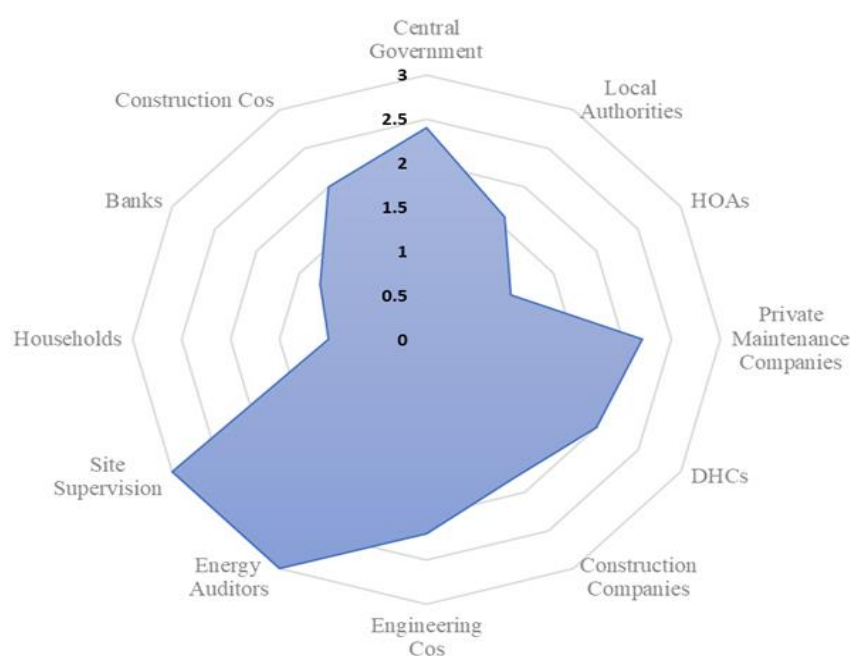
These alert of potential for improvements, such as:

- Ensuring that there are more than one bidders to give public buyers more options, and better value for money.
- Extending early calls or inviting expressions of interest before starting procurement negotiations can make the bidder selection process more transparent and increases competition, leading to better value for money.
- Merging procurement tenders for multiple public buyers to buy together allows to buy in bulk, which often leads to better prices and offers an opportunity to share knowledge.
- When public entities decide based on price alone, they lose the opportunity to take quality into account. Over-reliance on price suggests better criteria could have been applied, so a better purchase could have been made.

Annex 2. Survey and Capacity Assessment of Regional Development Agencies and Local Public Authorities

Considering the critical role of the Regional Development Agencies (RDAs) in the mobilization and structuring of the building renovation investment programs, a survey was designed to assess the agencies' capacity strengthening needs with respect to their ability to effectively streamline the building renovation investments (particularly in public and residential buildings), facilitate energy auditing, prepare design documentation, procure services and works, and monitor and report on baselines and achievements. The survey was distributed to all RDAs. In turn, they were requested to disseminate the survey to the local authorities (LAs), including municipalities, towns and counties under their jurisdiction. The survey was organized by the World Bank experts in April 2022.

Figure 24. Assessment of Key Player Capacities



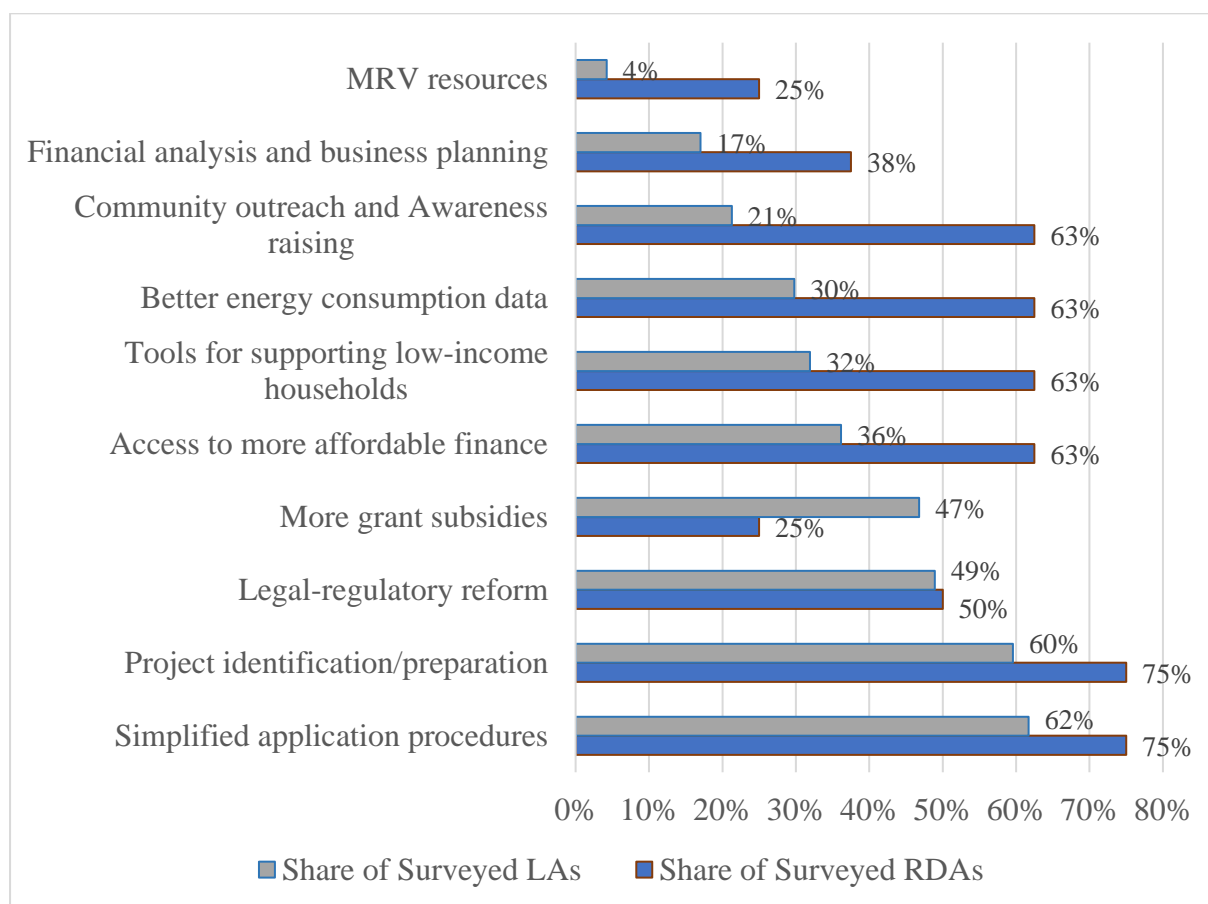
Note: (Low=1, Medium=2, Strong=3) Rated by representatives of RDAs and Local Authorities

The survey⁶⁴ findings were based on voluntary participation and responses are not statistically uniform or representative of all regions. Nonetheless, are quite informative of the potential gaps and capacity needs in the responded agencies and are summarized in Annex 1. Mapping of Policy and Regulatory Framework.

⁶⁴ The responses were received from six RDAs: Southeast, South, Southwest, South Muntenia, Center and South Muntenia. Local authorities provided feedback from Central development region (20 responses), the North-East (17), and the West (14). While the survey is not based on a properly structured sample and was based on voluntary participation, the findings indicate the need for a more thorough assessment of the capacities in a more structured survey.

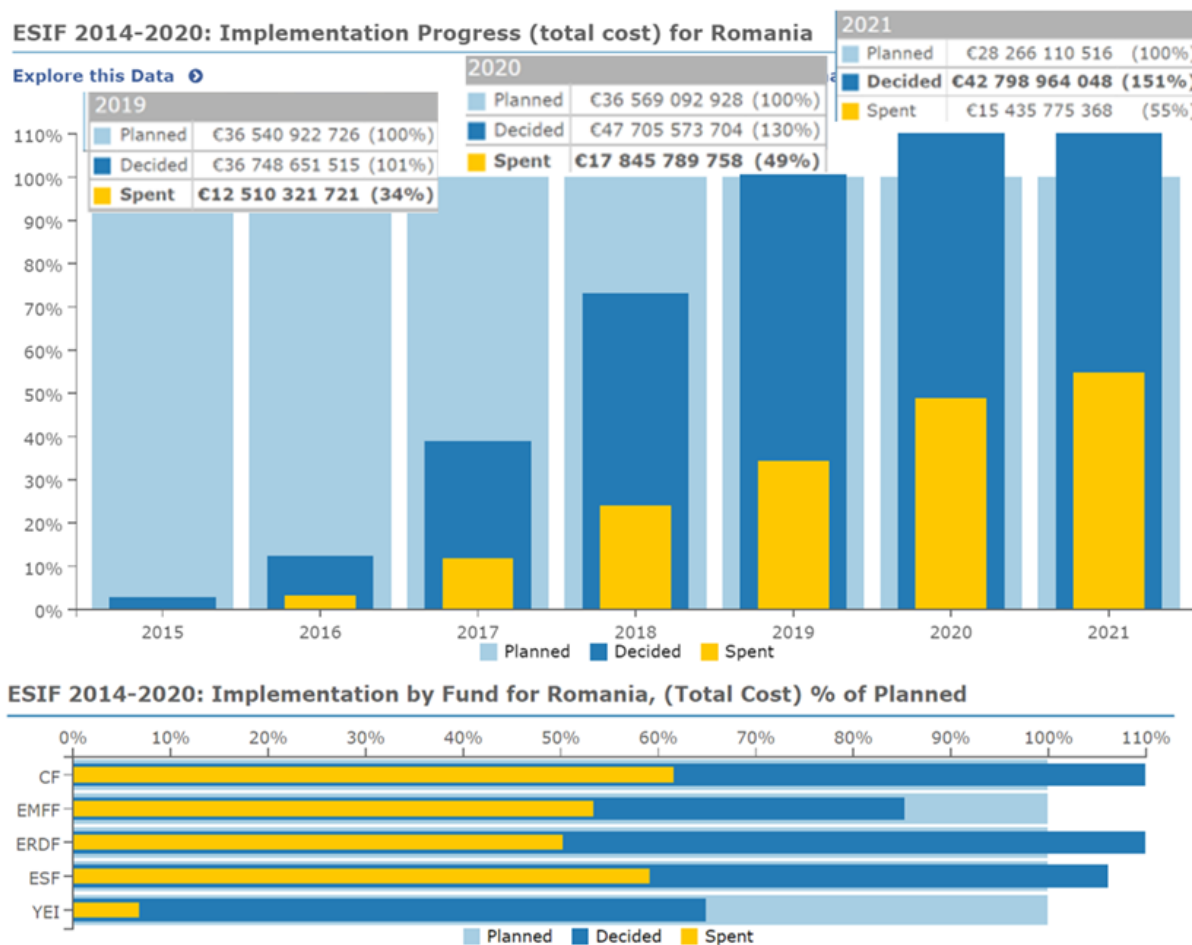
The renovation partners ranked by 6 RDAs and nearly fifty local authorities with lowest capacity were households and HOAs, followed by banks, local authorities and construction companies. When asked of their capacity building needs, 60% of RDAs and 75% of surveyed LAs noted they required capacity building in project identification/preparation and simplification of application procedures (See Annex 2. Survey and Capacity Assessment of Regional Development Agencies and Local Public Authorities).

Figure 25. Capacity-Building Needs Self-Assessed by Local and Regional Authorities (% of Respondents)



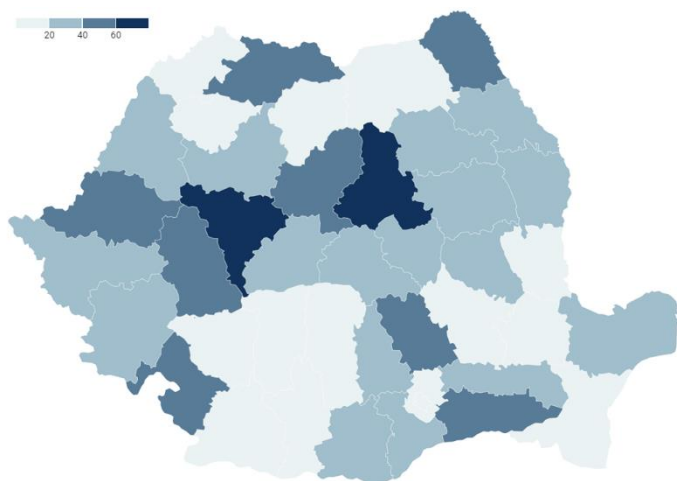
The deployment of the EU funds signals of limited institutional capacities in implementation of investment programs. Deployment rate of ERDF Funds has grown: from 34% in 2019, to 55% in 2021. However, the rates still remain low due to lack of adequate capacity for planning, disbursing, or managing approved projects (See Figure 25).

Figure 26. Deployment of EU Funds



Source: <https://cohesiondata.ec.europa.eu/countries/RO>.

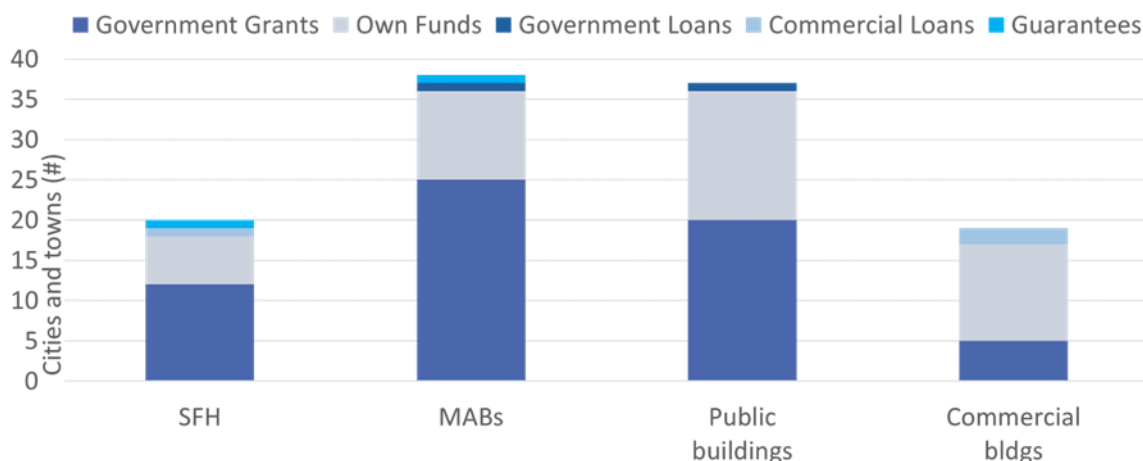
Figure 27. Absorption capacity of EU Funds by individual regions (% obligated)



Furthermore, there is a great heterogeneity in ability to spend the funds made available. Only some regions managed to get up to 50%, while others failed to spend even 10% of the total funds obligated (See Figure 26).

The availability of funds, based on the awareness of the LAs for the different building types is summarized in Figure 28.

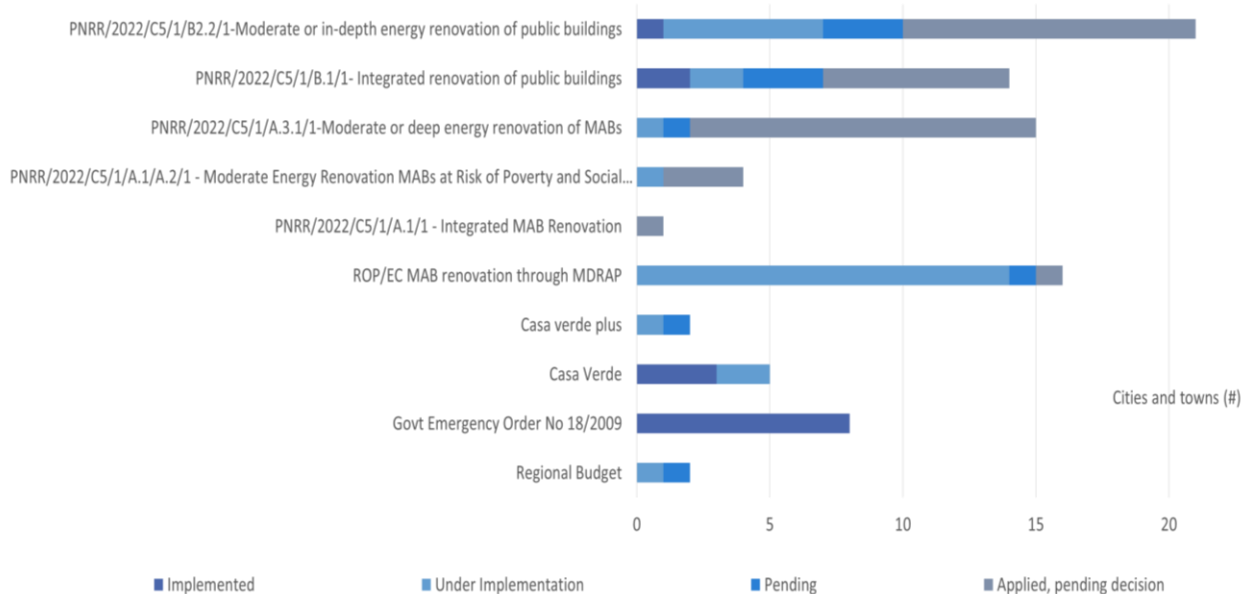
Figure 28. Financing sources available in surveyed regions for investments in building renovation



Source: WB experts' survey

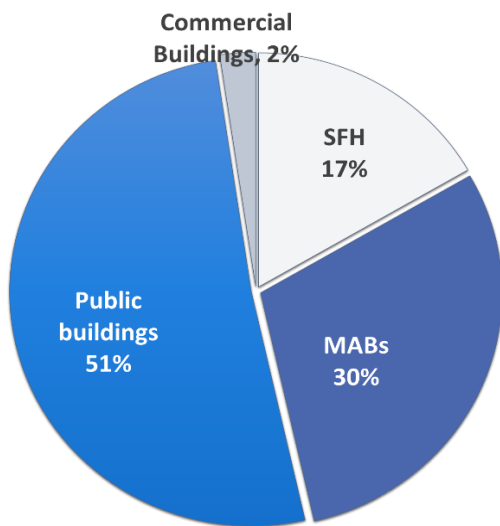
The Regional Program financing and RRF are the main sources of financing for leveraging the local and state budget funds. With a smaller share of such investment already implemented, a larger share of initiatives are expected to materialize. As Figure 29 shows, many local authorities have projects under implementation, and even more so – pending (political decision made, funding obligated) or in application stage, under review.

Figure 29. Financing Instrument Application Pattern



More than half of the surveyed local authorities have included public buildings (51%) in their operational programs, with only 30% also included MABs (see Figure 30). This reflects the political priorities, the impact of the public building EE on the public budgets, but also the relative simplicity of implementation, given a single owner in a public building, compared to a MAB, where multiple owners would have to make a decision, having mixed incomes, absentee households, and vague ownership over common space.

Figure 30. Share of Building EE Priorities in Sample Local Authorities, by Building Type



Annex 3. Summary of Financial / Investment Programs Related to Building Renovation

Available Funds Supporting Ongoing EU Programs and Initiatives

European Regional Development Fund – ERDF

In 2021-2027, the fund will enable investments to make Europe and its regions⁶⁵:

- more competitive and smarter, through innovation and support to small and medium-sized businesses (SMEs), as well as digitization and digital connectivity
- greener, low-carbon and resilient
- more connected by enhancing mobility
- more social, supporting effective and inclusive employment, education, skills, social inclusion and equal access to healthcare, as well as enhancing the role of culture and sustainable tourism
- closer to citizens, supporting locally-led development and sustainable urban development across the EU

European Social Fund Plus - ESF+

The ESF+ should provide support to measures included in Member States' national plans aiming to eradicate energy poverty and to promote energy efficiency in buildings among vulnerable households, including those affected by energy poverty and, where appropriate, in social housing⁶⁶.

Cohesion Fund – CF

The fund mainly contributes to investments in the field of environment and trans-European networks in the area of transport infrastructure made by public and regional authorities for certain EU member states, including Romania, for the period 2021-2027⁶⁷.

Just Transition Fund – JTF

The fund is one of the elements of the Just Transition Mechanism for a transition towards climate neutrality. The Commission provides grants to Member States having identified the territories expected to be the most negatively impacted by the green transition, for the period 2021-2027.

⁶⁵ For more information see: https://ec.europa.eu/info/funding-tenders/find-funding/eu-funding-programmes/european-regional-development-fund-erdf_en

⁶⁶ For more information see: <https://ec.europa.eu/social/main.jsp?catId=325>

⁶⁷ For more information see: https://ec.europa.eu/info/funding-tenders/find-funding/eu-funding-programmes/cohesion-fund-cf_en

The JTF supports the economic diversification and reconversion of the territories concerned. This means⁶⁸:

- investments in Small and Medium-sized Enterprises
- creation of new firms
- research and innovation
- environmental rehabilitation
- clean energy
- up- and reskilling of workers
- job-search assistance
- transformation of existing carbon-intensive installations

Recovery and Resilience Facility- RRF

The RRF is the key instrument at the heart of NextGenerationEU. This financing will support the implementation of the crucial investment and reform measures outlined in Romania's recovery and resilience plan.

Under the Recovery and Resilience Facility (RRF) EC provides €14.2 billion in grants and €14.9 billion in loans to Romania (total **€29.2 billion**), of which 41% of the plan's total allocation on measures would support the green transition; €2.7 billion will be invested for energy-efficient renovation and seismic renovation of multi-family buildings and public buildings, benefiting the environment and lightening households' energy bills⁶⁹.

Modernisation Fund- FM

FM is a new financing instrument for period 2021-2030. The existing Modernisation Fund created under the EU Emissions Trading System (ETS) has the potential to be a real game-changer for lower-income EU Member States to achieve the just energy transition needed. It can help fill the investment gap to reach the EU 2030 targets.

The FM shall operate under the responsibility of the beneficiary Member States in cooperation with European Investment Bank, Investment Committee, European Commission⁷⁰.

Co-financing rate:

- up to 100% of eligible expenditure for priority investments
- up to 70% of eligible expenditure for non-priority investments

At national level, the EU funds are translated in the following programs (selection considering EE measures):

⁶⁸ Source: https://ec.europa.eu/info/funding-tenders/find-funding/eu-funding-programmes/just-transition-fund_en

⁶⁹ More information available at: https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en

⁷⁰ More information available at: <https://modernisationfund.eu/investments/>

Investment Support

Operational Programs Ongoing till 2023

Financing allocated under the previous operational period has targeted priority axes focusing on promotion of clean energy and energy efficiency, supporting a transition to low-carbon economy, increasing energy efficiency at the level of the centralized heating system in selected cities, sustainable urban development, development of health and social infrastructure, supporting the economic and social regeneration of disadvantaged communities in urban areas, as well as improving the educational infrastructure, as summarized in Table 23.

Table 23. Financing allocated for large infrastructure program and regional operational program, by individual axes (2014-20)

<i>Program</i>	<i>Priority Axis</i>	<i>Allocated amount (mln EUR)</i>
Large Infrastructure Operational Program	Priority Axis 6 - Promoting clean energy and energy efficiency to support a low-carbon economy	197.32
	Priority Axis 7 - Increasing energy efficiency at the level of the centralized heating system in selected cities	249.47
Regional Operational Program 2014-2020	Priority Axis 3: Supporting the transition to a low-carbon economy	2374.57
Amendment to the Operational Program "Large Infrastructure"	Priority Axis 10: Protecting population health in the context of the health crises caused by COVID-19, increasing energy efficiency and the use of renewable energy sources"	Not available

Ongoing and Upcoming Operational Programs

The Sustainable Development Operational Program (SDP)

The SDP focuses on investments in key sectors, will benefit from a regional allocation, with a total budget of more than €13.62 billion^{71,72}.

In the field of energy, the SDP will promote energy efficiency-oriented interventions and the reduction of greenhouse gas emissions, the promotion of energy from renewable sources and the development of smart grids outside the trans-European energy grid, complementary to RP and NRRP. Investments for the modernization of the district heating systems, by upgrading / extending the district heating networks.

⁷¹ Source: <https://mfe.gov.ro/wp-content/uploads/2022/03/a0fe863f292d7e2d952820da8bbb99e8.pdf>

⁷² Source: <https://oportunitati-ue.gov.ro/programul-operational-dezvoltare-durabila/>

Priority axis 1: Promoting energy efficiency, smart energy systems and grids and storage solutions and reducing greenhouse gas emissions

- Improving the energy efficiency of SMEs and large companies
- Intelligent electricity distribution systems and storage solutions or Intelligent energy systems and networks and storage solutions

Total Budget: **€470 million**, of which €400 million from EU funding and €70 million from the state budget.

EU funding will be:

- from the ERDF: €300 million
- from FC: €100 million

Co-financing rate

- 85% for less developed regions
- 40% for more developed regions

Technical Assistance Program

The objective is efficient and effective use and management of UE funds.

Total budget €0.668 billion (ERDF and ESF+).

The Social Inclusion and Dignity Operational Program (POIDS)

POIDS will benefit from an estimated budget of €2.972 billion of European funds plus €755 million of the state budget, with a **total of €3.727 billion for the period 2021-2027**.⁷³

Construction/ Renovation works of social buildings or for persons with disabilities.

The Just Transition Operational Program (POTJ)

POTJ shall only support activities that are directly linked to the specific objective of enabling regions and citizens to address the social, economic, and environmental impact of the transition to a climate-neutral economy. POTJ 2021-2027 has a total indicative allocation of approx. **€2.139 billion are added to 0,377 billion national co-financing, with a total of €2.517 billion available;**

Territorial Plan for Just Transition Gorj, Hunedoara, Dolj, Mures, Prahova, Galati (potentially grants for renovation of public buildings, Energy Poverty measures and RES implementation).

Regional (Operational) Programs (RP) from ERDF

8 development regions of Romania will benefit from Regional (Operational) Programs (RP) financed with European money and funds from the local budget, which are on the investment list to ensure the continuity of the strategic vision of sustainable and balanced development of regions in the period 2014-2020, based on the directions, actions and

⁷³ Source: <https://www.romaniajournal.ro/business/romania-to-get-eur-100-bln-of-eu-funds-during-2021-2027-which-sectors-have-one-third-of-the-total-budget>.

priorities of the Regional Development Plan (PDR) 2021-2027 and the 2021-2027 Smart Specialization Strategy (RIS).

Other Programs

National Recovery and Resilience Plan (NRRP)

The Facility is a temporary recovery instrument. The RRF helps the EU achieve its target of climate neutrality by 2050 and sets Europe on a path of digital transition, creating jobs and spurring growth in the process, through National plans. Each pillar of the Plan comprises several areas of intervention, a total of 33. Within Pillar I “Green transition”, the areas of intervention approaching EE projects are “Renewable energy and energy efficiency” and “Renovation wave”⁷⁴.

The proposed budget is €1.3 billion for Renewable energy and energy efficiency, respectively €2.2 billion for Renovation Wave on grant basis., as well as Component 10 “Local fund” has €2.1 billion in investments, some of which addressing energy efficiency in buildings (€575 million).

The breakdown of relevant EE engagements under the NRRP total allocation is presented in Table 24.

Table 24. Total Eligible Amounts for Building Renovation Investments under the NRRP

Operation #	Description	Potential Applicants	Maximum eligible amount, excluding VAT	Total eligible amount (Mln EUR)
Operation A.1	Integrated renovation (seismic consolidation and moderate energy renovation) of multi-family residential buildings	All local authorities	<ul style="list-style-type: none"> Seismic renovation: €500/sqm; Moderate renovation: €200/sqm; related works of €500/sqm (Per total constructed area) 	<ul style="list-style-type: none"> 123.5 49.4
				219.2
Operation A.2	Moderate energy renovation of multi-family residential buildings for communities at risk of poverty and social exclusion	All local authorities		
Operation A.3	Moderate or in-depth energy renovation of	All local authorities	<ul style="list-style-type: none"> moderate renovation: €200/m²; 	670

⁷⁴ NRRP can be retrieved from <https://mfe.gov.ro/pnrr/>.

	multi-family residential buildings		<ul style="list-style-type: none"> • deep renovation works of €250/m² (area carried out) 	
Operation B.1	Integrated renovation (seismic consolidation and moderate energy renovation) of public buildings	Central and local authorities, public institutions	<ul style="list-style-type: none"> • Seismic consolidation: €500/m²; • Moderate energy renovation: €440/m²; • related works: €500 /m² (Total area) 	286
Operation B.2:	Moderate or in-depth energy renovation of public buildings		<ul style="list-style-type: none"> • moderate renovation: €440/m² (development area); • deep renovation: €500/m² sqm (area carried out) 	<ul style="list-style-type: none"> • 890 • 122
Operation C10.1.2	Energy renovation of public buildings		<ul style="list-style-type: none"> • Construction of housing for youth and for professionals in health and education, • Construction of energy efficient buildings 	575

Source: Romania's NRRP

Ministry of Energy Modernization Fund (MF)

The Modernization Fund (MF) is made up of the revenues obtained by auctioning on the market 2% of the total allowances allocated to the Member States through the EU-ETS scheme for the period 2021-2030. Romania has allocated 11.98% of the total of 2% of the total quantity of allowances allocated to Member States through the EU-ETS for the period 2021-2030, which it can use to finance investments. It is implemented by the Ministry of Energy

For Romania it is planned a disbursement of grants under the Modernization Fund, which has a national budget of approximately **€13 billion** (by 2030), but it has not even started spending (only sent an investment proposal: Building a new 400 kV OHL double circuit Constanța Nord - Medgidia Sud). For Romania, the projects eligible are those for renewable energy, nuclear energy, electricity transmission networks, networks for the distribution and transport of natural gas, and the financing of gas storage projects.

European Energy Efficiency Fund - EEEF

The EEEF is an alternative investment company with variable capital (société d'investissement à capital variable), governed by the laws of the Grand-Duchy of Luxembourg and incorporated in the form of a public limited liability company (société anonyme). It is a public-private partnership dedicated to mitigating climate change through energy efficiency measures and

the use of renewable energy, was established in July 2011. The objective of the program is to support investments in energy efficiency and renewable energy on a small scale, especially in urban areas, promoted by local authorities, implicitly clean transport and smart grids

- Total budget 265 million euro
- Investors: Directorate-General of the European, European Investment Bank (EIB), Cassa Depositi e Prestiti SpA (CDP), The Deutsche Bundesstiftung Umwelt (DBU), DWS Group GmbH & Co. KGaA (DWS)
- Has no representation in Romania

Eligible activities/Eligible expenditure

- investments to make buildings more energy efficient
- investments for high-efficiency cogeneration, microgeneration, district heating/cooling networks
- investment in decentralized renewable energy sources, including microgeneration
- clean urban transport
- infrastructure upgrading, such as street lighting and smart grids, as well as investment in sustainable energies with innovation and growth potential

Co-financing rate:

- Senior and junior loans, guarantees or equity participation, for investments < €50 million
- Technical assistance grants related to the preparation of projects
- Promotion

Current investments in Romania: €25 million on-lending to Banca Transilvania, portfolio EE, RES, transport⁷⁵.

Interreg Europe 2021-2027 Program - Regional

The eligible project activities are co-financed by the ERDF at a rate of either 70% or 80% depending on the legal status of the EU partner⁷⁶.

- *Greener Europe* Objective: Energy efficiency and reduction of greenhouse emissions; Renewable energy; Smart energy systems, grids and storage;

Natural Capital Financing Facility-NCF

NCF is a nature conservation-oriented fund partnered by EIB and EC. NCF is a financial instrument that supports projects delivering on biodiversity and climate adaptation through tailored loans and investments, backed by an EU guarantee. At the same time projects financed through the NCF need to generate revenues or demonstrate cost savings. Concerning buildings, green roofs or green walls are eligible.

⁷⁵ For more information see: <https://www.eeef.lu/eligible-investments.html>

⁷⁶ For more information see: <https://www.mdpa.ro/pages/interregeurope20212027>

As of July 2022, the facility was no longer **accepting new project proposals** and the implementation of selected projects is expected to conclude by end of 2022⁷⁷.

Capacity Building and Technical Assistance

European Local Energy Assistance (ELENA)

The objective of the program is to provide technical assistance for investments in energy efficiency and renewable energy in the sector of buildings and innovative urban transport for public and private sector. ELENA facility is managed by EC and EIB. It has no representation in Romania⁷⁸.

Eligible costs are dedicated to assistance for the development of projects such as:

- technical studies
- energy audits
- business plans and financial advice
- legal advice and procurement procedures
- project management

Total budget €97 million. Co-financing rate up to 90% of the technical assistance/ project development costs (for investments > €30 million).

Implementation in Romania:

- District 6 Bucharest nZEB Renovation Total value: €37,428,856 (including VAT), of which ELENA non-reimbursable grant (managed by EIB and financed by Horizon 2020) amounting to **€1,154,970**. Sources: ELENA- Non-refundable; EIB+CEDB- refundable; Local budget
- South Muntenia RDA: Energy efficiency and building-integrated RES investments in public buildings ELENA co- financing **€2 050 200** (90%)

EEEF Technical Assistance (TA)

Following the European Commission TA Facility managed by the European Energy Efficiency Fund, the Fund set up the EEEF Technical Assistance (TA) Facility to support ambitious public beneficiaries in developing bankable sustainable energy investment programs. The EEEF TA Facility has received ELENA funds under the Horizon 2020 Program of the European Union and builds on the experience gained from its predecessor facility.

The first call for proposals for the EEEF TA Facility was successfully closed on 1 March 2017. Looking forward, the EEEF's TA Facility remains open, with no deadline, to receive further TA project proposals on a first come, first served basis, subject to availability of funds and the EEEF's interest in the proposed sector/technology, etc.

⁷⁷ For more information see: <https://www.eib.org/en/products/mandates-partnerships/ncff/index.htm>

⁷⁸ For more information see: <https://www.eib.org/en/products/advising/elena/index.htm>

Romania is eligible to participate in the program, however no technical assistance projects have yet been implemented in Romania⁷⁹.

InvestEU Advisory Hub

The InvestEU Advisory Hub complements the InvestEU Fund by supporting the identification, preparation and development of investment projects across the EU. Managed by the European Commission and financed by the EU budget, the InvestEU Advisory Hub connects project promoters and intermediaries with advisory partners, who work directly together to help projects reach the financing stage. The InvestEU Advisory Hub is the central entry point for project promoters and intermediaries seeking advisory support and technical assistance related to centrally managed EU investment funds.

InvestEU supported 172 Romanian projects, with the large share of funding going to SMEs, public transport etc.

LIFE program

Building on the success of the Intelligent Energy Europe (2003-2013) and Horizon 2020 Energy Efficiency (2014-2020) programs, the LIFE Clean Energy Transition sub-program continues to support the delivery of EU policies in the field of sustainable energy, in particular, the European Green Deal, the Energy Union (2030 energy and climate targets) and the European Union's 2050 long-term decarbonization strategy. The LIFE Clean Energy Transition sub-program has a budget of nearly €1 billion over the period of 2021-2027 and aims at facilitating the transition towards an energy-efficient, renewable energy-based, climate-neutral and -resilient economy by funding coordination and support actions (Other Action Grants) across Europe. The LIFE program is aimed at clean energy transition with funding of €0.997 billion available⁸⁰.

Previous Initiatives of Horizon 2020 program in Romania included: 30 projects with Romanian partners, €5.68 million on topics related to Buildings, Consumers, Heating & Cooling, Products & Services, Innovative financing, Public Authorities⁸¹.

ManagEnergy

ManagEnergy is a Horizon 2020 funded initiative dedicated to regional and local energy agencies⁸² with the objectives of assisting them in becoming leaders in the energy transition and increasing sustainable energy investments in regions and cities. It provides information, know-how, visibility and networking opportunities and supports local and regional energy agencies in delivering new services or boosting existing ones, supported implementation of several projects in Alba and Prahova County⁸³.

⁷⁹ For more information see: <https://www.eeef.lu/eeef-ta-facility.html>

⁸⁰ For more information see: https://cinea.ec.europa.eu/programmes/life_en

⁸¹ For more information see: <https://energy.easme-web.eu/>

⁸² Agencies listed at <https://www.managenergy.net/managenergy-agencies?combine=&city=&country=ro>

⁸³ For more information see: <https://www.managenergy.net/ManagEnergyProject>

Joint Assistance to Support Projects in European Regions – JASPERS

This technical assistant facility prepares and matures projects that request EU fund facilitating their approval and reassuring potential lenders and investors. Jaspers' advice may be requested at any stage of the project as it covers all aspects of the project cycle: planning, preparation, and delivery. JASPERS provides also an Independent Quality Review to an application and finally a consolidated transfer of knowledge during project assignments, with workshops and training courses. Capacity-building activities are also available on Jaspers' dedicated Networking Platform. JASPERS assistance is free of charge for local authorities and promoters⁸⁴.

JASPERS supported several Romanian projects funded, on hospital infrastructure, investments in the emergency health system, water supply and sewerage infrastructure etc.

FI-Compass

FI-compass is a platform for advisory services on financial instruments under the European Structural and Investment Funds (ESIF). FI-compass is provided by the European Commission in partnership with the European Investment Bank. FI-compass is designed to support ESIF managing authorities and other interested parties, by providing practical know-how and learning tools on financial instruments. These include 'how-to' manuals, factsheets and case study publications, as well as face-to-face training seminars, networking events, and video information. FI-compass offers general information, practical tools and learning opportunities that guide you step-by-step through the life cycle of ESIF financial instruments⁸⁵.

Sustainable Energy Investment Forums (SEI Forums)

Via Sustainable Energy Investment Forums (SEI Forums), Climate Alliance is helping support investment momentum for energy efficiency in the EU. **In Romania the program is continued by SMAFIN roundtables⁸⁶.**

Ongoing grants from other European and international programs

EEA Norway Grants Energy Program in Romania

The program aims to support awareness-raising, training and competence-building on renewable energy, energy efficiency and energy security (soft measures)⁸⁷.

National financing schemes (governmental level)

The 'Casa Verde – Green House' program

⁸⁴ For more information see: <https://jaspers.eib.org/>

⁸⁵ For more information see: <https://www.fi-compass.eu>

⁸⁶ For more information see: <https://refineproject.eu/2021/11/05/seif-sustainable-energy-investment-forums/>

⁸⁷ For more information see: <https://www.innovasjon Norge.no/en/start-page/eea-norway-grants/calls-for-proposals/310522-romania-renewable-energy-and-energy-efficiency/> ; <https://www.eda.admin.ch/schweizerbeitrag/en/home/the-swiss-contribution/countries/rumaenien.html>

Installation of heating systems using renewable energy, including replacement or completion of conventional heating systems, beneficiaries' private owners and legal persons (Ministry of Environment Orders 950/2010, 1223/2010, 1741/2010, 1817-1818/2016)

Funding for private owners:

- up to 3,000 LEI, for the installation of unpressurized solar panels;
- up to 6,000 LEI, for the installation of pressurized solar panels;
- up to 8,000 LEI for the installation of heat pumps, excluding air-to-air heat pumps.

Funding legal persons:

The non-reimbursable financing, provided by the Authority, shall be granted in the amount of up to 90% of the eligible expenses of the project. The amount of financing for public institutions may not exceed LEI 2,000,000. The amount of financing for the religious establishments may not exceed the value of LEI 500,000. The amount of financing in the case of administrative-territorial units may not exceed the following values: a) LEI 4,000,000 for the administrative-territorial units with a number of inhabitants greater than 100,000; b) LEI 3,000,000 for the administrative-territorial units with a number of inhabitants between LEI 50,000 and LEI 100,000; c) LEI 2,000,000 for the administrative-territorial units with a number of inhabitants between LEI 20,000 and LEI 50,000; d) LEI 1,000,000 for the administrative-territorial units with a number of inhabitants between 3,000 and 20,000; e) LEI 500,000 for the administrative-territorial units with a number of inhabitants less than LEI 3,000.

Currently no longer available.

The Casa Verde Plus program

Thermal insulation of the exterior walls and internal insulation of the roof for new single-family houses and for existing one-family dwellings. (Ministry of Environment Orders 2425/2016, 2228/2016).

The financing is granted in the form of *an energy efficiency premium* in the amount of **maximum 40,000 LEI**, up to 100% non-refundable, related to the eligible expenses, but not more than 120lei / sqm isolated and finished, for the insulation of new constructions and for the insulation of existing constructions; within the Program, the applicant can benefit from a single energy efficiency premium;

For legal persons: thermal insulation, green roof, BMS, LED lighting etc. The value of the financing is up to a maximum of 500,000 LEI per project, related to the eligible expenses. Up to 90% of the eligible expenditure of the project is granted.

Beneficiaries: legal entities: administrative-territorial units, public institutions, non-governmental organizations. Administrative-territorial unit is also the administrative-territorial subdivision of the municipality.

Currently no longer available.

Environmental Fund Administration- PV Panels

AFM funded almost 2,000 projects in the past three years through the Casa Verde Fotovoltaice scheme for the installation of solar power panels. The program was especially intended for houses, but businesses and multiapartment buildings were also included. Solar panels can be mounted on the roof or next to the structure. The beneficiaries become prosumers, which means they can deliver excess output to the grid and boost the share of renewables in energy in Romania.

The maximum for individual subsidies is 20 000 LEI or up to 90% of the cost for solar panels with at least 3 kW in capacity.

Total number of applications: 26057, of which only 12718 were eligible for financing⁸⁸.

Environmental Fund Administration- Energy Efficient House

The program is addressed to homeowners as a premium to make investments for the energy efficiency of their home. Eligible costs include installation of new windows with a low heat transfer coefficient, insulating materials for exterior walls, purchase, assembly and commissioning of a more efficient central heating system, solar panels, improved ventilation systems, lighting fixtures with LEDs, motion sensors, new valves, and pipes, etc.

AFM finances up to 60% of the cost of such works, but not more than 70 000 LEI⁸⁹.

- Total number of expressions of interest was 16400, which were not all validated (e.g., repeated entries due to errors),

⁸⁸ For more information see: https://www.afm.ro/sisteme_fotovoltaice.php

⁸⁹ For more information see: https://www.afm.ro/casa_eficienta_energetic.php

- Total number of applications: 3000-3500, of which 1850 were evaluated and 800 approved for funding.

Environmental Fund Administration- EE in public buildings

The program to increase energy efficiency and smart energy management in public buildings was originally addressed only to schools, but expanded to include other public sector beneficiaries: clinics, town hall building etc. In 2021, the program budget was greatly increased and now reaches 1.4 billion LEI. The registration period in the IT platform was from 20 September 2021 to 19 April 2022.

During a financing session, the maximum amount that can be requested is⁹⁰:

- 3 million LEI for communes with a population of up to 5,000 inhabitants inclusive;
- 6 million LEI for communes with a population of over 5.001 inhabitants;
- 8 million LEI for cities;
- 14 million LEI for county councils;
- 14 million LEI for the municipality of rank 0;
- 14 million LEI for first rank municipalities;
- 10 million LEI for the second rank municipalities;
- 12 million LEI for the administrative-territorial subdivisions of Bucharest municipality.

The financing is granted in a maximum of 90% of the eligible expenses of an investment objective. The activities that can be financed:

1. thermal rehabilitation of the building envelope elements, of the heating system/of the hot water supply system;
2. installation of alternative systems for the production of electricity and / or heat; installation/rehabilitation/modernization of air conditioning and/or mechanical ventilation systems to ensure indoor air quality, rehabilitation/modernization of lighting installations in buildings;
3. installation of integrated energy management systems for buildings, etc.

MDLPA Program District Heating- "Termoficare"

The purpose of the District Heating Program is to ensure the continuation of the investment works for the modernization, rehabilitation, refurbishment and extension or establishment of the centralized heating supply systems of the localities.

Former program "Termoficare 2006-2020 - căldură și confort" ended in 2020.

The District Heating Program is implemented during 2019-2027 and will finance new investment projects and ongoing projects that have been started under Government Decision no. 462/2006, republished, with subsequent amendments, in compliance with the provisions of Emergency Ordinance no. 53/2019 and government decision no. 1069/2007 on the approval of the Romanian Energy Strategy for the period 2007-2020.

The financing of the District Heating Program is carried out from the following sources: a) amounts from transfers from the state budget through the budget of MDLPA; b) amounts

⁹⁰ For more information see: https://www.afm.ro/eficienta_energetica_cladiri_publice.php

from transfers from the budget of the Environmental Fund, within the limit of 400 million LEI; c) amounts from local budgets.

The co-financing share of the MDLPA budget is up to 85% of the total eligible expenditures of the project, and the contribution from the local budget will be at least 15%⁹¹.

MDLPA- Multiannual national program on increasing the energy performance of MABs

The program is stated by GD no.18/2009.

Program dedicated to owners' associations that want to increase the energy performance of apartment buildings built on the basis of a project developed until 31.12.2005, regardless of their heating system.

The HOA pays 20% of the total cost of the rehabilitation works. The remaining 80% is provided from the state and local budgets. The main objectives of this program are to reduce the annual specific consumption for heating below 100 kWh/m²/year and improve indoor environmental quality⁹².

MDLPA- Thermal rehabilitation program for residential buildings financed by bank loans with government guarantee

The program is stated by GD no.69/2010.

Sources of financing: bank loans granted by credit institutions, with government guarantee and subsidized interest for the execution of intervention works regarding the thermal rehabilitation of residential buildings, with the following characteristics of the loan⁹³:

- Credit period: max. 60 months
- The value of the loan: max. 90% of the total value of the expenses stipulated in the general estimate, but not more than the equivalent in LEI, including VAT:
 - 1.850 EUR/ room⁹⁴ , for owners' associations;
 - 7.400 EUR, for owners of the single-family building.
- Own contribution: min. 10% of the total value of expenses stipulated in the general estimate.
- Interest: ROBOR 3 months + 1.9%. The interest will be collected by the financing bank from MDLPA
- Guarantees: Government guarantee through FNGCIMM, representing 100% of the loan value granted.

Currently no longer available. Across the duration only seventeen loans were provided. The program is however replicable and offered many of the features that a market-based lending program should have.

⁹¹ For more information see: <https://www.mdlpa.ro/pages/programultermoficare20062020>

⁹² For more information see: <https://www.mdlpa.ro/pages/pncrestereperformanta>

⁹³ For more information see: <https://www.mdlpa.ro/pages/reabilitaretermicaprogram>

⁹⁴ Referring to the number of rooms in the apartments, such as 1-room apartment, 2-room, 3-room, etc.

MDLPA- National Local Development Program – “Programul National de Dezvoltare Locala”-PNDL and National Investment Program “Anghel Saligny”

PNDL is a multi-annual financing program, coordinated by the MDLPA, which has as general objective the support of administrative-territorial units for equipping their administrative territory with all necessary endowments, educational, health and environment, sports, socio-cultural and tourist infrastructure and access roads in order to ensure an attractive investment climate for Romania. The second phase of the PNDL should have funded 9,500 investment objectives, of which 2,500 nurseries and kindergartens, 2,000 schools and 5,000 other objectives (from all eligible areas). For these investments, funds worth 30 billion LEI are allocated to commitment appropriations.

The new **MDLPA- National Investment Program Anghel Saligny** does not directly imply EE/ construction/renovation works, but MDLPA can allocate up to 50 billion LEI for investments mostly in the development and rehabilitation of water, sewerage, gas networks and modernization of county and communal roads.⁹⁵

Ministry of Energy- "ElectricUp" – financing program for small and medium-sized enterprises and HORECA field

Financing of small and medium enterprises and economic operators in the HORECA field, for the installation of photovoltaic panel systems for the production of electricity with an installed power between 27kWp and 100kWp necessary for their own consumption and the delivery of the surplus in the National Energy System and of the recharging stations of 22kW for plug-in hybrid electric and electric vehicles.

Financial support is up to 100% of eligible expenses. The non-reimbursable financing is granted in a maximum amount of 487 000 LEI. There is an advance of up to 30% of the total eligible approved expenses⁹⁶.

- 2536 applications were submitted, 1881 projects were admitted for funding.

Programul District Heating from the Sun – “Termoficare de la Soare” (District 1)

Through the "District Heating from the Sun" program, air-water or ground-water heat pumps will be installed in the blocks of Sector 1, depending on the situation in the field, and photovoltaic panels will be installed on the terraces of the blocks, without affecting the internal heating installation or the terrace of the building.

The estimated cost for each apartment is 15 000 LEI, of which the district 1 City Hall will provide 90% of the amount. Therefore, the maximum estimated costs for the owners will not exceed the amount of 1 500 LEI / apartment, which is to be paid in instalments, for a period of 10 years, thus resulting in a payment of approximately 10 LEI / apartment / month⁹⁷.

⁹⁵ For more information see: <https://www.mdlpa.ro/pages/programulnationaldezvoltarelocala>;
<https://www.mdlpa.ro/pages/anghelsaligny>

⁹⁶ For more information see: <http://energie.gov.ro/electricup/>

⁹⁷ <https://www.primariasector1.ro/articole/citeste/comunicate-presa/2154/avem-solutii-la-criza-caldurii-si-apei-calde-extindem-programul-pilot-termoficare-de-la-soare-in-toate-cartierele-sectorului-1>

Schemes from commercial banks involving specific commercial loans

Romanian Fund for Energy Efficiency-FREE

The Romanian Energy Efficiency Fund commercially finances companies in the industrial sector and other energy consumers in order to facilitate their adoption and use of energy efficient technologies. A revolving €7 million loan fund, set by World Bank in 2002, as proposed by the Global Environment Facility (GEF). The fund aims at enabling companies in the industrial sector, and other energy consumers, to adopt and utilize energy-efficient technologies, financed under commercial criteria. The interest is negotiable, depending on the attractiveness of the project, the value of the loan and the liquidity of the guarantees.

The minimal loan is USD 100 000. Priority is given to the financing of energy efficiency projects with high potential. So far, the Romanian Energy Efficiency Fund has concluded 48 funding contracts with 43 clients, totaling 28.5 million US dollars. The total value of investments in energy efficiency projects co-financed by loans granted by FREE is 85 million US dollars⁹⁸.

The Fund is considered a success story, which has been limited in its scope due to the locked size of financing at disposal. It has largely been utilized by private sector and small municipalities, that have limited resources for grant financing. With some modifications, the Fund can also play an important role in building renovation.

Green Economy Finance Facility- GEFF

The EBRD granted a loan of 40 million euros to Banca Transilvania, a loan of 35 million euros to UniCredit Bank and a loan of 25 million euros to UniCredit Consumer Financing, in order for them to provide loans for investments in the residential sector to its clients in Romania. Banca Transilvania and Unicredit Bank have already exhausted the total amount of 75 million euros from GEFF EBRD financing but continue to offer green mortgage loans to their customers. Having exhausted 10 million euros of the initial EBRD funding for green loans for energy-efficient technologies and materials, UniCredit Consumer Financing decided to borrow an additional 15 million euros and has now relaunched its Green Loans product. Technical assistance is provided by EBRD GEFF consultant, Tractebel Engineering⁹⁹.

The GEFF loan products have offered bank finance for EE, RES and green buildings which was not prior offered by the market. Based on the GEFF team observations, when grants were phased out, the lending declined substantially. Considering the subsidized financing from the Environmental Management Fund, to remain competitive, the GEFF products also require augmentation with grant co-financing.

Romania Green Homes and Green Mortgages Program

The Romania Green Homes and Green Mortgages Program was first established as a pilot in 2012 with funding from the European Commission through a consortium comprising a bank, a project developer and an energy auditor. The Program effectively comprises two elements:

- Green Homes Certification by the Romanian Green Building Council (RoGBC);

⁹⁸ For more information see: <https://free.org.ro/fund-overview/>

⁹⁹ For more information see: <https://ebrdgeff.com/romania/ro/ebrd-on-target/>

- Green Mortgages provided to buyers of homes with certification by the RoGBC from several commercial banks.

All banks offering home mortgages in Romania can participate in the program as a partner bank, if they agree to the required criteria:

- Accept RoGBC criteria and process of certification of green Homes
- Offer substantive interest rate reduction commensurate with default risk reduction and enhanced long-term asset value of Green Mortgage qualified homes.

Over 44 buildings already certified.¹⁰⁰ The banks consider this product an important opportunity to diversify their portfolio within the new requirements of “greening” the portfolio. The same banks would be willing to offer modernization loans should the financing risks be mitigated and interest rates – subsidized.

Banca Transilvania

The Bank Transilvania offers loans for projects and investments in the renewable resources’ energy production and energy efficiency. The financing has the following terms¹⁰¹:

- 0% granting fee (reduced from the standard 1,5%);
- The loan duration is negotiable, depending on the financing purpose;
- The implementation period of the investment must be up to 12 months, flexible depending on the size of the investment;

UniCredit Bank

- Value: maximum €250,000 (the equivalent in LEI);
- Period: between 5 and 30 years;
- Down-payment: from 15%;
- Guarantee: first rank mortgage on the purchased house;
- Insurances: real estate insurance;
- 5 years fixed interest rate and then variable

Co-debtors: up to two co-debtors, from whom co-debtor 1 is husband / wife / partner (the co-debtor must meet the same criteria as the applicant) and co-debtor 2 - father / mother / father-in-law / mother-in-law / brother / sister / son / daughter of the borrowers (retired persons are also accepted). The second co-debtor must meet the same criteria as the applicant.

Destination: acquisition of a completed building / dwelling, built after 01.01.2000, included in energy efficiency class A or B +, according to the energy efficiency certificate¹⁰².

¹⁰⁰ For more information see: <http://www.rogbc.org/en/projects/green-mortgage>

¹⁰¹ For more information see: <https://www.bancatransilvania.ro/bt-social-media-newsroom/en/news/advantageous-bt-financing-for-projects-and-investments-in-the-renewable-resources-energy-production-and-energy-efficiency/>

¹⁰² For more information see: <https://www.unicredit.ro/en/persoane-fizice/campaigns/green-mortgage.html>

BCR

BCR bank offers financing for the following eligible expenditure:

- Expenses for the implementation of the project – pre-installation preparation, installation of assembly, commissioning, purchase of equipment / machinery / materials for renovation, etc.
- Investment-related expenses – eligible expenses related to the implementation of the project, as long as these expenses do not exceed 50% of the total estimated value of the investment (example: painting of the renovated building after its isolation);
- The granting fee may be charged from the financed amount;
- Project Consultancy Fee - financing or refinancing the commission already paid by the client for the preparation or verification of the proposed energy efficiency project.

Guarantees accepted include movable or immovable mortgage on the assets financed by the loan / mix of guarantees. Medium and long-term financing period. The maximum amount financed by the Bank is 85% of the total estimated investment¹⁰³.

Other banks

<i>Bank Name</i>	<i>Value (EUR)</i>	<i>Period</i>	<i>Upfront payment</i>	<i>Interest</i>
RAIFFEISEN	5000-300000	3-30 years	15% - 35% of the value of the real estate	IRCC + 2.35%
LIBRA BANK	-	Up to 35 years	0% in case of setting up an additional real estate guarantee	IRCC + 2.50%
ALPHA BANK	5.000 euro – 200.000 euro	5-35 years	0% in case of setting up an additional real estate guarantee	IRCC + 2.75%
GARANTI BANK	Up to 400.000 de LEI	Up to 35 years		Fixed rate
VISTA BANK	Min 7500 euro			IRCC + 3.1%
BRD BANK	Min 10.000 euro	Up to 30 years	Minimum 15%.	IRCC+ 2.1%

¹⁰³ For more information see: <https://www.bcr.ro/ro/business/general/finantare/Creditul-pentru-Eficienta-Energetica-dedicat-comaniilor>

ESCO, EPC financing

Romanian Energy Efficiency Fund

The Romanian Energy Efficiency Fund is a pole of national interest in promoting commercial financing dedicated to investments aimed at saving energy and capitalizing on renewable energy sources in order to cover its own consumption. The fundamental mission carried out by the Romanian Energy Efficiency Fund follows three major axes:

- Demonstrating the profitability of EE investments through funded projects
- Attracting the banking sector and capital investors in co-funding
- Raising the awareness of policy makers regarding the allocation of resources and/or the granting of financial and fiscal incentives

Being complementary to some traditional actors in the Romanian banking sector, interested in supporting investment programs in different economic sectors, the Fund is strongly motivated to create its own funding niche by attracting potential beneficiaries and helping them to eliminate obstacles encountered in funding the energy efficiency projects through professional customer-oriented services.

Awareness Campaigns

“România Eficientă”

“România Eficientă”¹⁰⁴ program that promotes energy efficiency at the national level through public information campaigns, education programs, and financing projects for improving the energy efficiency of public buildings. The project has two major dimensions: on the one hand, there is the information, education, and public awareness part and, on the other hand, the execution of in-depth renovation works at nZEB (nearly Zero-Energy Building) standards in six public schools from five counties in Romania (2020-2022).

Awareness-raising Campaign on Energy Efficiency “Economie la energie”

This was an initiative carried out by the European Commission – DG JUST (DG Justice and Consumers), in partnership with ANRE, through the Department for Energy Efficiency and was scheduled to run until December 2018. The program is no longer available.

CONGREGATE Project

The project supports national building renovation strategies in Bulgaria, Croatia, and Romania and organizes a large number of events to promote these strategies. For each country, the project monitors and analyses how current renovation programs impact residents’ energy and financial savings as well their behaviors and attitudes. Results from this study inform future national campaigns for civic engagement in building renovation programs¹⁰⁵.

Table 25 summarizes the above initiatives in a combined matrix.

¹⁰⁴ For more information see: <https://www.romania-eficienta.ro/>

¹⁰⁵ For more information see: <https://www.euki.de/en/euki-projects/congregate/>

Table 25. Summary of Ongoing and Pending Funding and Technical Assistance Support Programs

Category	Program Title	Total Funds Available (mln EUR)	Funding Source / Implementer	Eligible Projects	Notes	Reference
EE & RES, Public buildings, DHC	Sustainable Development Program (SDP), predecessor Large infrastructure program (LIOP) in 2014-2020	9337	Cohesion Fund (CF): 6,534 mln € Regional Development Fund (ERDF): 2,803 mln €	Improving mobility, multimodal, high-quality, sustainable and efficient transport systems, Preserving biodiversity, air quality monitoring and decontamination of historically contaminated sites Promoting adaptation to climate change, risk prevention and management Clean energy and EE in order to support a low carbon economy Increased EE in centralized heating systems in selected cities Intelligent and sustainable transport systems for electricity and natural gas	Among other priorities, primarily focusing on transportation, the SDP prioritizes Clean energy and EE in order to support a low carbon economy, as well as Increased EE in centralized heating systems in selected cities	https://ec.europa.eu/regional_policy/en/atlas/programs/2014-2020/romania/2014ro16m1op001
DHC	European EE Fund - EEEF	265	<ul style="list-style-type: none"> • European Commission, • European Investment Bank(EIB), 	<ul style="list-style-type: none"> • buildings EE • cogeneration, • microgeneration, • DH/cooling • decentralized RE sources 	<ul style="list-style-type: none"> • no representation in Romania • for investments < €50 million 	https://www.eeef.lu/eligible-investments.html

			<ul style="list-style-type: none"> • Cassa Depositi e Prestiti SpA (CDP), • The Deutsche Bundesstiftung Umwelt (DBU), • DWS Group GmbH & Co. KGaA (DWS) 	<ul style="list-style-type: none"> • clean urban transport • infrastructure upgrading, <ul style="list-style-type: none"> • street lighting • smart grids • scalable alternative energy 		
RES	Interreg Europe 2021 2027 Program (RO BG, RO HU, RO RS, HU SK RO UA, RO MD, RO UA)	57	<ul style="list-style-type: none"> • EDF 	solar panels for heating homes, especially houses.	<ul style="list-style-type: none"> • 70 or 80% co-financing of eligible projects 	https://www.mdlpa.ro/pages/interregeurope20212027
TA	Natural Capital Financing Facility-NCFF	15	<ul style="list-style-type: none"> • European Commission, • European Investment Bank(EIB), 	<ul style="list-style-type: none"> • biodiversity • climate change adaptation 	<ul style="list-style-type: none"> • no TA implemented in Romania as of June 2022. 	https://www.eib.org/en/products/mandates-partnerships/ncff/index.htm

TA	European Local Energy Assistance (ELENA)	47	<ul style="list-style-type: none"> • European Commission, • European Investment Bank(EIB), 	<ul style="list-style-type: none"> • technical studies • energy audits • business plans and financial advice • legal advice and procurement procedures • project management 	<ul style="list-style-type: none"> • for investments > €30 mln 	https://www.eib.org/en/products/advising/elena/index.htm
TA	EEEF Technical Assistance (TA)	25	<ul style="list-style-type: none"> • European Commission, through European EE Fund 	<ul style="list-style-type: none"> • bankable sustainable energy investment programs 	Sub-loan through Banka Transilvania for EE &R	https://www.eeef.lu/eeef-ta-facility.html
TA	InvestEU Advisory Hub		<ul style="list-style-type: none"> • European Commission • EU 	<ul style="list-style-type: none"> • identification of investment projects • preparation of investment projects • development of investment projects 		https://investeu.europa.eu/what-investeu-program/investeu-advisory-hub_en
TA	LIFE program	997	<ul style="list-style-type: none"> • European Commission • EU 	<ul style="list-style-type: none"> • coordination and support actions 	<ul style="list-style-type: none"> • duration: 2021-2027 	https://cinea.ec.europa.eu/programs/life_en
TA	ManagEnergy	n/a	<ul style="list-style-type: none"> • Horizon 2020 	<ul style="list-style-type: none"> • energy transition • sustainable energy 		https://www.managenergy.net/ManagEnergyProject
NA	Smart Finance for Smart Buildings - SFSB	15	<ul style="list-style-type: none"> • EFSI • European Structural and Investment Funds (ESIF) • European 	<ul style="list-style-type: none"> • public buildings renovation • private buildings renovation 	<ul style="list-style-type: none"> • no representation in Romania • provides capital grants and technical assistance 	https://ec.europa.eu/info/sites/default/files/sfsb.pdf

			Investment Bank(EIB), • NBP			
TA	Joint European Support for Sustainable Investments in City Areas - JESSICA	n/a	<ul style="list-style-type: none"> • European Commission, • European Investment Bank(EIB), • the Council of Europe Development Bank (CEB) 	<ul style="list-style-type: none"> • any projects eligible to seek any EU funding 	<ul style="list-style-type: none"> • no representation in Romania 	https://www.eib.org/en/publications/jessica.htm
TA	FI-Compass	n/a	<ul style="list-style-type: none"> • European Commission, • European Investment Bank(EIB), 	<ul style="list-style-type: none"> • authorities managing ESIF 		https://www.fi-compass.eu
NA	Sustainable Energy Investment Forums (SEI Forums)	?	<ul style="list-style-type: none"> • Climate Alliance 	<ul style="list-style-type: none"> • EE investments 		https://refineproject.eu/2021/11/05/seif-sustainable-energy-investment-forums/
TA	(EEA Norway Grants) Energy Program in Romania	3	<ul style="list-style-type: none"> • EEA Norway Grants 	<ul style="list-style-type: none"> • EERE awareness rising, training, and competence building 		https://www.innovasjon.no/en/start-page/eea-norway-grants/calls-for-proposals/310522-romania-renewable-

						energy-and-energy-efficiency/
NA	Swiss thematic funds	162	• The Swiss Agency for Development and Cooperation (SDC)	<ul style="list-style-type: none"> • health, • public security, • civil society, • research, and • integration of the Roma and other minorities 	• currently unavailable	https://www.eda.admin.ch/schweizerbeitrag/en/home/the-swiss-contribution/countries/rumalien.html
RES	The 'Casa Verde – Green House' program	4	Government of Romania	• installing RE-based heating systems	• currently unavailable	?
Renovation	The Casa Verde Plus program	80	Government of Romania	<ul style="list-style-type: none"> • EE (insulation) in single-family; dwellings • 100% grant financing is granted 	<ul style="list-style-type: none"> • currently unavailable • Individual grants of up to 40,000 lei, but not more than 120 lei / sqm for insulation. 	https://www.afm.ro/casa_verde_plus.php
RES	Casa Verde-PV Panels	57	Environment Fund Administration (AFM) through Casa Verde Fotovoltaice	• installing solar PV	• The maximum for individual subsidies is 20 000 LEI or up to 90% of the cost for solar panels with at least 3 kW in capacity.	https://www.afm.ro/sistem_e_fotovoltaice.php
Renovation	The Casa Eficienta Program - Energy	47	Environment Fund Administration (AFM)	<ul style="list-style-type: none"> • installing efficient windows • external wall insulation • installing EE HVAC • solar PVs and EE lighting 	• co-paying up to 60% of total costs, maximum co-pay of 70000 lei	https://www.afm.ro/casa_eficienta_energetic.php

	Efficient House					
Renovation	Environmental Fund Administration- EE in public buildings	283	Environmental Fund Administration (AFM)	<ul style="list-style-type: none"> • thermal rehabilitation of the building envelope elements, of the heating system/of the hot water supply system; • alternative electricity and heat generation; • installation/rehabilitation of HVAC • EE lighting • installation of integrated energy management systems for buildings • more 	<ul style="list-style-type: none"> • 3 million lei for communes with a population of up to 5,000 inhabitants inclusive; • 6 million lei for communes with a population of over 5.001 inhabitants; • 8 million lei for cities; • 14 million lei for county councils, municipalities of rank 0 and 1 • 10 million lei for the second rank municipalities; • 12 million lei for the administrative-territorial subdivisions of Bucharest municipality. 	https://www.afm.ro/eficienta_energetica_cladiri_publice.php
DHC	MDLPA Program DH- "Termoficare"	83	Ministry Of Development, Public Works And Administration (MDLPA)	<ul style="list-style-type: none"> • For the year 2021, according to Law no. 15/2021 of the state budget for the year 2021 for the DH Program are provided: <ul style="list-style-type: none"> - budget credits: 40 mln lei; - commitment loans: 170 mln lei. For the year 2021, the following amounts are provided from the Environmental Fund: 	<ul style="list-style-type: none"> • The co-financing share of the MDLPA budget is up to 85% of the total eligible expenditures of the project, and the contribution from the local budget will be at least 15%. 	https://www.mdlpa.ro/pages/programultermoficare20062020

				<ul style="list-style-type: none"> - budget credits: 100 mln lei; - commitment loans: 100 mln lei. 		
Renovation	MDLPA-Multiannual national program on increasing the energy performance of blocks of flats	15	Ministry Of Development, Public Works And Administration (MDLPA)	<ul style="list-style-type: none"> • installing efficient windows • external wall insulation • installing EE HVAC 	<ul style="list-style-type: none"> • The HOA pays 20% of the total cost of the rehabilitation works. The remaining 80% is provided from the state and local budgets. 	https://www.mdlpa.ro/pages/pncrestereperformanta
Renovation	MDLPA-Thermal rehabilitation program for residential buildings financed by bank loans with government guarantee	-	Ministry Of Development, Public Works And Administration (MDLPA)	<ul style="list-style-type: none"> • thermal rehabilitation of residential buildings 	<ul style="list-style-type: none"> • currently unavailable 	https://www.mdlpa.ro/pages/reabilitaretermicaprogram

Renovation	National Recovery and Resilience Plan	2,700	European Recovery and Resilience Fund	renovation of public and residential buildings	Operational Period 2021-27	https://ec.europa.eu/info/sites/default/files/factsheet-romania_en.pdf
	MDLPA- National Local Development Program – “Programul National de Dezvoltare Locala”-PNDL and National Investment Program	6,000	Ministry Of Development, Public Works And Administration (MDLPA)	<ul style="list-style-type: none"> • public infrastructure 	<ul style="list-style-type: none"> • not a direct source for EE funding 	https://www.mdlpa.ro/pages/programulnationaldezvoltarelocala
	Ministry of Energy Modernization Fund (MF)	13,000	EU/ETS revenues; Ministry of Energy (ME) management	RES and energy infrastructure	Period: 2021-2030	https://climate.ec.europa.eu/eu-action/funding-climate-action/modernisation-fund_en
RES	Min. Energy- "ElectricUp" – financing program for small and medium-sized enterprises	109	Ministry of Energy (ME)	<ul style="list-style-type: none"> • solar PV installation 	<ul style="list-style-type: none"> • maximum individual grants - 487 000 LEI 	http://energie.gov.ro/electricup/

	and HORECA field					
DHC	Programul DH from the Sun – “Termoficare de la Soare” (District 1)	62	Bucharest District 1 Municipality	<ul style="list-style-type: none"> • DH 	Installation of solar PV and heat pumps in 20,400 families (400 in 2021, 2000 in 2022, 8000 in 2023 and 10,000 in 2024) with 90% financing from Municipality.	https://www.primariasector1.ro/articole/citeste/comunicate-presa/2154/avem-solutii-la-criza-caldurii-si-apei-calde-extindem-programul-pilot-termoficare-de-la-soare-in-toate-cartierele-sectorului-1
Industrial EE	Romanian Fund for Energy Efficiency- FREE	27	The World Bank	<ul style="list-style-type: none"> • any EE projects 	<ul style="list-style-type: none"> • minimum loans - USD 100 000 • USD 85 mln total investment in EE as of 2022 	https://free.org.ro/fund-overview/
EE&RES	Green Economy Finance Facility- GEFF	162	European Bank for Reconstruction and Development	<ul style="list-style-type: none"> • Residential, commercial, HOA and Municipal EE and RE project lending 	<ul style="list-style-type: none"> • Residential credit line facility of up to €70 mln to participating financial institutions in Romania to on-lend for EE and RE in the residential sector. Commercial: €75 mln credit line Municipal: Municipal EE Financing facility (MFFEE) is a €17 mln credit line 	https://ebrdgeff.com/romania_facilities/#:~:text=Green%20Economy%20Financing%20Facility%20(GEFF,energy%20in%20the%20residential%20sector.

RES	The Just Transition Operational Program (POTJ)	2,517	EU: €2.139 billion from Just Transition Fund State: 0,377 billion	support for the most affected regions, including some in our country, in order to mitigate the social-economic impact of the energy transition	The mechanism for a just transition is a key tool in this process of achieving the European Union's climate neutrality goal. It provides specific support for the most affected regions, including some in our country, in order to mitigate the social-economic impact of the energy transition.	https://romania.fes.de/e/the-just-transition-in-romania
EE&RES	The Social Inclusion and Dignity Operational Program (POIDS)	3,727	€2.972 billion of European funds €755 mln of the state budget,	Construction/ Renovation works of social buildings or for persons with disabilities.	Covered period 2021-2027.	https://www.romaniajournal.ro/business/romania-to-get-eur-100-bln-of-eu-funds-during-2021-2027-which-sectors-have-one-third-of-the-total-budget/
EEE& RES	EBRD's Municipal EE Financing facility (MFFEE)	17	European Bank for Reconstruction and Development	EE and RE measures for municipal buildings	a credit line facility to participating financial institutions for on-lending to municipal borrowers	https://ebrdgeff.com/seff_facilities/municipal/

Annex 4. Details of Prioritization

The proposed roadmap includes a wide range of activities and measure which are all critical and instrumental to the achievement of the intended market transformation and scale-up. They can be introduced with varying rates of urgency and sequence based on their priority rating.

The below prioritization is intended to assist the national government with the planning cycle, which encompasses policy planning, capacity building, market development and implementation of investment priorities, as well as monitoring and evaluation. In recognition of the resource, human, and financial costs of conducting reforms and restructuring initiatives, the impacts, costs, energy poverty implications, potential risks and penetration rates must be reviewed and evaluated.

The process of making decisions on the ranking of the various activities and measures was limited due to the lack of quantitative indicators, and are largely context-dependent and involves subjective ranking. Therefore, the priority-setting process was guided by authors' professional judgement and experience, including careful attention to international best-practices, critical prerequisites for market transformation, synergies between activities, as well as dynamic flexibility, accountability, national policies, current energy cost burden of society, existing scientific opportunities, the experiences available in the country, adequate staffing and infrastructure.

Note: This evaluation scheme aims to provide a qualitative indication of the overall impact of proposed actions based on the proposed impact categories, with the objective of helping to prioritize the implementation of each action as a low, medium, or high priority. The evaluation does not attempt to perform a quantitative analysis and is designed to provide the Team's indicative assessment of the prioritization of the proposed options and initiatives.

Table 26. Prioritization Criteria

Category	Definition	Evaluate potential impact
Saved energy	Anticipated impact (direct or indirect) in terms of potential energy saved (either by achieving a high adoption rate in all market segments-horizontal or by achieving significant savings in one certain segment-vertical)	Low- the action is anticipated to result in limited savings (direct or indirect) of a specific segment
		Medium - the action is anticipated to result in moderate energy savings. (Direct or indirect) to at least one segment
		High- the action is anticipated to result in moderate energy savings. (direct or indirect) to more than one segment or significant savings in at least one segment
Timing	Anticipated time to achieve the expected	Low- impact anticipated being notable in 6-8 years

	outcome. It should include the time needed to implement relevant action as well as the time until the impact is notable (Under the current circumstances and policy agenda).	<p>Medium – results anticipated being notable in 3-5 years,</p> <p>High-impact is anticipated to be notable in under 2 years</p>
Vulnerable Population Affected	Anticipated impact on vulnerable groups	<p>Low- no or limited impact on vulnerable groups</p> <p>Medium – moderate impact on vulnerable groups, either by targeting a large population, or achieving significant impact in at least one segment</p> <p>High- high impact on vulnerable groups, not limited in outreach and achieving significant impact in more than one segments</p>
Cost		<p>Low- high one-time cost of implementation and/or high ongoing cost. Low potential to result in a sustainable mechanism.</p> <p>Medium - moderate cost for implementation and/or low or moderate ongoing cost. Moderate potential to result in a sustainable mechanism.</p> <p>High- low-cost of implementation with significant long-term potential. And/or Low or no ongoing cost (either public or private). High potential to result in a sustainable mechanism.</p>
Administrative Complexity and Implementation Risk	Anticipated complexity and effort needed to successfully implement the proposed action. This considers the current readiness level to adopt a certain action and risks related to completing the implementation	<p>Low- low readiness level and high risk of failure during implementation. High intervention difficulty during implementation and when established.</p> <p>Medium – moderate readiness level and moderate risk of failure during implementation. Moderate intervention difficulty during implementation and when established.</p> <p>High-relatively high readiness level and low risk of failure during implementation. Low intervention difficulty during implementation and when established.</p>

Market Transformation Effect	Anticipated market transformation potential. This considers a broader socio-economic impact and a potential to achieve lasting change in market behavior.	Low- action is anticipated to result in a low transformation effect, limited either in duration or outreach
		Medium action is anticipated to result in a moderate transformation effect, targeted at specific market segments and with broader outreach at the regional or national level. Actions that have a limited outreach but a significant impact on at least one segment.
		High- is anticipated to result in a significant transformation effect, targeted at more than one market segment and with broad outreach or national level. Actions that have a limited outreach but a significant impact on at least more than one segment.
Overall ranking	<p>The prioritization process is based on more than the above six indicators. The above criteria used for prioritization are independent of each other.</p> <p>However, the comparative effectiveness of various activities is also ranked based on the synthesis of systematic change comparing different interventions and strategies to diagnose and mitigate gaps and barriers, promote and monitor change. The purpose of this rating is to inform decision-makers on the combined effectiveness and urgency of measures based on the potential precursor relationships, synergies between actions, readiness of various market actors, while responding to the expressed needs about which interventions are most effective for which sectors, building types and beneficiary groups.</p>	Low - action is has relatively low urgency and can be initiated in lower priority order considering the sequence of measures and need for inception
		Medium - action is has medium urgency and must be initiated in mid-priority order considering the sequence of measures and need for inception. Action advised for implementation after high-priority measures are implemented
		High – action has high urgency and must be initiated in short-term timeline ad in high priority order considering the sequence of measures and need for inception

Table 20 shows the complete results of the prioritization. The assessment was conducted using color-coding the “ratings” with shades of green “High”- dark green, “Medium”- green, and “Low”- light green.

Table 27. Results of Prioritization Ranking of the Activities Proposed by the Roadmap

POLICY AND REGULATORY GAPS

POLICY AND REGULATORY GAPS									
#	Barrier/ Gap Type	Activity/Measure Recommendation	Energy Savings & Related Co-Benefits	Timing of Outcomes	Benefits to Vulnerable Population	Implementation & Operational Cost	Complexity and Implementation Risk	Market Transformation Impact	Overall Priority Rating
1	Limited coordination between Multiple sectoral policy and strategy documents	Stronger inter-agency coordination; detailed multi-stakeholder action plan and roadmap for maintained synergies between NECP, LTRS, NRRP	A	B	B	A	A	B	A
2	Slow enforcement of LTRS due to lack of operational procedures	Develop detailed Action Plan for LTRS implementation;	A	B	B	A	B	C	B
		Conduct reassessment of LTRS targets and investment needs (see below)							
3	Potential Need for changes in the public commitment for co-financing funds for renovation investments	Re-assessment of LTRS targets and investment needs	B	B	C	A	A	B	B

4	Lack of legal incentives and promotional initiatives for the development of the ESCO market	Accelerate the reform and stakeholder consultation on ESCO/energy performance contracting, leverage capacities of ESCO association for M&V deployment, Scale up FREE experience on buildings with commercially viable public building EE	B	C	C	B	B	A	A
5	Limited digitalization of building energy information including integrated building registry, EPCs, and building renovation passports, building information modeling (BIM)	National Building Registry Development and Implementation, integration with other databases, and renovation project procurement pipeline	A	B	B	A	B	B	A
6	Lack of Application of EE Obligation Scheme and Incentives for Obligated Parties to achieve energy savings in buildings	Create regulatory incentives and flexible schemes for encouraging application of EE obligation scheme by utilities, as well as allowing utilities to account for individual measures implemented by their customers (financed by customer, reimbursed by utility, claimed against tariff)	B	B	B	B	B	A	B

7	<p>Limited policy instruments for phasing out the share of grant financing building direct grant dependency of the market</p>	<p>Clear timeline on gradual partial phase-out of the share of investment grant subsidies (e.g.-10% per year) could pull the renovation market: motivate early movers and eliminate false expectation leading to market distortion, leverage private sector participation and commercial finance, to scale up investments and help fill the investment gap for building renovation</p>	a	a	C	a	b	A	a
8	<p>Lack of long-term policy and enforcement on retention of district heating efficiencies and economic viability, and poor policy regulation of district heating in relation to the building energy performance requirements and lack of flexibility for building renovation in combination with DH EE retrofits</p>	<p>Update urban heating strategy, develop local DH optimization plans. Provide regulatory incentives for DSM EE; Design standard eligible intervention for district-level dh-combined building renovation projects (end-to-end)</p>	b	c	c	b	c	b	b
9	<p>Outdated Building Energy Performance Calculation Methodology</p>	<p>Upgrade and enforce Building Energy Performance Calculation Methodology, Introducing BIM, SRI, IEQ and circularity.</p>	c	c	c	a	b	c	c

10	Cost-optimality framework outdated, needs reassessment	Re-launch market cost-based updating and evaluation procedure based on current market costs	c	c	c	a	b	c	c
11	Limited utilization of RES opportunities in residential sector via prosumer schemes	Creation of regulatory incentives for economically beneficial prosumer /net-metering installations	B	a	b	a	a	a	a
12	Weak HOA/condominium policy framework and enforcement	Continue the reform of the HOA legislation, supplemented with necessary secondary legislation for facilitating HOA investments in building renovation	a	c	b	a	c	b	a
13	Energy Performance Certification (EPC) monitoring mechanism is weak	Engage Develop detailed compliance framework and engage CSOs, professional networks and associations,	c	b	c	a	b	b	b
14	Poor enforcement of existing regulations and standards on energy efficiency	Development of standard intervention guidelines and unified, digital database of standardized technical interventions based on market experience, cost-optimal technical interventions;	c	c	c	a	b	b	b
15	Poor enforcement of municipal energy management provisions	Development and implementation of municipal energy information, benchmarking, planning and management provisions.	b	c	c	a	a	a	a

16	Insufficient MRV, ex-post evaluation of completed renovation projects	Enforce a requirement for an electronic, online renovation passport, synced with building registry, with long-term milestones for renovation, ex-post energy audit, energy certificate and label	b	b	c	a	b	b	b
17	Lack of regulatory framework and clear technical criteria on NZEB	Defined criteria for nZEB (in particular RE share), clarify the process of building authorization to enable nZEB levels check at design phase, ensure inter-ministerial work with Ministry of Energy and ANRE for the calculation of emissions and primary energy transformation for buildings.	c	c	c	a	b	a	b
18		Developing Guidelines, implementation and monitoring procedures for promotion of NZEBs and Non-Invasive NZEB projects;	c	c	c	a	b	c	c
19		Clarify the conditions to apply the defined criteria for nZEB.							

INSTITUTIONAL CAPACITY GAPS

#	Barriers	Activity/Measure Recommendation	Energy Savings & Related Co-Benefits	Timing of Outcomes	Benefits to Vulnerable Population	Implementation & Operational Cost	Complexity and Implementation Risk	Market Transformation Impact	Overall Priority Rating
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20	Limited institutional support and coordination of LTRS implementation on State Government level	Establish an inter-agency coordination platform with targeted focus groups (e.g. DH, ESCOs), and integration of CSOs and academia	A	B	B	A	A	B	A
21	Insufficient inter-agency coordination on promotion of EE in buildings	Develop a comprehensive implementation plan with regular reporting procedures and recurring meeting schedule	A	B	B	A	A	B	A
22	Lack of staff and institutional capacities for facilitation of renovation programs on regional and local authority level	Establishment of regional one-stop-shops as technical assistance hubs for project identification, promotion, facilitation, oversight and MRV.	a	b	b	a	b	a	a
23		Training programs for RDAs and LAs	c	b	c	a	a	a	a
24		Develop exemplary technical procedures, selection and evaluation criteria, procurement rules, management, MRV and other procedures related to Cohesion Policy and RP administration	c	b	c	a	a	a	a
25	Delivering energy efficiency through Public Procurement is slow and complex	Enhance the digitalized public procurement platform with standardized solutions for expedited clearance (e.g. Lithuanian example).	b	b	c	a	a	a	a

26	Insufficient monitoring and reporting procedures on implemented building certifications, renovations	Establish routine reporting procedures for implementers of RW projects	c	c	c	a	b	c	c
27	Lack of Digitalization	Enhance digitalization, train users, streamline admin procedures through e-procurement, etc.	b	b	c	a	b	a	a
MARKET GAPS									
#	Barriers	Activity/Measure Recommendation	Energy Savings & Related Co-Benefits	Timing of Outcomes	Benefits to Vulnerable Population	Implementation & Operational Cost	Complexity and Implementation Risk	Market Transformation Impact	Overall Priority Rating
28	Lack of proper understanding among consumers on the cost-reflective energy prices, energy security and demand-management concerns, benefits of energy efficiency	Design and Implement a multi-faceted Nationwide Communication and Outreach campaign on benefits of building renovation, delivery mechanisms, costs and opportunities, as well as linkages with green economy transition, low-carbon pathways, energy security; to motivate consumers in all sectors to invest in EE, to enroll and empower citizens, achieve change of mindset and behavior, catalyze private sector investments.	b	b	b	a	a	a	a

	and comprehensive building renovation								
29	Potential financial savings may be lower than estimated due to growing energy prices and underheating; as well as potentially higher construction costs and higher-than-expected reinforcement/consolidation costs	Clearly separate the potential financing architecture based on project design, disaggregating revenue-generating measures and capital renovation expenses; link financing instruments, repayment-from-savings and other non-grant financing mechanisms to the measure delivering monetary energy savings	a	b	c	b	b	a	a
30	Limited willingness and capacities of HOAs to engage in building renovation projects	1) creating fiscal incentives for modernization investments in MABs (tax reductions), especially for renovations delivering beyond minimum energy performance standards (MEPS);	b	c	c	b	c	a	b
31		2) carrying out targeted information campaign on the MAB/HOA renovation project development and implementation procedures;	b	a	b	b	a	a	a

3 2		3) engaging HOAs in project development, decision-making on the level of renovation ambition, supervision of works, acceptance;	b	b	c	b	c	b	b
3 3		4) Provide centralized TA and project facilitation to HOAs through condominium advisory centers, one-stop-shops or other institution (e.g. National Housing Agency, or setting up regional housing agencies, regional advisory centers, one-stop-shop support services, resource centers to help HOAs identify, design, implement and monitor housing renovation investments)	b	c	b	b	c	a	b
3 4		5) Developing reserve funds (Bausparkasse) and diverting non-service fee revenues for loan repayment	b	b	c	a	b	a	b
3 5		6) Using investment programs as motivation for better self-organization, higher collection of fees, down-payments	b	c	c	a	c	b	c
3 6	Limited willingness and capacities of SFHs to engage in building renovation projects	Develop tailor-made financing instruments for SFHs coupled with outreach and marketing campaigns that offer:	b	b	b	b	b	a	a
3 7		- Establishment of advisory centers (one-stop-shops, resource centers on the basis of local CSOs or academia) to provide technical assistance for the appraisal of	b	c	b	b	c	a	b

		the technical and economic benefits of EE and RE investments;							
38		- Provide grant co-financing for loans in the amount necessary to improve the bankability of the investments under current energy prices.	a	b	a	c	a	c	b
39	Lack of standardized technical solutions for SFHs promoting RES-integration	Develop and promote awareness campaign on technical solutions and benefits of:							
		High-efficiency space heaters	b	b	c	a	a	a	A
		Rooftop SWHs and prosumer PV systems							
40	Declining ESCO market and limited energy performance capacities	Establish revolving financing mechanisms, requirements for EnPC contracts for public buildings with grant cofinancing for scalable solutions, eliminate distortions for the ESCO-market	b	b	c	b	b	a	a
41	Interrupted supply chains and lack of ready-made solutions	Support rehabilitation of imported material supply chain, promote development and production of innovation, pre-fabricated technical solutions for expedited deployment	b	c	c	b	b	b	b
42	Insufficient awareness among private banks on the potential market	Training of banks on economics of building renovation, success stories for delivery of financing to MABs/HOAs, financial mathematics of energy efficiency investments,	c	b	c	c	b	a	c

	demand for EE lending	basics and criteria for high energy performance buildings and deep energy renovation.							
4 3	Lack of qualified energy auditors, and limited quality assurance on energy audit reports	Training program for auditors and quality assurance of energy audits utilizing the capacities of CSOs, academia, networks and associations. Establish a continuous education and training framework for energy auditors and building experts (e.g. credits system for extending the right of practice)	c	c	c	a	a	a	b
4 4		Development of Regional training centers for energy auditors.	c	c	c	a	b	a	b
4 5	Lack of qualified construction workers and construction market capacities	Development of nation-wide training / lifelong-learning program for potential workers on the foundation of vocational education institutions in the country.	b	c	c	b	b	a	b
4 6	Limited capacities of design institutions in developing comprehensive thermal modernization technical design documentation	Development and approval of guidelines on the design of integrated building renovation with consideration of NZEB requirements, execution and supervision of works during construction	c	c	c	a	b	c	c
4 7		Develop standardized seismic reinforcement guidelines	c	b	c	b	c	c	c

48	Insufficient consideration of seismic risk	Introduce control mechanisms on seismic assessment procedures allowing for: (i) secondary seismic evaluation during renovation works (after basic visual assessment); (ii) ad-hoc assessment procedure in case of potential identified threats during construction; (iii) preliminary in-depth structural appraisal of all worst performing buildings based on building registry data	c	c	c	c	c	b	b
FINANCING GAPS									
#	Barriers	Recommendations	Energy Savings & Related Co-Benefits	Timing of Outcomes	Benefits to Vulnerable Population	Implementation & Operational Cost	Complexity and Implementation Risk	Market Transformation Impact	Overall Priority Rating
49	Insufficient financing to meet LTRS goals	Re-assess the investment need, public funds availability, and financing gap in the light of increased pressures on public budgets due to Covid and energy price increase; inflation; growing construction costs; documented seismic reinforcement costs (from operational period 2014-20) to re-assess the investment gap to be filled by private sector finance	a	b	c	c	c	a	a
50		Design and implement financial instruments and leverage commercial financing through gradual phase-out of grant financing, revolving fund mechanisms, loan guarantee facilities,	a	b	c	b	b	a	a

		on-bill payments, renovation taxes, third-party financing, factoring, vendor credits, etc.							
5 1		Develop a mechanism for tracking the impact of EE on energy subsidy demands, and directing the savings towards added EE investments (e.g. EE Fund)	b	c	c	c	b	b	b
5 2	Reluctance of homeowners in MABs to seek financial instruments.	Design perspective programs with gradual phase-out of grant financing to promote transition to market-based investment environment	a	b	b	b	c	a	a
5 3		Develop prefinancing arrangements with follow-on recovery of costs through flexible mechanisms, while coupled with social safety nets for vulnerable households.	a	b	c	b	c	a	a
5 4		Using cash flow generated from regular maintenance fees, external revenues (e.g. rented space) to secure finance	a	c	c	b	c	a	b
5 5		Developing tailor-made financial instruments with blended financing, external guarantees	a	b	c	a	c	a	a
5 6		Supplement with public outreach and awareness campaign on benefits of MAB EE;	a	b	b	a	a	a	a
5 7		Homeowners are unclear about what	Develop financial instruments for the non-grant component of the needed financing;	b	b	c	b	b	a

58	funds/programs are available	Train financial institutions in assessing the EE/RES project financial mathematics, adjust the borrower risk with consideration of repayment from savings possibilities, as well as work with the Government to develop respective social instruments to support participation of vulnerable households/	b	c	c	c	a	a	b
59	Limited financial instruments from banks for addressing building renovation	(1) Develop loan de-risking instruments (e.g. guarantee funds) for securing the risks of banks in the early stages of building renovation loans to HOAs, municipalities, and private borrowers.	b	b	c	a	a	a	A
60		(2) Eliminate market distortion opening the market niche for financial instruments such as market-based or subsidized loans, vendor finance, factoring, leasing (for RES), etc.	a	b	c	a	c	a	b
61	High project development costs	Utilize technical assistance grants to “shoulder” project preparation costs, recruit one-stop-shops for centralized preparation and development of eligible projects, quality assurance and facilitation which will optimize the costs, as well as ensure consistent quality.	b	b	c	b	b	b	b

6 2	limited financing available for distributed renewable energy systems (RES)	Develop monetary compensation schemes for surplus electricity fed to the grid under net metering;	a	b	c	b	c	a	a
6 3		Work with financial institutions to develop leasing instruments for RES installations	b	b	c	a	b	b	a

