

From: "ECA-InstitutionalRelations@eca.europa.eu" <nomail@mail.eca.europa.eu>
Date: Tuesday, July 7, 2026, 5:10 PM
To: Netherlands - Senate <postbus@eerstekamer.nl>
Subject: Speciaal verslag van de Europese Rekenkamer over de EU-financiering voor de renovatie van particuliere woningen



EUROPESE
REKENKAMER

Beste lezer,

Het doet ons genoegen u mee te delen dat de Europese Rekenkamer (ERK) Speciaal verslag 20/2026 ***“Verbetering van energie-efficiëntie van particuliere woningen dankzij de RRF — Brede financiële steun, maar tekortkomingen in de fundamenteën”*** heeft gepubliceerd, dat is opgesteld onder leiding van ERK-lid Nikolaos Milionis.

De door de EU gefinancierde renovatiemaatregelen uit het coronaherstelfonds, de herstel- en veerkrachtfaciliteit (Recovery and Resilience Facility — RRF), leveren slechts een matige energiebesparing op. Dit is de belangrijkste conclusie van het verslag. Eenvoudig uit te voeren projecten worden grotendeels gefinancierd ten koste van ingrijpendere renovatiewerkzaamheden die op de lange termijn betere resultaten zouden opleveren. Zonder een betere doelgerichtheid, een duidelijkere focus op resultaten en intensievere monitoring, dreigen toekomstige EU-uitgaven onvoldoende bij te dragen aan haar energie- en klimaatdoelen.

[Hier](#) vindt u het speciaal verslag en het één pagina lange overzicht van de belangrijkste feiten en bevindingen in het Engels alsmede het persbericht in 24 EU-talen. Het speciaal verslag in andere EU-talen volgt binnenkort.

Klik [hier](#) om andere publicaties van de ERK te bekijken. Neem voor meer informatie over het werk van de ERK [contact](#) met ons op, of bezoek onze [website](#).

Met vriendelijke groet,

Europese Rekenkamer

Directoraat van het Presidentschap
Institutionele betrekkingen

ECA-InstitutionalRelations@eca.europa.eu
eca.europa.eu

Volg ons op:        

Improving the energy efficiency of private homes with the RRF

Broad financial support, but weaknesses in the foundations



EUROPEAN
COURT
OF AUDITORS

Contents

Paragraph

01-14 | **Main messages**

01-04 | Why this area is important

05-14 | What we found and recommend

15-69 | **A closer look at our observations**

15-31 | **RRF energy efficiency measures are hampered by set-up shortcomings**

17-26 | RRF renovation measures do not directly target deep renovations

27-31 | Reforms were not clearly defined, and their effect on investments and energy savings has not been demonstrated

32-69 | **There were delays in implementation and weaknesses in monitoring energy savings**

33-40 | Complex renovation investment measures faced implementation delays and required revision

41-61 | Information on energy savings was not reliable, comparable, or detailed enough for it to be used for the meaningful monitoring of results

62-69 | The cost-effectiveness of building renovation measures is not tracked

Annexes

Annex I – About the audit

Annex II – List of audited measures

Annex III – ECA assessment on the feasibility of the measures

Abbreviations

Glossary

Replies of the Commission

Timeline

Audit team

01

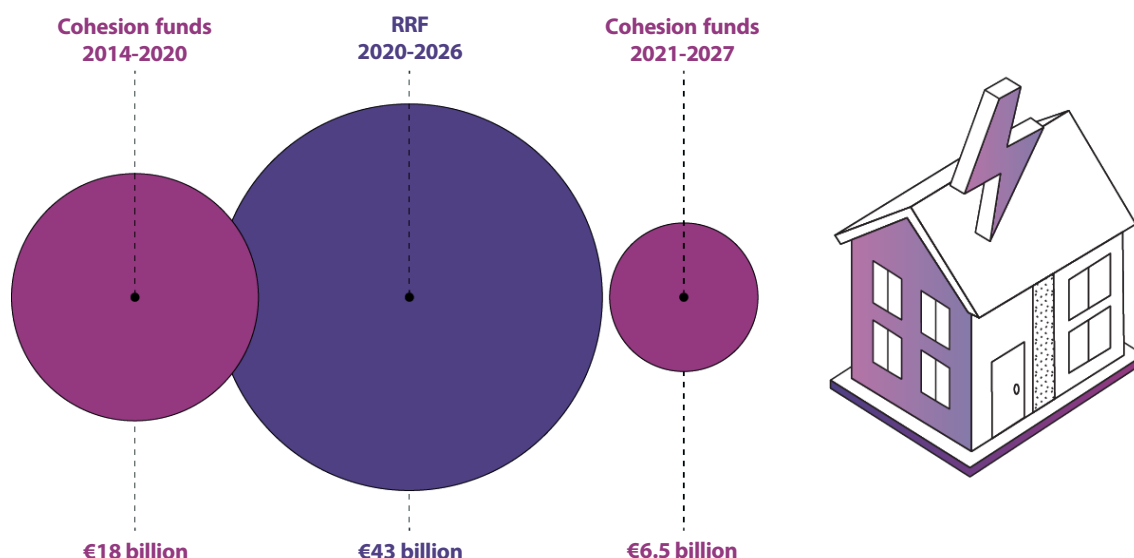
Main messages

Why this area is important

- 01** Residential buildings accounted for 26 % of energy consumption in the EU in 2023¹, and reducing this figure is key to the EU's pursuit of its energy targets. The EU and its member states have been taking action for many years to improve the energy efficiency of the building stock. EU financing used to be mainly provided through the cohesion policy funds. Since 2021, the Recovery and Resilience Facility (RRF) – which requires a significant proportion of funding (37 %) to be dedicated to climate and energy targets – offered member states the opportunity to boost residential energy efficiency improvements. Furthermore, the Commission has included in its [proposal for the 2028-2034 EU budget](#) the option to continue financing renovations.
- 02** According to the data available as at January 2026, the member states planned to spend €43 billion in RRF funding directly on energy efficiency measures for renovating residential buildings. This corresponds to about 8 % of the total available RRF funds and 17 % of the contribution to the climate and energy targets. [Figure 1](#) presents further comparison with the EU budget for energy efficiency under the cohesion funds.

¹ [Energy statistics – an overview](#), Figure 10, Eurostat (May 2025).

Figure 1 | EU funding for the energy efficiency of residential buildings



Source: ECA, based on [cohesion data](#) and the Commission's database for the RRF (FENIX).

- 03** This audit examined whether the RRF measures (both investments and reforms) contributed to the energy efficiency of residential buildings in an effective and cost-effective way. In particular, we looked at whether key features of the RRF set-up and the design of RRF energy efficiency measures were adequate to address renovation needs. We also looked at whether the RRF energy-saving measures' progress, results and cost-effectiveness were adequately monitored.
- 04** We expect this report to be of interest to the public, as all the member states have launched renovation schemes, impacting residents. The report provides input for improving future EU-funded energy efficiency measures in residential buildings, through better targeting of the measures. It also aims to enhance the way energy savings resulting from these measures are calculated and reported. For more background information, and details on the audit scope and approach, see [Annex I](#).

What we found and recommend

- 05** Overall, we conclude that while the RRF provided broad support for improving the energy efficiency of residential buildings, weaknesses in the set-up and implementation of the renovation measures limit the extent to which they deliver actual and cost-effective energy savings. We found that the RRF mostly financed medium-depth renovations. Reforms were not clearly defined and their effect on investments and energy savings has not been demonstrated. There were delays in implementation, and cost-effectiveness and the actual results of renovation measures were not adequately analysed and monitored.

- 06** Before the launch of RRF, the Commission had already stressed the importance of achieving a highly efficient building stock, including through deep renovations (i.e. with more than 60 % savings). However, the RRF Regulation made no reference to deep renovations, and the measures selected by the member states did not directly target such renovations to meet the EU energy objectives. If not planned in a coherent way as a first step towards higher energy efficiency, light or medium renovations risk creating lock-in effects (paragraphs [17-24](#)).
- 07** We found that the four member states selected for this audit (Belgium, Italy, Cyprus and Lithuania) applied eligibility criteria when selecting specific renovation projects for the RRF measures, although with some limitations. They also did not conduct a comparative assessment of the renovation projects submitted. All eligible renovation projects were financed without a comparative quality assessment, potentially limiting their focus on types of works that would produce high nominal energy savings (paragraphs [25-26](#)).
- 08** In assessing the RRF reforms, we found that both the RRF Regulation and the Commission's guidance lacked clear definitions of what constitutes a reform, leading to inconsistencies across the RRF national recovery and resilience plans (NRRPs). Moreover, due to the absence of suitable indicators, it is difficult to measure the RRF reforms' effects on energy efficiency investments and thus on energy savings (paragraphs [27-31](#)).
- 09** Our analysis of the measures' progress highlighted the fact that, across EU member states, most RRF measures relating to energy efficiency in the residential sector lacked result-oriented targets in terms of energy to be saved. The member states followed the Commission's guidance, basing targets on output indicators. This limits the possibility to assess the RRF measures' results in terms of energy efficiency and evaluate performance (paragraphs [32-35](#)).



Recommendation 1

Improve the targeting of renovation measures

When assessing the measures for the renovation of residential buildings proposed for financing under the next MFF, the Commission should check the extent to which the member states:

- (a) include deep renovations;
- (b) set a clear target for each appropriate individual measure in terms of the energy savings to be achieved, to track performance across measures and member states and facilitate aggregation. The target should be well substantiated and be coherent with the design of the measure, the funding provided and the initial baseline situation and needs.

Target implementation date: 2027

- 10** In addition, we observed that there was high demand for measures that are simple to implement or associated with a high level of support, and that such measures progress quickly. More complex measures, such as those entailing roof and wall insulation, faced implementation delays or low demand, and led to revisions to the NRRPs. We noted that, despite revisions, some RRF measures risk not being completed within the RRF deadlines, which can affect the results achieved (paragraphs [36-40](#)).
- 11** The Commission encourages member states to use energy performance certificates as the main tool for calculating energy savings achieved for all EU-supported programmes, including the RRF. These certificates help identify the improvements in renovated buildings. However, the information on energy savings contained in the energy performance certificates is not reliable, comparable or detailed enough for it to be used for the meaningful monitoring of results. In particular, there is a gap between estimated consumption (as calculated through the energy performance certificates) and actual consumption, as the latter is also driven by human behaviour. Not taking this gap into account leads to significant differences between estimated and actual savings (paragraphs [41-47](#)).
- 12** In terms of reliability, we found that the checks carried out by the national or regional authorities on energy performance certificates identified a significant level of anomalies. Our analysis of the certificates and alternative methodologies applied in the selected member states showed additional weaknesses, such as incorrect estimates of energy consumption, affecting the savings reported (paragraphs [48-55](#)).

- 13** We also found that the information on energy savings reported by the Commission under common indicator 1 covers all RRF measures, including those concerning public buildings or enterprises. However, the data is sent by the member states in an aggregated format that does not allow for a specific assessment of renovation progress in residential buildings. The Commission does not clearly indicate that the information on savings is based on theoretical calculations which do not sufficiently reflect actual savings. Furthermore, the Commission carries out plausibility checks, but does not check the figures in more detail, limiting the possibility of carrying out adequate performance monitoring (paragraphs [56-61](#)).
- 14** Finally, our analysis of the costs of supporting renovation projects under the RRF showed high variability in the cost per unit of energy saved in the selected member states, which was not further analysed by the Commission. Overall, the cost-effectiveness of building renovation measures is not tracked. In particular, we consider that the Italian *Superbonus* measure, which was financed using both Italian and RRF funds, and which covered up to 110 % of costs incurred by recipients, was not in line with the principles of sound financial management, and did not represent a cost-effective use of EU funds. While the RRF was intended to be a “performance-based instrument”, there is no requirement to track cost-effectiveness in the Regulation (paragraphs [62-69](#)). In our recent [special report 14/2026 on RRF traceability and transparency](#), we pointed to weaknesses in the collection of data on actual costs and recommended that such information be used to assess and achieve efficient use of EU funds.



Recommendation 2

Transparently report on savings and evaluate the RRF measures to improve the energy efficiency of residential buildings

In order to better assess the results of the RRF energy efficiency measures for residential buildings, the Commission should:

- (a) disclose further information on the methodology used for common indicator 1, and explain how it affects the reliability of savings reported by member states;

Target implementation date: end 2026

- (b) evaluate the results and cost-effectiveness of the measures for the energy efficiency of residential buildings to draw lessons for future programmes, in particular regarding the appropriate level of public support for renovation measures.

Target implementation date: end 2028, in the context of the Commission's *ex post* evaluation of the RRF



Recommendation 3

Improve performance tracking of energy savings

For the next MFF, in order to improve the performance tracking of energy savings, the Commission should:

- (a) improve the methodology for reliably reporting on the energy saved by renovation measures, including by taking into account the difference between the estimated and actual energy savings;
- (b) collect reliable information for each relevant measure on the results achieved and amounts paid (EU, member-state and private financing).

Target implementation date: December 2027

A closer look at our observations

RRF energy efficiency measures are hampered by set-up shortcomings

15 The [RRF Regulation](#) allows member states to design measures that contribute to improving efficiency in residential buildings as part of their national recovery and resilience plans (NRRPs). We examined the key features of the RRF set-up and how the RRF energy efficiency measures for residential buildings were designed, with a focus on the 28 measures designed in the four member states we selected, consisting of 18 investments and 10 reforms ([Annex II](#)).

16 We expected:

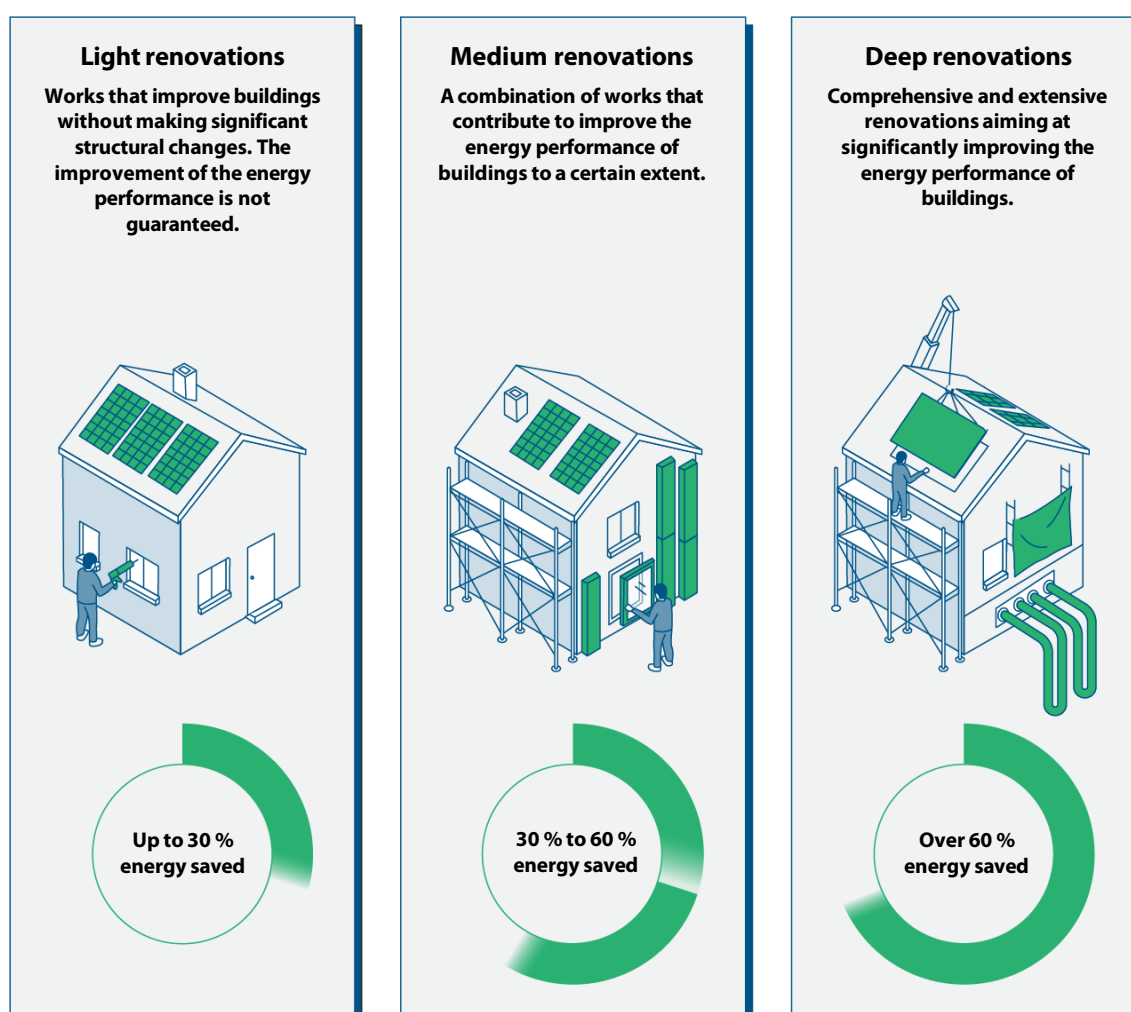
- measures to adequately target the renovation needs of the building stock;
- reforms to increase or complement investments in energy efficiency.

RRF renovation measures do not directly target deep renovations

17 In order to be relevant, RRF measures for residential buildings included in the NRRPs should respond to the specific needs of the building stock in each member state in line with the EU's energy efficiency policy objectives. We checked relevance by examining the [RRF Regulation](#), the EU policy framework for energy efficiency and the NRRPs, and analysing the reasons for the member states' choices of RRF measures and underlying projects.

18 The 2018 [Directive on the energy performance of buildings](#) – a key element of the EU energy efficiency policy framework ([Annex I](#)) – required member states to establish a national long-term renovation strategy by March 2020 to make their residential building stock highly energy efficient and decarbonised by 2050. To achieve this objective, the Directive explicitly refers to an increase in “deep renovations”, a term the Commission defined in its [Recommendation \(EU\) 2019/786](#) ([Figure 2](#)). Building on this, in October 2020, the Commission presented its [Renovation Wave](#) strategy to boost building renovations and foster deep renovations. The Commission highlighted that the annual deep renovation rate in the EU was only 0.2 % on average².

Figure 2 | Different types of renovations

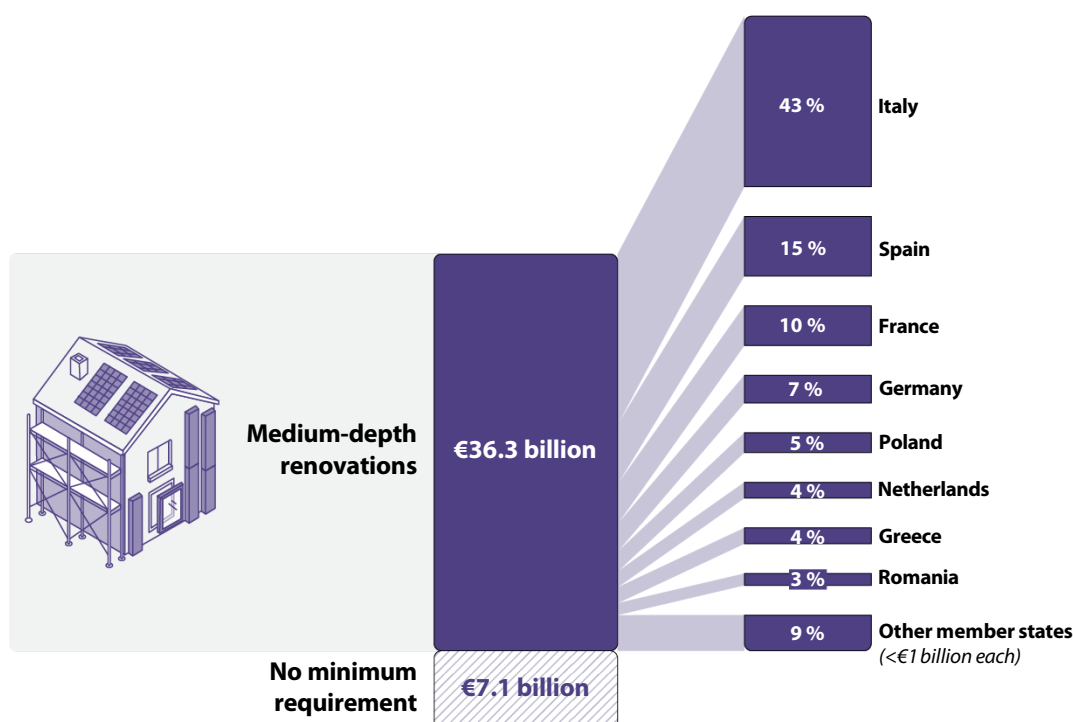


Source: ECA, based on Commission [Recommendation \(EU\) 2019/786](#). These are the applicable definitions for energy efficiency measures.

² [COM\(2020\) 662](#) - A Renovation Wave for Europe; European Commission, [Comprehensive study of building energy renovation activities and the uptake of nearly zero-energy buildings in the EU](#).

- 19** These national long-term renovation strategies, together with any additional needs assessments carried out by member states before the RRF was launched, could have served as a basis for defining cost-effective deep renovation measures addressing the specific needs of the national building stock, including the need to foster deep renovations. However, the [RRF Regulation](#) did not specifically require RRF measures to be based on a specific evaluation or needs assessment.
- 20** The [RRF Regulation](#) sets a general requirement for consistency with EU objectives and national strategic documents, including the National Energy and Climate Plans (NECPs). The [Commission guidance](#) asked member states to indicate in their NRRPs how specific measures set out in these plans could be fast-tracked with the help of the NRRPs. However, neither this guidance nor the [RRF Regulation](#) specified how the Commission should check this.
- 21** The Commission's assessment looked at whether the proposed measures chosen by member states were consistent with the existing framework. When the selected member states decided which measures for the energy efficiency of residential buildings they would include in the NRRPs, their decisions were not based on a specific evaluation or needs assessment, but generally referred to the national long-term renovation strategies. Based on discussions with the member states' authorities, we note that the selection of RRF measures was influenced by the relatively short timeframe available for preparing the NRRPs and the need to choose measures that could be implemented within the RRF timeframe (i.e. by August 2026).
- 22** Furthermore, the RRF Regulation made no reference to deep renovations. We found that only one of the 27 member states (Romania) had associated a measure with a target explicitly referring to deep renovations. Most RRF energy efficiency measures in residential buildings required support to target at least a medium-depth renovation level on average, and medium-depth renovations represented 83 % of the measures' estimated costs. For the remaining 17 % of RRF estimated costs for energy efficiency measures in residential buildings, no minimum energy savings were required ([Figure 3](#)). For example, measures targeting private buildings in Belgium did not require any minimum energy savings.

Figure 3 | RRF allocations to residential buildings, based on requirements, with breakdown by member state



Source: ECA, based on the RRF data provided by the Commission – latest update January 2026.

- 23** Moreover, as explained in our [2024 special report 14/2024 on RRF Green transition](#), the Commission specified that to be considered medium-depth under the RRF Regulation, renovation measures should aim to reach³ at least “30 % primary energy savings on average”, which corresponds to the lowest possible threshold for this category ([Figure 2](#)). Furthermore, the requirement applied to the measure as a whole rather than to each project. Out of the four member states selected, Italy applied a stricter rule as it required all RRF projects to reach a minimum threshold of 40 % for energy savings. Whether these thresholds are reached also depends on the reliability of the estimation of the savings achieved, which we examine in the second part of the report (paragraphs [32-69](#)).
- 24** While none of the selected member states included deep renovations in their targets (paragraph [22](#)), we noted that Cyprus selected some deep renovation projects under a specific measure (representing 20 % of the funds allocated to renovations). In the other three member states, we found that RRF measures were not aimed at promoting deep renovations. Financing renovations that do not substantially increase the building’s energy

³ Annex VI to the [RRF Regulation](#).

performance risks creating a lock-in effect ([Box 1](#)). Several research papers⁴ have warned that focusing on moderate measures without holistic planning can lead to lock-in effects, where renovation decisions constrain future options or lead to investments that are suboptimal for long-term decarbonisation goals.

Box 1

Lock-in effect of renovation works

A lock-in effect may occur when medium renovations prevent deeper energy renovations due to additional costs, the need to recover the initial investment or technical reasons. Examples could include:

- uncoordinated insulation works (additional layers cannot always be applied)⁵;
- use of materials incompatible with future solutions;
- installation of heating/hot water systems without considering future insulation works (can result in over-dimensioning) or vice versa;
- complete renovations (observed in the selected member states) that only achieve a medium energy rating (when further improvements would require deconstruction), without planning a staged deep renovation.

Source: ECA, based on studies and the projects assessed.

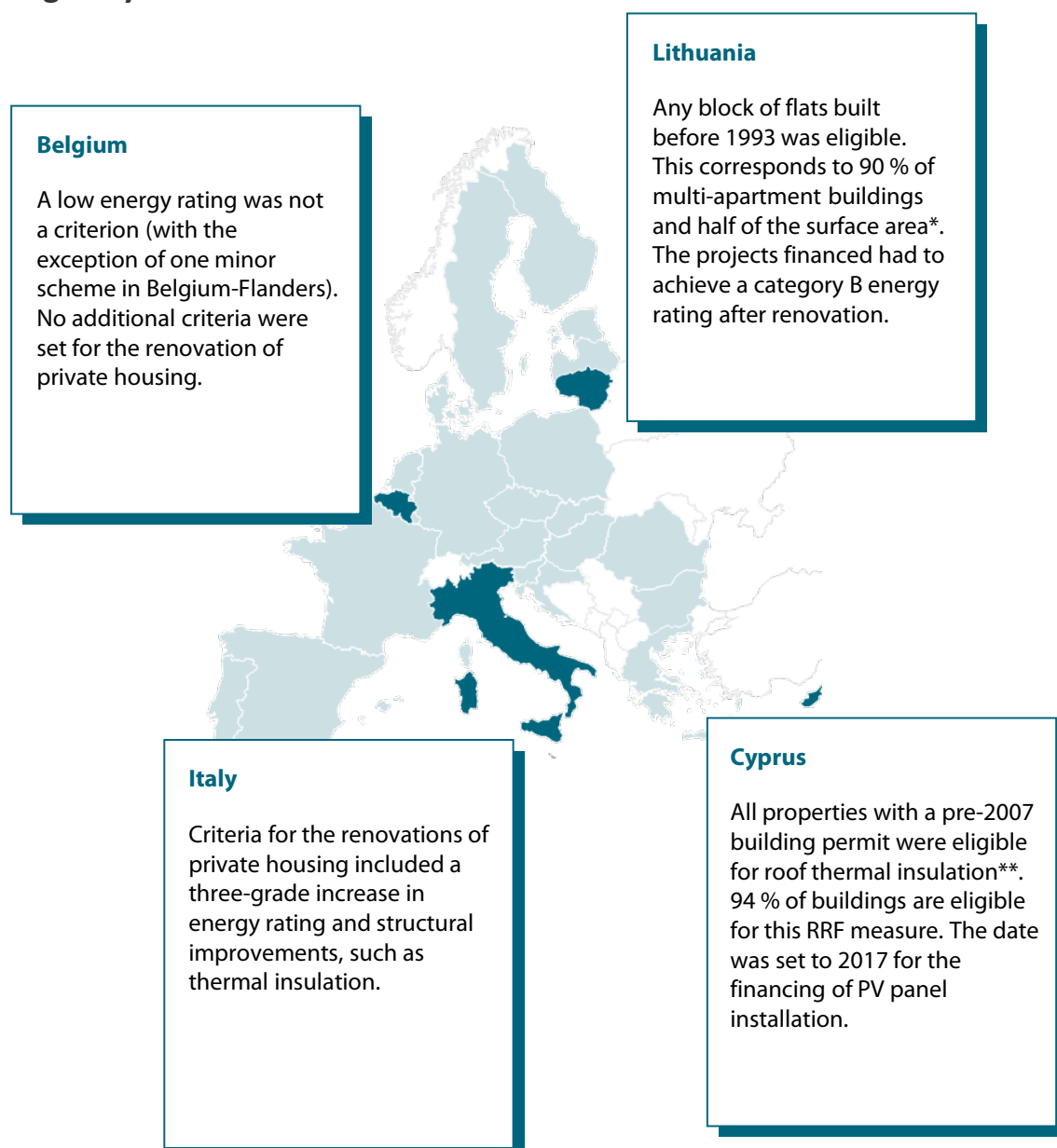
25 When deciding on specific renovation projects for the RRF measures, the selected member states approved projects based on eligibility criteria and financed all eligible projects as long as funding was available. [Figure 4](#) presents examples of eligibility criteria used by the member states selected for this audit. The eligibility criteria in the selected member states were often not very selective and did not require financing to be targeted towards buildings with a low energy rating or households with a greater financial need for support. Nor did these member states use selection criteria to rank applications. In case of Cyprus, this choice was a deliberate simplification decision to increase the number of projects,

⁴ BPIE, [Deep Renovation: Shifting from exception to standard practice in EU policy briefing](#); Gepts B., [Where is the potential for deep \(energy\) renovations?](#), Barbosa G. and Almeida M., [Strategies for implementing and scaling Renovation Passports](#).

⁵ Barbosa G., [Building renovation passports for affordable and digital deep renovation](#); L'Énergie en Wallonie, [Guide de la rénovation énergétique et durable des logements en Wallonie](#), Chapter 5, Sections 2.3 and 2.7.

within the time constraints of the RRF. The use of such criteria could have led to more result-oriented project selection, thus maximising the expected energy savings.

Figure 4 | Examples where RRF project selection was based solely on eligibility criteria



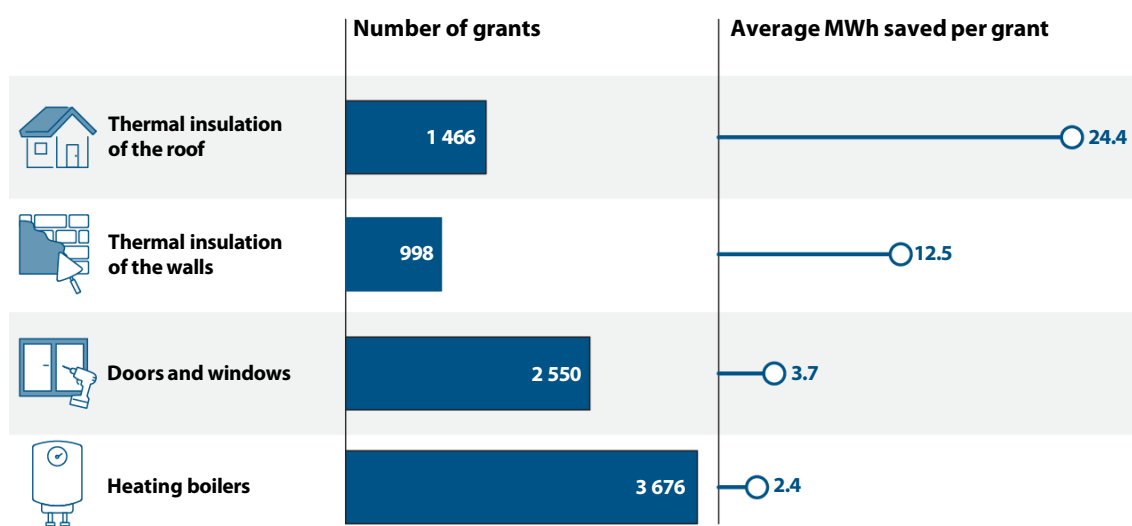
Note: * = Lithuania Long-term Renovation Strategy 2021, Tables 3 and 4; ** = Cyprus 2020 Long-term Building Renovation Strategy (LTRS), p. 13.

Source: ECA.

- 26** Since project selection in the selected member states did not include a comparative quality assessment of the projects submitted, there is a risk that the renovations funded might focus on types of works that produce lower nominal energy savings. *Figure 5* shows that in Belgium (Brussels-Capital Region), projects focused on medium or light renovations (such as replacing heating boilers or windows). Consequently, in the selected member states, the

RRF generally supported renovation schemes targeting a broader range of households and buildings to renovate more in less time. Prioritising medium or light renovations diverted member states' focus away from securing long-term energy savings through deep renovations; it also risks creating lock-in effects in the future.

Figure 5 | Number of grants and average MWh energy savings (2023), Brussels-Capital Region, by type of works



Note: These figures do not include only RRF-funded projects.

Source: [Annual statistical report](#), RENOLUTION 2023 RBC.

Reforms were not clearly defined, and their effect on investments and energy savings has not been demonstrated

- 27** According to the RRF Regulation, RRF reforms and investments should constitute a coherent package⁶ and bring about structural changes⁷ in the relevant administrations or policies⁸. We identified 10 reforms in our selected member states, and analysed their link with the RRF investments and their potential to enable or support future renovations.
- 28** In our 2025 [special report 10/2025 on RRF labour market reforms](#), we noted that the [RRF Regulation](#) refers to investments and reforms without defining them or clearly distinguishing between them. We also noted that what constitutes a reform remained

⁶ Recital 32 of the [RRF Regulation](#).

⁷ [SWD\(2021\) 12](#) – Guidance to member states – Recovery and Resilience plans.

⁸ Annex V to the [RRF Regulation](#).

subjective to some extent, even after Commission guidance⁹. In the NRRPs we reviewed, this lack of a clear definition resulted in different applications by the member states of the concept of reform. Nor did the Commission ensure a consistent approach across the NRRPs. For example, Belgium labelled revisions of its subsidy schemes and funding for related projects as “reforms”, while Italy labelled similar changes to its renovation scheme as “investments”. The degree of subjectivity in classifying measures confirms the previous ECA finding.

- 29** We found three measures labelled as reforms that were in fact mainly investments, two in Belgium and one in Lithuania. These concerned considerable project expenditure and did not involve significant changes to the renovation schemes. When the measure in Lithuania was replicated under the REPowerEU chapter, it was deemed an investment. We consider that having investment measures called “reforms” diminishes their potential to tackle existing obstacles and enable investments.
- 30** Furthermore, we found other reforms that could enable investments. However, there was no – or insufficient – data available to demonstrate their effects on investments within the RRF or beyond (see examples in [Box 2](#)).

Box 2

Examples of assessment of the potential effects of reforms on energy efficiency investments

Belgium, Italy, Cyprus, Lithuania: reforms to set up one-stop-shops to close the information gap faced by citizens – which can act as a barrier to renovations – could enable future investments in energy efficiency, but their impact has not yet been demonstrated.

Lithuania: the NRRP included a reform incentivising a new wood-panel method of renovation by amending construction regulations, launching demonstration projects and developing the local industry. However, it lacked feasibility studies and analyses of the potential scale of use and possible bottlenecks for its adoption.

- 31** In our [review on the lessons to be learned from the weaknesses of the RRF](#), we noted that the extent to which the result or impact of the RRF reforms can be assessed is limited by the absence of suitable indicators. We consider that it is therefore difficult to demonstrate that RRF energy efficiency reforms deliver greater savings than investments alone.

⁹ SWD(2021) 12.

There were delays in implementation and weaknesses in monitoring energy savings

32 Planned renovation measures need to be implemented in a timely manner and according to the NRRPs if they are to progress towards their objectives. Robust tracking tools should be in place to assess, monitor and report on the performance of the energy efficiency measures. We therefore looked at the implementation of the RRF measures, and we expected:

- measures to deliver on result-oriented targets within the set deadlines, due to the performance-based nature of the RRF;
- member states to collect, and the Commission to report, reliable information on the actual energy saved;
- the Commission and member states to track progress in the implementation of the measures, including the cost-effectiveness of the measures financed.

Complex renovation investment measures faced implementation delays and required revision

33 The RRF was intended to be a “performance-based instrument”, based on the achievements of results measured against set milestones and targets. We examined the extent to which the [RRF Regulation](#) and [related guidance](#) supported the inclusion of result-oriented targets in the NRRPs. We then assessed whether the result-oriented targets were associated with the NRRP measures in the selected member states. As all measures need to be completed by 31 August 2026¹⁰, we analysed whether the different types of renovation measures in our selected member states were progressing as planned, whether any were lagging behind and whether revisions of the measures increased the feasibility of achieving them within the RRF deadlines.

34 While the RRF Regulation specifies that each measure should be associated with milestones, targets and indicators to monitor progress in implementation, it does not explicitly require targets to be result-oriented. The [Commission’s guidance](#) for member states specifies that milestones and targets should be based on input indicators or, preferably, output indicators.

¹⁰ Article 18(4)(i) of the [RRF Regulation](#).

35 We found that quantitative targets for the audited measures included in the NRRPs mostly focused on outputs (e.g. number of renovations or renovated area), rather than results (reduction in energy consumption). This limits the possibility for the Commission to assess the results of the measures and evaluate the performance of the RRF in the field of energy efficiency. In previous reports, we concluded that RRF targets measured implementation progress rather than performance. Out of 111 renovation measures across all EU member states, we only found three cases where result-oriented targets were applied. One of these examples is the main Italian scheme for renovations of private buildings. [Figure 6](#) summarises the types of targets associated with renovation measures in the selected member states.

Figure 6 | Targets in the selected member states

					
Indicator description		Belgium	Italy	Cyprus	Lithuania
OUTPUT	Number of residential units	✓		✓	
	Renovated area		✓		✓
	Signature of legal agreements (financial instrument)		✓		
	Completion of preparatory works (wood panels)				✓
RESULT	Number of MWh saved		✓		

Source: ECA, based on the Council Implementing Decisions (CID).

36 In the selected member states, we noted that some RRF measures were in high demand, as they are easier to implement. This is the case, for example, of the simpler renovation measure in Cyprus ('Promoting individual energy efficiency measures' – see [Annex III](#)), which mainly finances the installation of photovoltaic (PV) panels. As shown in [Box 3](#), installing PV panels is an investment with a short payback time. Similarly, measures that do not require a minimum level of savings are progressing fast, such as a measure supporting renovations of private buildings in Belgium.

Box 3

Example of short payback period for RRF-supported PV panel installation in Cyprus

Beneficiaries of the simpler renovation measures (paragraph 36) in Cyprus can participate in the national “net metering” scheme, which is not covered by the RRF measure. It enables beneficiaries to keep the energy produced by PV panels for future use, storing it virtually. This translates into immediate financial benefits for the beneficiary, as they can quickly recover the installation costs, through reduced energy bills. The Cypriot authorities estimate the payback period to be between 3.5 and 5 years.

We acknowledge that the increased penetration of renewable energy from PV panels in the Cypriot electricity mix is a positive development. However, during our on-the-spot checks, some beneficiaries confirmed that the energy credits available following the installation of PV panels enabled them to maintain or even increase their energy consumption.

- 37 The Italian *Superbonus* renovation programme, financed using both Italian and RRF funds, supported up to 110 % of the costs incurred by recipients. We consider that this level of support is not in line with the principles of sound financial management, and that it negatively affects the cost-effectiveness of the measure (Box 5). This measure was taken up by half a million beneficiaries, meaning that Italy has enough completed projects to reach its final target.
- 38 Furthermore, we found that the Commission considered most of the milestones and targets associated with the 10 reforms selected for this audit to have been fulfilled at the time of our audit, i.e. during the RRF implementation period. We analysed the creation of one-stop shops supported by the RRF in the selected member states. Although the purpose of the measures was to ensure that these services were operational, the platforms were not entirely ready to provide tailored advice to citizens interested in energy efficiency renovations. We found a need for additional features to be deployed.
- 39 While the RRF’s short timeframe (paragraph 21) incentivises simpler renovations, it has proven less suitable for deep renovations and complex investments. In this regard, we found that more complex RRF measures were delayed (12 out of 18 investments are delayed – see Annex III). For example, a measure in Italy aimed at reducing energy consumption by at least 30 kilo tonnes of oil equivalent (Ktoe) per year through district heating was behind schedule: at the time of the audit only six out of 34 projects had

received prefinancing or a partial payment (corresponding to 5 % of the allocated RRF amounts for this measure), and none had been completed.

- 40** To tackle slow implementation and reduced demand, some energy efficiency measures were revised in the selected member states, with amended targets and estimated costs. The targets were revised downwards in 13 out of 22 measures, while for six additional measures there was no associated target, only milestones ([Annex III](#)). The amendments were allowed under the RRF Regulation¹¹, subject to the Commission's assessment of whether the proposed changes were justified, whether the revised NRRP continued to meet the Regulation's requirements, and whether the revised milestones and targets remained clear and realistic. Despite these revisions, some RRF measures risk not being completed within the RRF deadlines, which could affect the results achieved. [Box 4](#) presents additional details of our assessment.

Box 4

Examples of revisions of measures that do not entirely reflect the measures' actual progress at the time of the audit

Cyprus: The target for the complex renovation measure in Cyprus supporting interventions including roof and wall insulation was reduced in November 2025, as the Cypriot authorities reported unexpected circumstances that triggered delays in implementation. The target decreased from 1 100 renovations to 800, reducing the amount concerned from €30 million to €22 million.

At the same time, in November 2025, i.e. half-way through the measure's implementation period, the Cypriot authorities informed us that 263 projects had been completed while 1 465 projects had been signed and were due for completion by June 2026. This calls into question the need for the revision.



The latest revision did not take full account of actual progress

Belgium: As at June 2025, none of the projects for the social housing measure in Wallonia had started. In October 2025, the target for this measure was revised. The allocation was reduced from €30 million to €12.5 million, and the target number of social housing units to be equipped with PV panels was decreased from 3 600 to 1 532.



The revised target remains at risk of not being achieved

¹¹ Article 21 of the [RRF Regulation](#).

Lithuania: The NRRP revision resulted in a 40 % reduction of the renovation measure's target, while the estimated RRF costs were increased by 32 %. Our analysis of the progress indicates that only about 77 % of the revised target may be achieved by the end of the RRF due to delays in the selected projects.



The revised target remains at risk of not being achieved

Information on energy savings was not reliable, comparable, or detailed enough for it to be used for the meaningful monitoring of results

- 41** Energy efficiency measures under the RRF are expected to contribute to the EU's high-level energy efficiency target, which is based on actual reductions in energy consumption. Based on this, we expect these measures to deliver results in the form of measurable energy savings. We also expect member states to track achievements regarding buildings renovated using RRF funding.

Information on energy savings as calculated by member states hinders comparability and affects reliability

- 42** The aim of the RRF interventions is to improve buildings' energy performance, generating energy savings and other benefits. To assess these improvements, member states collect data that is usually based on energy performance certificates (EPCs). EPCs were set up primarily to inform building owners, buyers and tenants about the energy performance of buildings (typically on an A–G scale from most to least efficient).
- 43** In the context of the RRF renovation measures, the Commission encouraged member states to use EPCs for calculating the energy savings achieved for all EU supported programmes, including the RRF. One common approach compares the energy consumption indicated in the EPCs drawn up before and after renovations (*ex ante* and *ex post*) and reports the difference as energy saved. This methodology was applied by Italy and Lithuania. Cyprus also applied it (only for more complex renovations). Belgium chose alternative methodologies ([Figure 7](#), paragraphs [50-52](#)).

Figure 7 | Annual savings by the selected member states

	Measure	Annual savings (million kWh)	Methodology used
 Belgium	Renovation of social housing Brussels-Capital region	○ 11.5	Standard values and assumptions
	Renovation of social housing Flanders	○ 44.3	Standard values and assumptions
	Renovation of social housing Wallonia	○ 14.1	Standard values and assumptions
	Renovation of social housing German-speaking community	○ 1.0	Standard values and assumptions
 Italy	Superbonus	○ 1 412.2	EPC <i>ex ante</i> and EPC <i>ex post</i> (with adjustments)
 Cyprus	Promoting individual energy efficiency measures	○ 419.0	Standard values and assumptions
	Promoting extensive energy upgrading of housing stock	○ 49.8	EPC <i>ex ante</i> and EPC <i>ex post</i> *
 Lithuania	Support for renovation of buildings	○ 67.7	EPC <i>ex ante</i> and EPC <i>ex post</i>

Note: * = value is currently estimated.

Source: ECA, based on the information provided by the member states.

- 44** EPCs were originally designed as an asset-rating tool. In this role, they are suitable for identifying improvements made to a building, reflecting typical use under standard conditions. However, they were not specifically designed to reliably calculate actual energy savings achieved by a publicly funded measure.
- 45** Under the framework established by the EPBD, EPCs rely on buildings data and theoretical assumptions to estimate energy consumption. This can differ from actual consumption, which is influenced by human behaviour. This “performance gap” ([Figure 8](#)) is not accounted for in the values reported by member states on energy saved, which leads to significant differences between estimated and actual savings.

Figure 8 | The performance gap in the selected member states

Belgium



Technical analyses* of the performance gap were conducted in both Flanders and Wallonia. The results show how the gap between actual and estimated consumption steadily increases from “close-to-parity” for the most energy-efficient buildings, to estimated consumption up to 400 % or more above actual consumption for the worst-performing buildings. This means that the gap particularly affects the calculations of energy savings for buildings with the greatest expected savings.

Cyprus



The authorities did not carry out an official study, but a study of Cyprus’ methodology** for calculating the energy performance of buildings confirmed that the estimated final energy consumption for a selected number of buildings was two to three times higher than the final energy consumption measured. Another study***, which aimed to evaluate the energy performance of a typical residential unit in Cyprus found that the actual energy consumption was 377 % higher than estimated.

Italy



The authorities did not carry out an official study, but another study**** quantified the theoretical deviation between estimated and actual consumption and found up to 80 % higher estimated values for buildings with poor energy performance. The study found that the gap increased as energy needs rose, for example during more severe weather conditions. In high-performing buildings the effect can be the opposite: actual consumption can be up to 30 % higher than estimated, as users’ behaviour adjusts following the improvements in energy efficiency.

Lithuania



The authorities did not carry out an official study, but an academic review***** shows that estimated consumption for the best-rated buildings can be 18 % to 77 % higher than the actual figures. The study confirms the findings from the other countries that very high-rated buildings tend to consume more energy than predicted.

Note: The above studies were carried out on a sample of renovations, regardless of funding source.

* = Wallonia: [Annex e\) of the 2020 Long-term renovation strategy](#); Flanders: [Onderzoek naar de kostenoptimale niveaus bij renovatie van residentiële gebouwen, 5.11.1.3 Geschat energieverbruik](#).

** = Cyprus building energy performance methodology: [A comparison of the calculated and measured energy consumption results](#)

*** = [A Comparative Study on Discrepancies in Residential Building Energy Performance Certification in a Mediterranean Context](#)

**** = [Energy performance gap of the Italian residential building stock: Parametric energy simulations for theoretical deviation assessment from standard conditions](#)

***** = [Energy Performance Gap Analysis in Energy Efficient Residential Buildings in Lithuania](#)

Source: ECA, based on the quoted studies.

46 In addition, EPCs do not collect the same type of information across member states. For example, elements such as hot water, ventilation, air conditioning, etc. are not always included¹². EPCs were never intended to be used for comparing buildings across member states. Because different countries capture different elements, the data on energy consumption and energy savings derived from EPCs, even when expressed in kWh/year, is not directly comparable across countries. For example, in the EU, the upper limit of energy consumption for A-rated buildings may range between a negative value and almost 300 kWh/m²/year, while the lower limit for G-rated buildings may range between 200 and 1 005 kWh/m²/year. Even within the same member state, variations can be significant, potentially hampering comparison. In Lithuania, we found that E-rated buildings consumed between 311 and 600 kWh/m²/year before renovations took place. Consumption in F-rated buildings varied from 263 to 1 124 kWh/m²/year.

47 Furthermore, the 2018 [Directive on the energy performance of buildings](#) allowed member states to base EPCs on either calculated or metered energy consumption. While our selected member states base their method on calculated energy consumption, other member states use metered energy consumption. This further hinders the comparability of the reported savings.

48 Additionally, national or regional authorities in the selected member states checked a selection of EPCs – not related specifically to RRF projects – and reported a significant level of anomalies. While we acknowledge these efforts, errors in the *ex ante* EPCs can prevent the actions needed to improve a building's energy efficiency from being correctly identified, and can make the reported figures they contain unreliable for calculating the resulting energy savings. Similarly, errors in the *ex post* EPCs may lead to under- or over-estimation of buildings' energy consumption (see examples below).

- The latest report¹³ on the risk-based checks carried out by the Italian authorities indicated that almost half of the EPCs checked contained incorrect or anomalous values (e.g. values outside the acceptable range).
- In Belgium-Flanders, in 2023, the checks carried out resulted in fines for one in eight EPCs sampled, according to the information provided by the regional authorities. The authorities explained to us that this high rate was partly due to the fact that inspections were targeted to focus on cases under serious suspicion of error, for example based on complaints from the public.

¹² [Progress on the implementation of Energy Performance Certificates in EU](#), JRC, 2023.

¹³ ENEA, [Rapporto annuale sulla certificazione energetica degli edifici](#), 2025.

- In Lithuania, according to the information provided by the national authorities, 1 518 of the 16 592 certificates submitted in 2024 were rejected by the authorities (9 %). The main errors included mistakes in calculating areas and the incorrect assessment of certain buildings' characteristics.

49 When we carried out our own analysis of the EPCs for the 19 selected projects, we found additional weaknesses which limit the relevance of EPCs for estimating actual energy savings (see examples below).

- All EPCs treated buildings as permanent residences. Therefore, yearly savings were calculated as if the buildings were fully occupied, which could lead to the overestimation of energy savings. For example, one project (out of five) in Italy concerned a non-permanent residence.
- When new living areas were added (which was the case in two of the selected projects that we visited on the spot, one in Belgium, one in Italy), the energy savings were calculated on the basis that these spaces were previously present, but uninsulated; however, as we reported in our [special report 14/2024 on the RRF contribution to the green transition](#), such new areas do not generate savings but in fact represent additional energy consumption.
- In four of the five EPCs related to projects in Italy, we found various reliability issues (misclassifications of buildings, incorrect area, missing appliances).

50 In addition to EPCs, the Commission allows alternative methods of calculating energy savings resulting from the RRF measures, and Belgium and Cyprus used standard values in their calculations to establish the savings for most of their financed renovations. We identified several aspects that call into question the reliability of the figures produced by these alternative methods, which are presented below. This is the case even though the methodologies used by Belgium and Cyprus were approved by the Commission.

51 For example, under the RRF-funded measure for private and social residences in Belgium-Flanders, each heat pump installed is credited with 8 065 kWh/year of savings per residential unit, regardless of the buildings' size and characteristics. Insulated roofs are credited with 7 000 kWh/year, while insulated floors, walls and windows each account for 2 000 kWh/year of savings. When interventions are combined, these savings are added together, without any weighting for interaction effects.

52 For more extensive renovation projects under the RRF-funded Flemish measures, the method multiplies the average area by the theoretical average energy consumption per square metre before renovation, and compares the result with the average energy consumption after renovation for a standard apartment or house. This method bases its

calculations on the characteristics of average buildings, rather than the specific buildings in need of renovation.

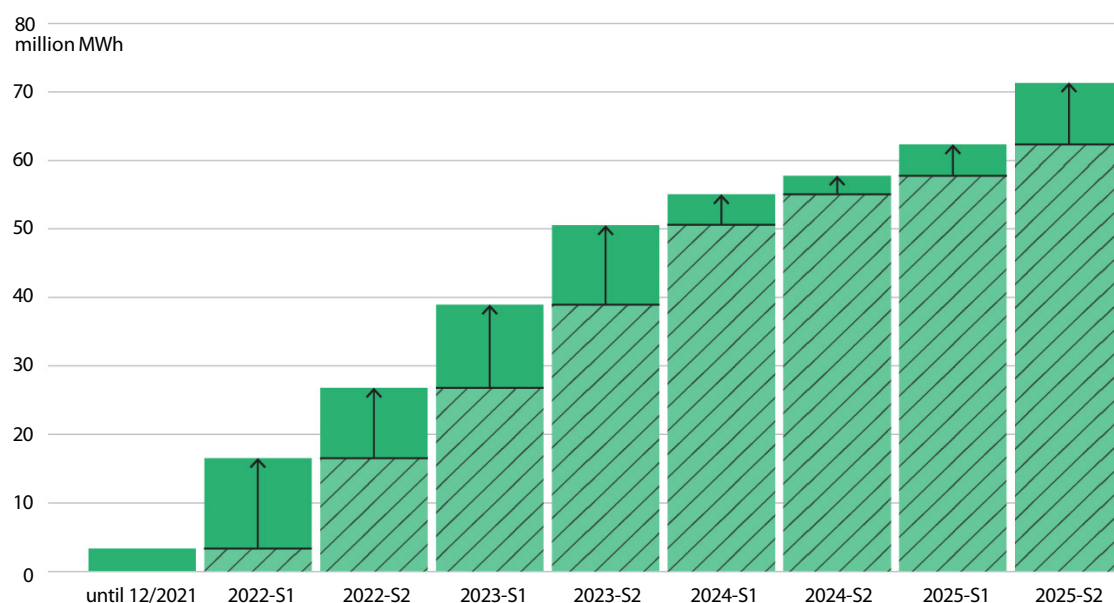
- 53** Cyprus applied a similar method, approved by the Commission, using averages of standard buildings to estimate a threshold corresponding to a 30 % energy saving. It then calculated the energy savings based on the actual characteristics of each renovation supported by the measure, using either the installed PV-panel capacity (in kWh), or the added insulation thickness, roof area (m²) and roof thermal performance. Using this approach, Cyprus reported that, overall, the energy savings met the minimum threshold. However, we consider that the worst-performing buildings require, in absolute values, higher savings to reach the minimum threshold of 30 %. Therefore, we recalculated the threshold, using data from actual buildings in need of renovation in Cyprus. Our results indicate that the value of savings reported by Cyprus would not have met the minimum threshold of a 30 % energy saving.
- 54** Finally, we found that savings declared from PV panels in Cyprus are reported as primary energy saved, even though part of this production is not consumed by the resident but exported to the grid. Although this is in line with the provisions of the EPBD, in such cases, the reported energy savings do not correspond to the building's actual energy consumption.
- 55** Regardless of the methodology used, we found significant issues with the reliability and comparability of the information on actual energy savings reported by member states.

Aggregated reporting on energy savings limits the meaningful monitoring and assessment of results

- 56** Both methodologies described above allow member states to report energy savings to the Commission under common indicator 1 “savings in annual primary energy consumption”. This indicator, however, is meant to show cumulative efforts under the NRRPs, and as such it includes all energy savings, with no breakdown by type of energy efficiency measure (e.g. residential building renovation). We examined the savings reported under this indicator, which are published on the [RRF Scoreboard](#). At the end of 2025, cumulative reported savings for all member states since February 2020 totalled 71 278 397 MWh/year.
- 57** The total reported savings figure is a cumulative value that does not refer solely to the results achieved by energy efficiency measures for residential buildings, but covers all RRF measures, including those concerning public buildings or enterprises. In practice, we could not verify the reported contribution from the individual RRF measures as the Commission did not have this data. The Commission pointed out that the RRF's common indicators were designed to monitor and evaluate the RRF as a whole. Consequently, the RRF

Scoreboard lacks information at the level of individual measures, as it only shows the cumulative values for all member states ([Figure 9](#)). The reporting of savings cumulatively, together with the absence of a target for energy saved under common indicator 1, means that the Commission cannot use this type of information for the effective monitoring of results, or to address issues promptly at measure level.

Figure 9 | Reported energy savings for the entire EU



Note: This graph shows the savings in annual primary energy consumption in MWh per year. The numbers are added cumulatively, and its values can only increase over time.

Source: [RRF Scoreboard](#), data as at December 2025.

- 58** At member-state level, data is expressed in the RRF Scoreboard as a percentage of the total primary energy consumption in 2019. This suggests that reported values correspond to actual savings, while – as set out in paragraphs [41-54](#) – the estimates from the residential building sector are theoretical and not fully reliable. Furthermore, the member states did not set a baseline, as the RRF Regulation did not include this requirement. Nor did the member states set final targets that would allow us to measure actual progress.
- 59** Based on the information included in the RRF Scoreboard, we found that by the end of the second half of 2025, RRF-funded measures had made only small contributions to energy savings in the audited member states: 3.125 % in Cyprus, 0.273 % in Belgium, 0.275 % in Italy and 0.139 % in Lithuania (which started reporting savings in 2025). While the figure seems higher for Cyprus, 88 % of the savings reported result from the installation of PV panels. As a source of renewable energy, PV panels reduce climate impact through lower carbon emissions and are accounted for as savings under the EPBD; however, in practice, they do not reduce a building’s actual energy consumption (paragraph [54](#)).

- 60** The savings in annual energy consumption reported by member states are counted for the full year, even if the savings only materialise in the course of that year. Furthermore, as we previously reported in our [special report 26/2023 on the RRF performance monitoring framework](#), while the Commission carries out plausibility checks, such as checking that the reported values do not exceed a member state's total energy consumption, it does not check the figures in more detail. The Commission stressed that responsibility for the quality of data on the common indicators lies solely with the member states. In addition, the figures are not broken down by measure; instead, only aggregated data is reported. It is also not possible to verify that the savings reported are exclusively linked to RRF funds, or to check the total funding linked to the reported savings.
- 61** The information from the RRF Scoreboard is used in communications issued by the Commission such as "[NextGenerationEU – The road to 2026](#)", which reports 33.4 TWh/year of RRF-related energy savings. The Commission communication does not clarify that savings reported under common indicator 1 are based on theoretical calculations (paragraph [45](#)). Combined with the various reliability issues found in this audit, we consider that the figures do not sufficiently reflect actual savings. All these weaknesses limit the usefulness of the reported information in adequately monitoring performance in order to assess effectiveness and efficiency.

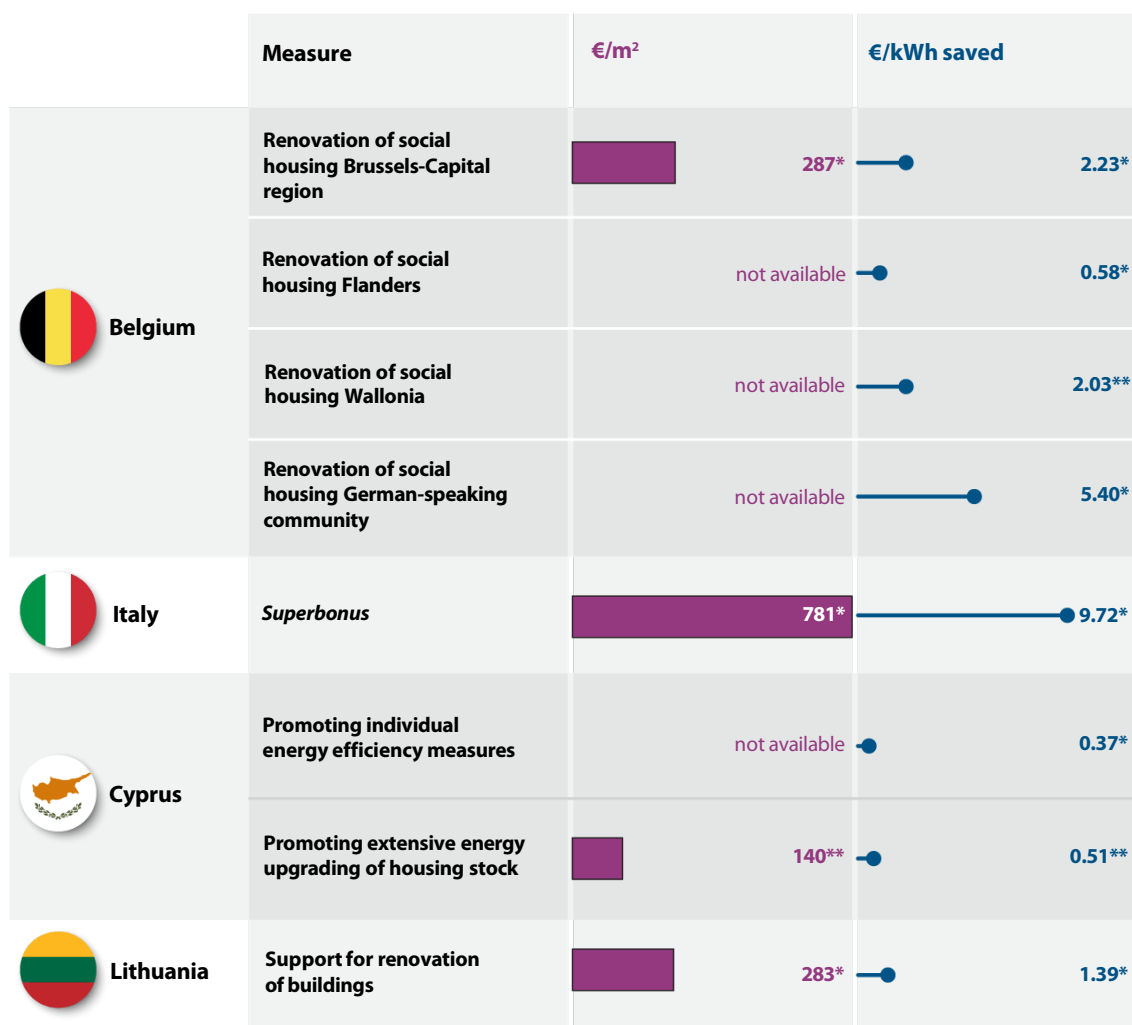
The cost-effectiveness of building renovation measures is not tracked

- 62** The member states provided cost estimates for each measure in their NRRPs, representing the expected costs needed to meet the set targets. We assessed the extent to which member states and the Commission kept track of cost-effectiveness during the implementation of the measures. We performed our own cost effectiveness calculation on the selected measures aiming to deliver at least 30 % savings.
- 63** As previously mentioned, member states were not required to set results targets for each measure. Consequently, the audited measures did not focus on results, i.e. the value of energy savings (paragraph [34](#)). This makes it more difficult to assess, either during implementation or *ex post*, whether energy efficiency measures delivered energy savings in a cost-effective way. Neither the Commission nor the selected member states tracked the cost-effectiveness of the measures implemented, as this is not required by the [RRF Regulation](#). Such an analysis would have been useful for monitoring the performance of the measures, identifying variations in cost-effectiveness between them, and enabling both the Commission and member states to take corrective action where necessary during implementation. It would also have provided useful evidence for the Commission's final *ex post* evaluation report, planned for 2028.

64 *Figure 10* shows the results of our cost-effectiveness calculations, based on the data on renovation measures received from the selected member states at the time of the audit. In the case of Belgium, the measures for private buildings are not shown, as they are not required to achieve the 30 % minimum threshold for energy savings. For the calculations of the actual cost per square metre and the unit cost of saving 1 kWh, we used, the total cost of the projects incurred by the recipients, wherever possible. In the remaining cases, when total investment costs were not provided, we used the grant amount allocated by the member state to the projects and covered by the RRF.

65 While this analysis covers different types of intervention, building stock and policy choice made by the member states, it shows substantial variations and illustrates the importance of tracking cost-effectiveness. We note, for example, that Lithuania's decision to only renovate blocks of flats led to a relatively low cost (€/kWh). The figures show higher cost-effectiveness compared to Belgium and Italy. While the figure for Cyprus indicates better cost-effectiveness, this is due to the installation of PV panels, a relatively cheap investment.

Figure 10 | Our analysis of the cost-effectiveness of the audited measures



Note: * = data based on the total cost of the projects incurred by the recipients; ** = data based on the grant amount allocated by the member state to the projects and covered by the RRF.

Source: ECA, based on the data provided by the selected member states.

- 66** Based on the information above, we found that, while the level of achieved savings per dwelling in Italy was quite high, this came at a very high cost. Our analysis shows that the *Superbonus* was not a cost-effective measure (see example in [Box 5](#)).

Box 5

Example of a measure that was not cost-effective: the *Superbonus* in Italy

The Italian renovation measure is by far the most expensive and least cost-effective measure targeting the energy efficiency of residential buildings, as it requires nearly €10 to save 1 kWh ([Figure 10](#)).

The measure met with high demand (over half a million renovations were carried out thanks to the scheme) and the estimated costs surged to €123 billion (as at November 2025). Ultimately, the estimated RRF contribution (€13.95 billion) will only cover half of the target set for this measure (about 18 million m² instead of 36 million m²) and about 10.5 % of the nationally approved tax credits for renovations. Based on this data, additional funds will have to be made available from the national budget.

Several articles have since analysed its side effects, including high inflation¹⁴, a substantial national budgetary impact¹⁵, and low cost-effectiveness.

The cost-optimal model prepared by Italy in 2020¹⁶ indicated that with a €9 billion investment, 24.7 million m² would be renovated and 330 Ktoe of energy saved, resulting in a cost of €2.58 per kWh saved. The current cost per kWh of the RRF measure is almost four times higher. Additionally, as reported by the Italian Supreme Audit Institution¹⁷, quoting a report from the Italian Central Bank¹⁸: over a quarter (27 %) of the nationally approved *Superbonus* projects could have been carried out in the absence of public financing (the “deadweight” effect), and it was possible to recoup a high proportion of the renovation costs.

67 We also compared initial cost estimates with the latest figures provided by the national authorities. For example, in Cyprus the estimated cost of the simpler renovation measure (see paragraph 36) was adjusted upwards in an NRRP revision in line with implementation progress. The measure had been allocated €74 million, and implementation progress indicated that €71 million (96 %) would be needed to reach the target. This is a good example of keeping the estimated RRF costs aligned with implementation.

68 On the other hand, according to our recalculations based on the figures provided by the national authorities, at the current rate Cyprus would need €24 million to reach the target established for the deep renovation measure. This corresponds to 81 % of the allocated envelope, indicating that costs were overestimated. In Belgium, social housing in Flanders and in the German-speaking community is also expected to require a lower amount of funding than initially estimated, indicating that the costs were overestimated. The

¹⁴ CEPR, [The impact of the Superbonus on Italian construction costs](#), 9 February 2025.

¹⁵ Fitch Ratings, [Italy's 'Superbonus' Spending Puts Its Debt Ratio on an Upward Trajectory](#), 23 April 2024.

¹⁶ Ministero della transizione ecologica, [2020 long-term building renovation strategy](#).

¹⁷ Corte dei Conti Italiana, [Relazione sullo stato di attuazione del Piano Nazionale di Ripresa e Resilienza \(PNRR\)](#), December 2024.

¹⁸ Banca d'Italia, [Incentives for dwelling renovations: evidence from a large fiscal programme](#), 2024.

measures will use about 86 % and 36 % of the envelope, respectively; however, as at April 2026, no revision of the NRRPs is planned.

- 69** Similarly, in paragraph 39 of our [special report 14/2026 on RRF traceability and transparency](#), we reported on cases of measures where the estimated RRF costs had exceeded the actual costs. We concluded that, if this trend continued, there was a risk that the overall RRF allocation to some member states might exceed the actual costs. The same audit also identified that some ongoing measures were experiencing cost overruns.

This report was adopted by Chamber I, headed by Ms Joëlle Elvinger, Member of the Court of Auditors, in Luxembourg at its meeting of 17 June 2026.

For the Court of Auditors

Tony Murphy
President

Annexes

Annex I – About the audit

Energy efficiency as a key objective of the EU

- 01** Improving energy efficiency is one of the key objectives of the [Energy Union Strategy](#). The targets set by EU legislation have become more ambitious over time. In [2012 the Energy Efficiency Directive](#) incorporated the target of 20 % energy efficiency by 2020. In our recent [special report 18/2023 on EU climate and energy targets](#), we noted that the achievement of this target was due not only to the EU's climate action, but also to the economic effects of the COVID-19 pandemic.
- 02** The [2018 revision of the Energy Efficiency Directive](#) set an EU energy efficiency target of at least 32.5 % by 2030. In 2023, the European Parliament and the Council adopted the [Revised Energy Efficiency Directive](#), which included the goal of reducing EU final energy consumption by 11.7 % by 2030 compared to projected energy use for that year. When expressed using the older 2007 EU Reference Scenario, this target corresponds to a reduction of 40.5 % in primary energy consumption.

The residential building sector and the EU's climate and energy targets

- 03** The building sector is key for achieving Europe's climate and energy targets. Two thirds of the energy used for heating and cooling still come from fossil fuels and almost 75 % of buildings in the EU are still energy-inefficient¹. Improving the energy balance of existing buildings through renovations is therefore a major axis of public intervention.
- 04** In order to specifically tackle the energy efficiency of buildings, the EU has established a legislative framework that includes the Energy Performance of Buildings Directive (EPBD)²,

¹ Recitals 14 and 24 of [Directive \(EU\) 2024/1275](#) on the energy performance of buildings.

² Ibid.

which was revised in 2024. It aims to increase the rate of renovation in the EU, particularly for the worst-performing buildings. It includes a binding target for member states to decrease the average primary energy use of their entire residential building stock by 16 % by 2030 (compared to 2020). Member states should include this target and how to achieve it in their national building renovation plans, which, by the end of 2026, should replace the long-term renovation strategies established in the 2010 Directive³. Finally, Commission [Recommendation \(EU\) 2019/786](#) on building renovations defined the different levels of renovations (light, medium and deep). At EU level, the objective is also to make the entire building stock highly energy-efficient and decarbonised by 2050.

The Recovery and Resilience Facility

- 05** In February 2021, Regulation (EU) 2021/241 establishing the Recovery and Resilience Facility (RRF) entered into force, in response to the COVID-19 pandemic⁴. The RRF also aimed to help member states better prepare for the challenges and opportunities arising from the green and digital transitions. As at January 2026, it had mobilised €577 billion in grants and loans to support reforms and investments in the EU member states. In May 2022, the European Union adopted the [REPowerEU Plan](#) to reduce reliance on Russian fossil fuels, adding €21 billion in grants to the RRF. As a result, member states either topped up their existing RRF energy efficiency measures or added new measures. As at January 2026, the estimated cost of measures to promote energy efficiency in residential buildings was about €43 billion, around 8 % of the amount mobilised under the RRF (investments represent 99 % of the costs).

Roles and responsibilities

- 06** The Commission manages the RRF directly. The Reform and Investment Task Force (SG REFORM), and the Directorate-General for Economic and Financial Affairs (DG ECFIN) are the main parties responsible. The Commission is responsible for assessing the national recovery and resilience plans (NRRPs) and approving member states' payment requests along with the Council⁵. The Commission is also responsible for monitoring the implementation of the RRF and for reporting the progress made towards its objectives, for example by using common indicators⁶. The Commission's Directorate-General for Energy

³ [Directive 2010/31/EU](#) on the energy performance of buildings.

⁴ [RRF Regulation](#).

⁵ *Ibid.*, article 20.

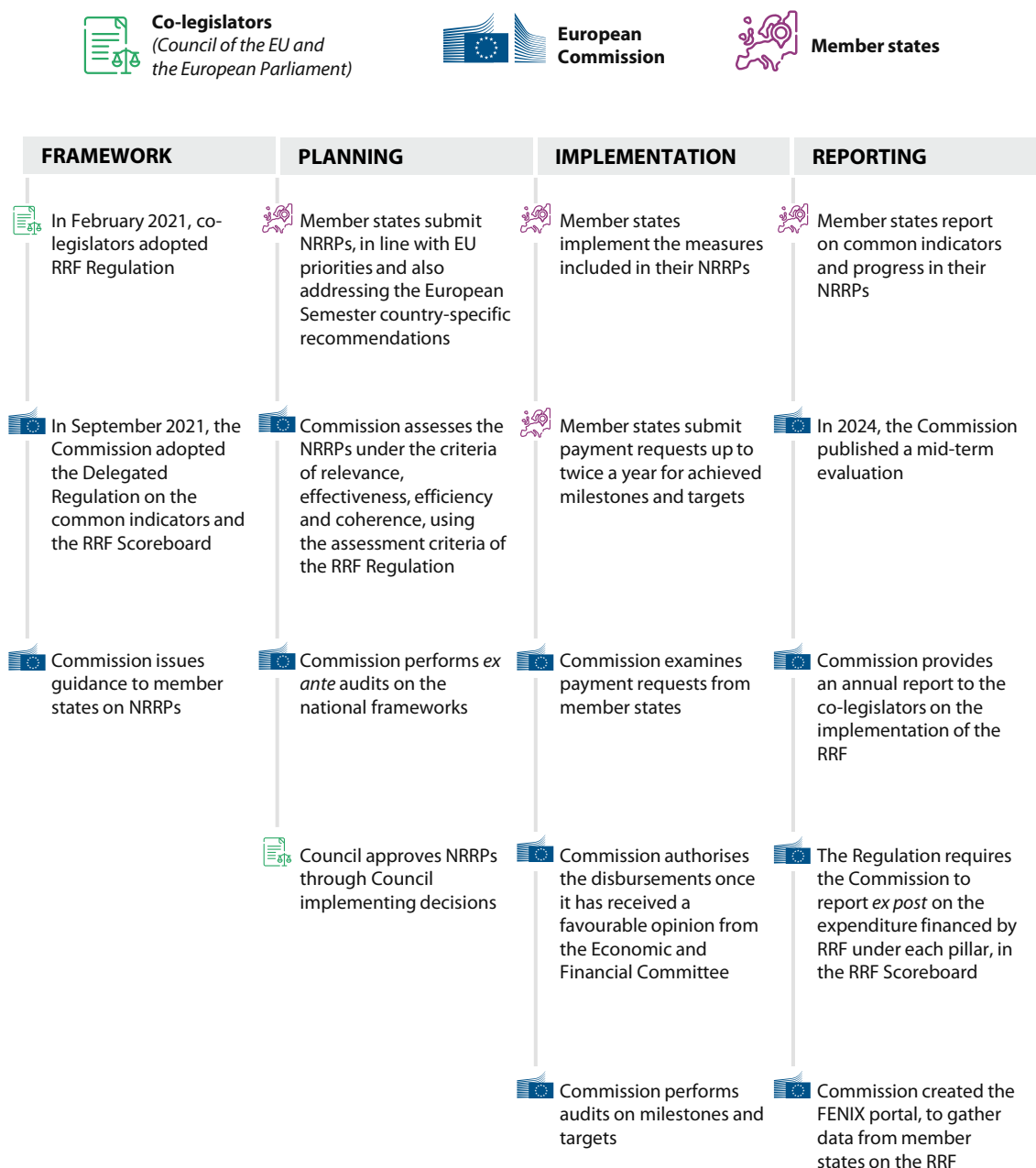
⁶ [Commission Delegated Regulation \(EU\) 2021/2106](#) setting out the common indicators.

(DG ENER) develops, implements, and coordinates policies related to energy – including energy efficiency.

- 07** The member states each submit an NRRP, which includes a series of measures comprising investments and reforms. Member states must indicate the estimated costs for each measure in order to justify the amount of RRF grants or loans requested⁷. For some measures, usually reforms, member states have not estimated costs. Under the RRF Regulation, member states may make a reasoned request to amend their plans⁸, where justified by objective circumstances. In this case, they must show that the existing milestones and targets are no longer fully or partially achievable. Amendments may involve changes to the estimated costs of existing measures, the replacement of previously approved measures, or changes to previously approved milestones and targets.
- 08** The Commission assesses whether member states have duly fulfilled the milestones and targets for the reforms and investments associated with the payment request. If it is satisfied that this is the case, the Commission disburses the RRF funds to the member states. [Figure 1](#) shows the various roles and responsibilities.

⁷ Annex V, point 3, of [Regulation \(EU\) 2021/241](#).

⁸ *Ibid.*, article 21.

Figure 1 | Roles and responsibilities within the RRF

Source: ECA, based on applicable legislation and supporting documents.

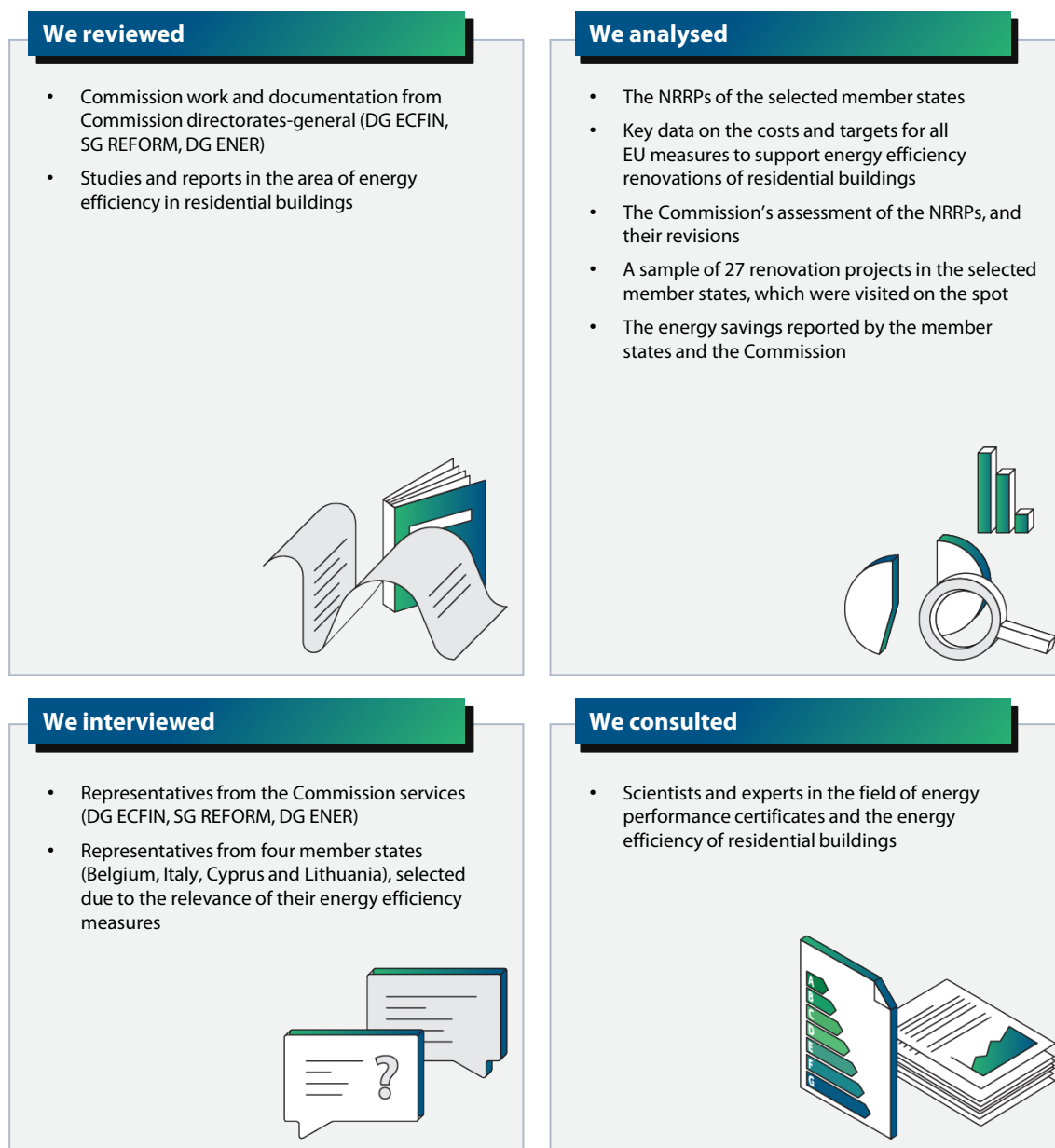
Audit scope and approach

- 09** The aim of our audit was to assess whether the RRF measures (i.e. investments and reforms) contributed to the energy efficiency of residential buildings. The audit covered the period from February 2020 (starting date of RRF implementation) to December 2025. Our analysis concentrated on possible shortcomings stemming from the RRF Regulation and guidance affecting how the measures were set up; whether measures were

progressing according to plan, or were appropriately revised; whether they were delivering results in terms of energy savings and how these results were monitored.

10 *Figure 2* shows how we obtained evidence for our observations. Our **audit methodology** complies with the international standards on auditing issued by the **International Organization of Supreme Audit Institutions (INTOSAI)**.

Figure 2 | Audit work carried out



Source: ECA.

Annex II – List of audited measures

Investments

Investment code	Investment name	Energy efficiency requirement
BE-C[C11]-I[I-101.S4]	Renovation of social housing Flanders	30 %
BE-C[C11]-I[I-102.S5]	Renovation of social housing Brussels-Capital	30 %
BE-C[C11]-I[I-103.S6]	Renovation of social housing German-speaking community	30 %
BE-C[C71]-I[I-701]	Renovation of private housing Brussels-Capital (REPowerEU) - low income	none
BE-C[C71]-I[I-702]	Renovation of private housing Flanders (REPowerEU)	none
BE-C[C71]-I[I-703]	Renovation of private housing German-speaking community (REPowerEU)	none
BE-C[C71]-I[I-704]	Renovation of social housing Wallonia	none
BE-C[C71]-I[I-726]	Renovation of private housing Wallonia	none
IT-C[M2C3]-I[I2.1]	Superbonus	30 %
IT-C[M2C3]-I[I3.1]	Promotion of efficient district heating	not applicable
IT-C[M7]-I[I17]	Financial instrument for energy renovations of public and social housing	30 %
CY-C[C2.1]-I[I12]	Promoting individual energy efficiency measures	30 %
CY-C[C2.1]-I[I17]	Smart Meters	none
CY-C[C3.4]-I[I16]	Renovations in the Nicosia Inner City	none
CY-C[C6.1]-I[I11]	Promoting individual energy efficiency measures (REPowerEU)	30 %
CY-C[C6.1]-I[I13]	Promoting extensive energy upgrading of housing stock	30 %
LT-C[C8]-I[H-1-1.H-1-1-1-a]	Renovating demonstration buildings with wood panels	30 %
LT-C[C8]-I[H-1-1-.H-1-1-2-]	Renovation of buildings - block of flats (REPowerEU)	30 %

Reforms

Measure code	Measure name	Energy efficiency requirement
BE-C[C11]-R[R-101.S1]	Renovation of private housing Flanders (incl. One stop shop and the revision of the energy label scheme)	none
BE-C[C11]-R[R-102.S2]	Renovation of private housing Brussels-Capital	none
BE-C[C11]-R[R-103.S3]	Renovation of private housing German-speaking community	none
BE-C[C71]-R[R-701]	Revision of the code on air, climate and energy	not applicable
IT-C[M2C3]-R[R1.1]	Simplification of procedures for energy efficiency interventions	not applicable
CY-C[C2.1]-R[R3]	Digital One-Stop Shops	not applicable
LT-C[C2]-R[B-1-3-.B-1-3-1-a-]	Update of building renovation framework	not applicable
LT-C[C2]-R[B-1-3-.B-1-3-2-]	One stop shop	30 %
LT-C[C2]-R[B-1-3-.B-1-3-3-]	Wood panels for the renovation of buildings	not applicable
LT-C[C2]-R[B-1-3-.B-1-3-4-]	Renovation of buildings - block of flats	30 %

Source: ECA, based on the NRRPs.

Annex III – ECA assessment on the feasibility of the measures

Country	Measure	Revision of the target	ECA assessment of feasibility
Belgium	Renovation of social housing Flanders	-35 %	delayed
	Renovation of social housing Brussels-Capital	-23 %	on track
	Renovation of social housing German-speaking community	-87 %	delayed
	Renovation of private housing Brussels-Capital (REPowerEU) - low income	20 %	on track
	Renovation of private housing Flanders (REPowerEU)	No target associated to the measure*	not available
	Renovation of private housing German-speaking community (REPowerEU)	-5 %	risk of delays
	Renovation of social housing Wallonia	-57 %	delayed
	Renovation of private housing Wallonia	No change	risks of delays
	Renovation of private housing Flanders (incl. One stop shop	3 %	on track

	and the revision of the energy label scheme)		
	Renovation of private housing Brussels-Capital (incl. One stop shop)	-10 %	on track
	Renovation of private housing German-speaking community	-100 % (measure cancelled)	cancelled
	Revision of the code on air, climate and energy	No target associated to the measure*	completed
Italy	Superbonus	12 %	on track
	Promotion of efficient district heating	50 %	delayed
	Financial instrument for energy renovations of public and social housing	0 %	delayed
	Simplification of procedures for energy efficiency interventions	No target associated to the measure*	completed
Cyprus	Promoting individual energy efficiency measures	14 %	on track
	Smart Meters	-50 %	delayed
	Renovations in the Nicosia Inner City	-45 %	delayed

	Promoting individual energy efficiency measures (REPowerEU)	52 %	on track
	Promoting extensive energy upgrading of housing stock	-27 %	risks of delays
	Digital One-Stop Shops	No target associated to the measure*	completed
Lithuania	Renovating demonstration buildings with wood panels	-25 %	delayed
	Renovation of buildings - block of flats (REPowerEU)	13 %	risks of delays
	Update of building renovation framework	No target associated to the measure*	delayed
	One stop shop	No target associated to the measure*	delayed
	Wood panels for the renovation of buildings	-64 %	delayed
	Renovation of buildings - block of flats	-32 %	delayed

Note: * = the measure had only milestones associated to it.

Source: ECA, based on the information provided by the member states.

Abbreviations

Abbreviation	Definition/Explanation
EPC	Energy performance certificate
GWh	Gigawatt hour
Ktoe	Kilo tonnes of oil equivalent
KWh	Kilowatt-hour
MFF	Multiannual financial framework
MWh	Megawatt hour
NECP	National energy and climate plan
NRRP	National recovery and resilience plan
PV	Photovoltaic
RRF	Recovery and Resilience Facility

Glossary

Term	Definition/Explanation
Building stock	All buildings in a given geographical area.
Climate target	EU objective to reduce greenhouse gas emissions.
Common indicator	Measure of progress made in the implementation of the member states' recovery and resilience plans and, hence, towards the achievement of the RRF objectives.
Council Implementing Decision	Document by which, based on an assessment from the Commission, the Council approves a member state's recovery and resilience plan.
Decarbonisation	Transition to an economic system with reduced emissions of carbon dioxide and other greenhouse gases.
Deep renovation	Building improvement work that results in very significant energy savings (typically more than 60 %).
Eligibility	Suitability of measures to be considered for RRF funding, based on conditions that include compliance with the eligibility period and the principles of additionality, "do no significant harm", and non-substitution of recurring national budgetary expenditure.
Energy efficiency	Ratio between the output of a system or appliance and the energy consumed, expressed as a percentage.
Energy performance certificate	Document that provides information on how much energy is needed for a building or building unit, including elements such as energy for heating, cooling, ventilation, hot water and lighting.
Energy rating	Standardised indicator showing the energy efficiency of a building.
Energy target	EU objective to increase the proportion of renewables in the energy mix as well as to reducing final energy consumption
Final energy consumption	Total energy consumed by end users, such as households, industry and agriculture, excluding that which is used by the energy sector itself.
Investment	Expenditure on an activity, project or other action within the scope of the RRF Regulation that is expected to bring beneficial results to society, the economy or the environment.
Lock-in effect	Situation where, for technical or financial reasons, once a decision is taken it is impossible to move to a better alternative at a later date.
Milestone	Qualitative measure of a member state's progress towards completing a reform or investment in its recovery and resilience plan.
National long-term renovation strategy	Document drawn up by an EU member state, setting out how it intends, by 2050, to decarbonise its national building stock and make it highly energy-efficient.

Needs assessment	Systematic evaluation to identify requirements, determine priorities and allocate resources effectively
NextGenerationEU	Funding package to help EU member states recover from the economic and social impact of the COVID-19 pandemic.
Payback period	Time needed for an investment to repay its initial cost by generating savings or revenue.
Performance gap	Difference between estimated/theoretical and actual energy consumption.
Primary energy consumption	Total energy demand, including consumption by the energy sector itself, losses during the transformation and distribution of energy, and final energy consumption, but excluding the use of energy carriers for non-energy purposes (e.g. petroleum for producing plastics).
Recovery and Resilience Facility	The EU's financial support mechanism to mitigate the economic and social impact of the COVID-19 pandemic, stimulate recovery and meet the challenges of a greener and more digital future.
Recovery and resilience plan	Document setting out a member state's intended reforms and investments under the Recovery and Resilience Facility.
Reform	In the context of the RRF, a change resulting in significant, lasting improvement in the functioning of a market, a policy, or institutional or administrative structures, or in significant progress towards policy objectives such as growth and jobs, resilience and the green and digital transitions.
REPowerEU	EU initiative to end dependence on fossil fuels, diversify energy supplies and accelerate the clean energy transition.
RRF Scoreboard	Commission website showing how the implementation of member states' recovery and resilience plans is progressing.
Target	Quantitative measure of a member state's progress towards completing a specific reform or an investment in its recovery and resilience plan.

Replies of the Commission

<https://www.eca.europa.eu/en/publications/SR-2026-20>

Timeline

<https://www.eca.europa.eu/en/publications/SR-2026-20>

Audit team

The ECA's special reports set out the results of its audits of EU policies and programmes, or of management-related topics from specific budgetary areas. The ECA selects and designs these audit tasks to be of maximum impact by considering the risks to performance or compliance, the level of income or spending involved, forthcoming developments and political and public interest.

This performance audit was carried out by Audit Chamber I – Sustainable use of natural resources, headed by ECA Member Joëlle Elvinger. The audit was led by ECA Member Nikolaos Milionis, supported by Kristian Sniter, Head of Private Office, Aris Konstantinidis and Katarzyna Radecka-Moroz, Private Office Attachés; Florence Fornaroli, Principal Manager; Antonella Stasia, Head of Task; Dirk Neumeister, Lucia Rosca and Asimina Petri, Auditors. Alexandra-Elena Mazilu provided graphical support.



From left to right: Florence Fornaroli, Antonella Stasia, Asimina Petri, Kristian Sniter, Nikolaos Milionis, Dirk Neumeister, Aris Konstantinidis and Alexandra-Elena Mazilu.

COPYRIGHT

© European Union, 2026

The reuse policy of the European Court of Auditors (ECA) is set out in [ECA Decision No 6-2019](#) on the open data policy and the reuse of documents.

Unless otherwise indicated (e.g. in individual copyright notices), ECA content owned by the EU is licensed under the [Creative Commons Attribution 4.0 International \(CC BY 4.0\) licence](#). As a general rule, therefore, reuse is authorised provided appropriate credit is given and any changes are indicated. Those reusing ECA content must not distort the original meaning or message. The ECA shall not be liable for any consequences of reuse.

Additional permission must be obtained if specific content depicts identifiable private individuals, e.g. in pictures of ECA staff, or includes third-party works.

Where such permission is obtained, it shall cancel and replace the above-mentioned general permission and shall clearly state any restrictions on use.

To use or reproduce content that is not owned by the EU, it may be necessary to seek permission directly from the copyright holders.

Software or documents covered by industrial property rights, such as patents, trademarks, registered designs, logos and names, are excluded from the ECA's reuse policy.

The European Union's family of institutional websites, within the europa.eu domain, provides links to third-party sites. Since the ECA has no control over these, you are encouraged to review their privacy and copyright policies.

Cover photo: © David Zarzosa – stock.adobe.com

The icons used in Figure 1 in Annex I: www.flaticon.com

The flags used in Figure 6, Figure 7, Figure 8 and Figure 10: www.flaticon.com

Use of the ECA logo

The ECA logo must not be used without the ECA's prior consent.

HTML	ISBN 978-92-849-7907-3	ISSN 10.2865/7076313	doi:10.2865/3802997	QJ-01-26-033-EN-Q
PDF	ISBN 978-92-849-7908-0	ISSN 10.2865/4336017	doi:10.2865/4090025	QJ-01-26-033-EN-N

HOW TO CITE

European Court of Auditors, [special report 20/2026](#) “Improving the energy efficiency of private homes with the RRF – Broad financial support, but weaknesses in the foundations”, Publications Office of the European Union, 2026.

A quarter of energy consumption in the EU comes from residential buildings. The Recovery and Resilience Facility has allocated €43 billion to improving the energy efficiency of these buildings and reducing energy consumption. Our work identified shortcomings in the set-up of the measures, which did not directly target deep renovations. We also found delays in implementation and weaknesses in monitoring the measures' performance. Information on energy savings was not reliable, comparable or detailed enough and the cost-effectiveness of building renovations was not tracked. Our recommendations aim to improve the targeting of renovation measures, the reliability of reported energy savings and the evaluation of the measures' results and cost-effectiveness.

ECA special report pursuant to Article 287(4), second subparagraph, TFEU.



EUROPEAN
COURT
OF AUDITORS



Publications Office
of the European Union

EUROPEAN COURT OF AUDITORS
12, rue Alcide De Gasperi
1615 Luxembourg
LUXEMBOURG

Tel. +352 4398-1

Enquiries: eca.europa.eu/en/contact
Website: eca.europa.eu
Social media: @EUauditors



REPLIES OF THE EUROPEAN COMMISSION

TO THE EUROPEAN COURT OF AUDITORS' SPECIAL REPORT

on Improving the energy-efficiency of private
homes with the RRF

Contents

I. THE COMMISSION'S REPLIES IN BRIEF.....	2
II. REPLIES TO THE RECOMMENDATIONS.....	5
Recommendation 1: Improve the targeting of renovation measures	5
Recommendation 2: Transparently report on savings and evaluate the RRF measures to improve the energy efficiency of residential buildings.....	6
Recommendation 3: improve performance tracking of energy savings.....	7
III. REPLIES TO OBSERVATIONS.....	7
1. Targeting of deep renovations (paragraphs 17-26).....	7
2. Definition and impact of reforms (paragraphs 27-31).....	8
3. Result- and output-based targets (paragraphs 32-35).....	9
4. Revision of complex measures and implementation delays (paragraphs 36-40).....	10
5. Cost-effectiveness (paragraphs 62-69)	10

This document presents the replies of the European Commission to observations of a Special Report of the European ECA of Auditors, in line with Article 265 of the [Financial Regulation](#) and to be published together with the Special Report.

I. THE COMMISSION'S REPLIES IN BRIEF

The European Commission takes note of the European Court of Auditors' (ECA) Special Report on 'Improving the energy efficiency of private homes with the RRF'. The Commission welcomes the Report's conclusion that the Recovery and Resilience Facility has provided broad support for improving the energy efficiency of residential buildings. The Commission notes that many of the ECA's findings relate to the design of the RRF legal framework, such as the explicit legislative choice to use a performance-based model without reporting on actual costs.

The RRF supports more than 2800 Member State specific reforms and investments. Overall, there are 419 (sub)measures dedicated across the RRFs to energy efficiency improvements, consisting of 359 investments and 60 reforms. They have an estimated cost of almost EUR 80 billion, of which EUR 44 billion are allocated specifically to energy efficiency measures in residential buildings. The ECA focused on a sample of these measures in four Member States. Through targeted investments in energy efficiency renovations, the RRF is helping households, including energy poor or vulnerable ones, to significantly reduce their energy consumption and, as a result, their energy bills. In this light, the Commission welcomes ECA's conclusion that several of the investments in its sample were met with high demand and are progressing fast, such as building renovations in Belgium and Italy and the installation of photovoltaic (PV) panels in Cyprus.

The Commission agrees with the ECA that the RRF Regulation does not mention 'deep renovations', and that the measures selected by the ECA for this audit did *'not directly target deep renovations'*¹. The choice of which measures to include in their RRFs lies with the Member States, and a specific focus on deep renovations may not always be feasible. There is no legal requirement for Member States to achieve a minimum percentage of energy savings through renovation measures in their national plans, nor that they should focus specifically on deep renovations. However, Member States have targeted deep renovations in various national calls, alongside medium-depth renovations, even where this was not a formal requirement in the adopted plans (for example Cyprus and France). Furthermore, the Commission underlines that the RRF has significantly improved the climate tracking methodology compared with previous methodologies used under other EU funds. Based on this new tracking methodology, the RRF framework provides a clear incentive for Member States to include energy efficiency measures in their plans through a 37% climate target requirement, and in particular measures reaching at least 30% energy savings.

The special report states that *'both the RRF Regulation and the Commission's guidance lacked clear definitions of what constitutes a reform, leading to inconsistencies across the RRF plans'*². The Commission notes that a key strength of the Recovery and Resilience Facility lies not only in providing support for investments, but also in requiring Member States to implement reforms. While the type of reforms necessary can vary significantly across Member States, as the ECA has previously recognised³, the Commission provided guidance⁴ on the RRFs to the Member States already in 2021, which describes the characteristics of a reform. In addition, as also noted previously by the ECA, the effects of reforms may take time to be felt on the ground⁵. The Commission notes that while there is no binding definition of what constitutes a reform, the special report also provides several

¹ Subtitle, and Paragraphs 6 and 17-26

² Paragraphs 8, 28

³ Special Report 10/2025, paragraph 25

⁴ Guidance to Member States on the Recovery and Resilience Plans, 22 January 2021, SWD(2021)12; pages 33-36

⁵ ECA Review 02/2025

examples that, in the Commission's view, confirm that the RRF has accelerated changes through national reforms in important areas of energy efficiency.

Furthermore, the special report states⁶ that it *'expected measures to deliver on result-oriented targets, within the set deadlines, due to the performance-based nature of the RRF'*. The Commission recalls, as the special report also recognises⁷, that Member States were not required to set result-oriented targets. Instead, the RRF Regulation explicitly requires RRF milestones and targets to measure *'progress towards the achievement of a reform or an investment'*⁸, which means the implementation steps rather than the specific results that may take more time to materialise. On this basis, the Commission guidance to Member States specified that milestones and targets should *'remain within the control of the Member State and [...] not conditional on external factors such as the macroeconomic outlook'*⁶. While the Commission encouraged Member States to put result indicators forward where possible, they were neither required by the legal basis nor by the Commission guidance.

The ECA notes⁹ that it *'assessed the extent to which member states and the Commission kept track of cost-effectiveness during the implementation of the measures'*. On the issue of cost-effectiveness, the Commission would like to state clearly that the principle of efficiency, as referred to in Article 33 of the Financial Regulation, does not require all basic acts establishing spending programmes to make the collection of information on actual costs mandatory. Nor did the RRF Regulation contain such an obligation. The Commission considers that, in line with the legal objective of the RRF Regulation *to provide Member States with financial support with a view to achieving the milestones and targets of reforms and investments as set out in their recovery and resilience plans (RRPs)*¹⁰, the efficiency of the RRF must be assessed by comparing the payments to the Member States against the achievement of the relevant milestones and targets, and the underlying reforms and investments, as set out and approved by the Council¹¹.

The Commission takes note of the ECA's observation that *'complex renovation investment measures faced implementation delays'*¹². At the same time, it recalls that the legal deadline for the completion of milestones and targets is 31 August 2026 and that the timelines in Council Implementing Decisions do not in themselves prejudice whether a milestone or target can still be satisfactorily fulfilled within the RRF timeframe¹³. The implementation of the RRF is still to be completed. In addition, the implementation of the RRF has progressed in a challenging environment marked by multiple crises, such as Russia's unprovoked war of aggression against Ukraine. The resulting energy crisis, high inflation, supply chain bottlenecks, and climate-related disasters have tested the resilience of our citizens and societies.

The ECA states that it *"found significant issues with the reliability and comparability of the information on actual energy savings reported by member states"*¹⁴, in particular with the use of Energy Performance Certificates (EPCs). The Commission recalls that the aim of the RRF is to support

⁶ Paragraph 32

⁷ Paragraph 34

⁸ The RRF Regulation, Article 2(4)

⁹ Paragraph 62

¹⁰ The RRF Regulation, Article 4(2)

¹¹ Special Report, 14/2026

¹² Title to Paragraphs 33-40

¹³ From the Commission replies to ECA's Special Report, 21/2025

¹⁴ Paragraph 55

national investments and reforms across a vast array of policy fields, and it is not specifically designed to set up comparisons or for long-term monitoring related to very specific policy areas. EPCs are one of several tools through which Member States demonstrate that renovation measures delivered meaningful improvements in the renovated housing stock and are identified in the Delegated Regulation 2021/2106 as one of the means for documenting interventions. EPCs thus help to assess the effect of a specific intervention but, as the ECA points out¹⁵, *‘they were not specifically designed to reliably calculate measure actual energy savings achieved by a publicly funded measure’* nor *‘to be used for comparing buildings across Member States’*¹⁶. EPCs are widely recognised asset-rating instruments endorsed by the Parliament and the Council. Their methodology is firmly anchored in the framework established by the Energy Performance of Buildings Directive (EPBD), which lays down explicit requirements regarding quality, reliability and independent control systems. EPCs are therefore an appropriate and robust tool for assessing improvements in the energy performance of buildings resulting from specific RRF-supported interventions. Such improvements generate multiple benefits including energy savings, reduced emissions and improved thermal comfort for citizens, i.e. address energy poverty. In addition, national legislation and support schemes across Member States are already structured around the EPC framework, further reinforcing its reliability and consistency as a verification tool. The Commission considers that an expectation to measure actual energy savings is neither supported by the RRF nor the EPBD legal framework, the latter of which was further reinforced when the Directive was recast in 2024. In addition, the Commission is of the view that the precise amount of energy saved through a renovation is by definition an estimate. No method can take into account all potential factors, such as future changes in occupancy, residents’ behaviour or weather and climate conditions.

The ECA also states that *‘the Commission does not clearly indicate that the information on savings is based on theoretical calculations which do not sufficiently reflect actual savings’*¹⁷. Nor does the Commission *‘check the figures more in detail, limiting the possibility of carrying out adequate performance monitoring’*¹⁸ and that *‘the Commission cannot use this type of information [...] to address issues promptly at measure level’*¹⁹. The Commission recalls that prior ECA reports correctly recognised that it is the role of milestones and targets to measure the progress in implementing individual reforms and investments, while the purpose of the common indicators is to report progress and facilitate monitoring and evaluation of the RRF overall²⁰. The RRF Regulation states that the data on the common indicators is not meant to provide a performance management tool for individual measures. The Commission further recalls that, under the RRF Regulation, it is the Member States’ responsibility to report data on the common indicators to the Commission. While the Commission is not empowered to unilaterally alter national data, it performs checks and requests corrections whenever inconsistencies are identified. To help national authorities with the reporting, the Commission has provided guidance and requested clarifications and corrections of the data where needed following the basic plausibility checks performed. The Commission is therefore already going beyond the requirements of the Regulation. The possibility that common indicators’ data includes estimates and the reference to the delegated act, which in turn mentions the use of EPCs as an example, are referenced on the relevant page of the Recovery and Resilience Scoreboard.²¹ The

¹⁵ Paragraph 44

¹⁶ Paragraph 46

¹⁷ Paragraph 13

¹⁸ Paragraph 13.

¹⁹ Paragraph 57.

²⁰ Special Report 13/2025, paragraph 22.

²¹ https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/common_indicators.html

Commission acknowledges that further information could be added to the Scoreboard to enhance transparency.

The Commission recalls that the cost-effectiveness of support for energy renovation measures depends on the specific analytical question and various factors, including the initial condition of the housing stock, the limited capacity of households to finance renovations independently, and the specific market conditions. On the 'Superbonus' investment, the special report states that *'the Italian Superbonus measure, [...] which covered up to 110 % of costs incurred by recipients, was not in line with the principles of sound financial management'*²². The Commission would like to clarify that the Italian RRP included only an estimated cost of EUR 13.95 bn²³ out of an overall EUR 132 bn in actual costs implemented and funded by the Italian state. Therefore, for the part covered by the RRF, the overall estimated costs assessed by the Commission were around 10.6% of the total costs incurred by Italy for this national measure. The Union budget thus did not cover 110% of the costs incurred by either Italy or the final recipients. The Commission further notes that the inclusion of this measure in the Italian RRP was decided in the specific context of the COVID-19 pandemic. In setting-up future funding instruments and related support decisions, the Commission will draw lessons from the policy design of this type of tax credit measures.

II. REPLIES TO THE RECOMMENDATIONS

Recommendation 1- Improve the targeting of renovation measures

When assessing the measures for the renovation of residential buildings proposed for financing under the next MFF, the Commission should check the extent to which the member states:

- a) include deep renovations;***
- b) set a clear target for each appropriate individual measure in terms of the energy savings to be achieved, to track performance across measures and member states and facilitate aggregation. The target should be well substantiated and be coherent with the design of the measure, the funding provided and the initial baseline situation and needs.***

(Target implementation date: 2027)

The Commission **partially accepts** recommendation 1a.

The Commission stresses that it cannot prejudge the outcome of the negotiations in the interinstitutional process on the Commission's legislative proposals for the next MFF.

The Commission has included a dedicated tracking and performance monitoring for deep, medium and light renovations in its proposal for the Performance Regulation 2028-2034 for the next

²² Paragraph 14.

²³ Official national data, ENEA, April 2026, [Report dati mensili_30_04_2026.ods](#)

Multiannual Financial Framework (MFF)²⁴. Deep renovations implemented by Member States in the context of national and regional partnership plans (NRPPs) are proposed to be identified through specific dedicated intervention fields included in Annex 1 of the Performance Regulation. In general, the Commission considers energy efficiency renovations of any depth, wherever possible, an important step towards competitiveness, affordability, and energy independence, and towards achieving the EU's climate ambition. The proposed performance framework will be subject to the outcomes of the ongoing discussions between co-legislators.

The Commission **partially accepts** recommendation 1b.

The Commission stresses that it cannot prejudge the outcome of the negotiations in the interinstitutional process on the Commission's legislative proposals for the next MFF.

The Commission proposal for the Performance Regulation provides concrete output and result indicators linked to individual intervention fields to measure the effects of EU funding on the ground with relevant indicators matching the activity that is being financed. Among these, linked to energy efficiency renovations, the achieved energy savings forms part of the list of indicators. In this way, if adopted by the co-legislators, a standardised approach for aggregation of data would be achieved. The Commission considers it vital that targets which represent payment conditions reflect indicators that can be demonstrated timely. The Commission proposal for the Performance Regulation includes a variety of related indicators that could be chosen to set targets associated with energy efficiency measures to allow for the most appropriate indicator to be used while still allowing for a large degree of aggregation.

Recommendation 2 - Transparently report on savings and evaluate the RRF measures to improve the energy efficiency of residential buildings

In order to better assess the results of the RRF energy efficiency measures for residential buildings, the Commission should:

- a) disclose further information on the methodology used for common indicator 1, and explain how it affects the reliability of savings reported by member states;***

(Target implementation date: end 2026)

- b) evaluate the results and cost-effectiveness of the measures for the energy efficiency of residential buildings to draw lessons for future programmes, in particular regarding the appropriate level of public support for renovation measures.***

(Target implementation date: end 2028, in the Commission's ex-post evaluation of the RRF)

The Commission **accepts** recommendation 2a.

²⁴ Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing a budget expenditure tracking and performance framework and other horizontal rules for the Union programmes and activities, COM(2025) 545 final, 16 July 2025.

While the Commission stresses that the data on common indicators is reported by the Member States and remains under their responsibility, the Commission agrees to disclose further information on the methodology for reporting data on common indicator 1 on the Recovery and Resilience Scoreboard.

The Commission **partially accepts** recommendation 2b.

The Commission accepts to evaluate, to the extent possible, results in the area of energy efficiency of residential buildings in the context of the ex-post evaluation of the RRF. It will draw lessons for future programmes where relevant.

In relation to the suggested evaluation of cost-effectiveness, the Commission recalls its reply to recommendation 2a of Special report 14/2026: *'In line with the specific objective of the Facility, the RRF provides Member States with financial support to achieve a comprehensive plan of reforms and public investments. Reforms generally have no direct implementation costs but nonetheless must be completed to receive RRF payments. In line with this design, any assessment of the RRF's efficiency must necessarily be based on EU- level payments and their impact on reaching the RRF's specific objective to support implementation of the national plans. The Commission also recalls that the RRF Regulation does not require any specific cost-based reporting by the Member States and explicitly precludes Commission controls on actual costs.'* The Commission's ex-post evaluation of the RRF will analyse the efficiency of the instrument based on its legal base.

Recommendation 3 - improve performance tracking of energy savings

For the next MFF, in order to improve the performance tracking of energy savings, the Commission should:

- a) improve the methodology for reliably reporting on the energy saved by renovation measures, including by taking into account the difference between the estimated and actual energy savings;**
- b) collect reliable information for each relevant measure on the results achieved and amounts paid (EU, member state and private financing).**

(Target implementation date: December 2027)

The Commission **partially accepts** recommendation 3a.

The recent review of the Energy Performance of Buildings Directive includes important measures to improve the reliability of both EPCs and the assessment of energy performance. The Commission will work together with Member States to support the transposition and implementation of these measures, including on improvements to better reflect the influence of users. The Commission notes, however, that the Commission and Member States are bound to the legal framework, which provides both common elements and a large degree of flexibility.

The Commission **partially accepts** recommendation 3b.

The proposal for the Performance Regulation for the 2028-2034 MFF ensures that measures tracked through the intervention fields in Annex 1 of the proposed regulation are clearly identified in terms of the activity financed. Through output and result indicators linked to these intervention fields, it is ensured that relevant indicators are reported on and track the achievement of the individual measure and the EU budget, including its results. Information on amounts paid will depend on the concrete system of individual programmes, with a payment not linked to cost system applying a different

approach regarding amounts paid, which is not directly linked to individual measures and will not be reported on in this regard.

The Commission underlines that it cannot prejudge the outcome of the negotiations in the interinstitutional process on the Commission's legislative proposals for the next MFF.

III. REPLIES TO OBSERVATIONS

1. Targeting of deep renovations (paragraphs 17-26)

ECA concludes that '*RRF renovation measures do not directly target deep renovations*²⁵ and notes that the RRF Regulation does not refer to "deep renovations" as a specific concept²⁶. The Commission notes that, in line with the RRF Regulation, there is no specific expectation that energy efficiency renovations included in the RRP must be such 'deep renovations'. While it is true that there are only limited instances where deep renovations are explicitly mentioned in final targets of adopted plans, this does not mean that deep renovations were not supported by RRF measures. Member States have targeted deep renovations in various national calls, alongside medium-depth renovations, even where this was not a formal requirement in the adopted plans (for example Cyprus and France). The choice whether to include deep renovation measures in the RRP is at the discretion of the Member States, and there is no legal requirement for Member States to do so. The RRF Regulation includes a climate tracking methodology, which assigns measures to an 'Intervention Field'. This includes a possibility for light renovations, under intervention field 025²⁷, and for medium or deeper renovations, under intervention field 025bis²⁸. Thus, both light and medium or deeper renovations are specifically catered for.

The RRF Regulation provides incentives for including medium (or deeper) renovation measures, by requiring Member States to reach a 37% climate expenditure requirement and by considering that only renovations that achieve, on average, at least 30% primary energy savings are counted at 100% towards this target (under intervention field 025bis). All other renovations are only counted as 40% under intervention field 025. This constitutes a major improvement compared to the previous methodology used under cohesion funds. Furthermore, the 30% primary energy savings is only a minimum requirement and therefore does not prevent Member States from setting more ambitious objectives, including deep renovations. As noted by the ECA, *the RRF mostly financed medium-depth renovations*²⁹.

The ECA also states that "Financing renovations that do not substantially increase the building's energy performance risks creating a lock-in effect"³⁰ and that "Prioritising medium or light renovations diverted member states' focus away from securing long-term energy savings through deep

²⁵ Subtitle to Paragraphs 17-26

²⁶ Paragraph 6

²⁷ RRF Regulation, Annex VI: Methodology for Climate Tracking: Energy efficiency renovation of existing housing stock, demonstration projects and supporting measures

²⁸ RRF Regulation, Annex VI: Methodology for Climate Tracking: Energy efficiency renovation of existing housing stock, demonstration projects and supporting measures compliant with energy efficiency criteria: If the objective of the measure is to achieve, on average, at least a medium-depth level renovation as defined in Commission Recommendation on Building Renovation (EU) 2019/786. The renovation of buildings is also meant to include infrastructure in the sense of intervention fields 85 to 92.

²⁹ Paragraph 5

³⁰ Paragraph 24

renovations; it also risks creating lock-in effects in the future³¹. The Commission notes that light and medium depth renovations can constitute a meaningful step on their own and, as recognised by the ECA,³² especially if planned in a coherent way as part of a phased renovation pathway. Due to their characteristics, deep renovations are not always a feasible solution for the RRF measures, especially under the limited timeframe of the RRF.

2. Definition and impact of reforms (paragraphs 27-31)

With regard to the ECA's finding that *'Reforms were not clearly defined and their effect on investments and energy savings has not been demonstrated'*³³, the Commission agrees that the Regulation itself does not provide a precise definition of what constitutes a reform or an investment. At the same time, in 2021, to support Member States in the preparation of their plans, the Commission provided Guidance to Member States³⁴ on the key characteristics of reforms and investments. While reforms and investments are mostly distinct measures, in some cases an individual reform contains investment elements, or an investment contains elements of a reform.

The Commission would like to stress that the RRF is a major driver of reform efforts in energy efficiency, ensuring that the benefits of the RRF extend well beyond 2026. This is in spite of the fact that the direct impact of reforms is inherently difficult to measure. Reforms across the RRFs relating to energy efficiency in buildings have accelerated changes in three main areas³⁵: the introduction of long-term renovation strategies and of binding requirements for energy efficiency; regulatory and administrative frameworks such as reforms to simplify procedures for energy efficiency renovations; the creation of one-stop-shops to provide assistance and training to support citizens to pursue energy efficiency renovations. Reforms address a wide scope of areas, such as lowering mandatory thresholds for decision-making in multi-family apartment buildings, establishing digital or physical one-stop-shops for energy efficiency renovations, and introducing innovative ways of financing energy efficiency renovations that improve the leverage of private investments. By combining reforms with investments, the RRF enables millions of dwellings and square meters of residential buildings to undergo energy efficiency interventions.

3. Result- and output-based targets (paragraphs 32-35)

The Commission notes the ECA's finding that *'the quantitative targets for the audited measures included in the NRPPs mostly focused on output (e.g. number of renovations or renovated area), rather than results'*³⁶. The ECA considers that *'this limits the possibility for the Commission to assess the results of the measures and evaluate the performance of the RRF in the field of energy efficiency'*³⁷. The Commission recalls that in line with the RRF's design as a performance-based instrument, the RRF Regulation explicitly envisages that the performance of Member States in implementing their RRFs is to be measured based on their *progress* to implement the reforms and investments, as measured through concrete and practical milestones and targets.³⁸ Furthermore, given that the ultimate impact and results of measures may depend on factors other than the Member States'

³¹ Paragraph 26

³² Paragraph 6

³³ Sub-title to paragraphs 27-31

³⁴ The Commission Guidance to Member States on Recovery and Resilience Plan, 21 July 2021, SWD(2021) 12 final

³⁵ European Commission, factsheet on the Impacts of the Recovery and Resilience Facility: Energy Efficiency, November 2025.

³⁶ Paragraph 35

³⁷ Paragraph 35

³⁸ RRF Regulation, Article 2(4)

actions, they are in most cases not suitable as payment conditions, which should be within the control of the Member States themselves.

The Commission also notes that output indicators associated with RRF measures can be translated into meaningful impact indicators. This can be seen, for example, in the NextGenerationEU green bond reporting³⁹ and dissemination activities on the RRF's impact on the green transition⁴⁰. In November 2025, the Commission published a factsheet on the impact of the RRF on energy efficiency and estimated that, for the residential sector alone, RRF measures are projected to lead to annual energy savings of 18.2 terawatt hours, equivalent to a yearly primary energy consumption of more than 1.2 million households. Savings for households, which will be dependent on the energy mix of the Member States, are modelled to be up to EUR 3.8 billion per year and up to EUR 881 for each household on average.⁴¹ A recent Commission publication quantifying the contribution of the RRF to reducing greenhouse gas emissions in the EU furthermore notes that investments focusing on energy efficiency, which includes support provided for the renovation of residential housing, have the potential to generate annual emission savings of more than 19 million tonnes of CO₂ equivalent.⁴²

4. Revision of complex measures and implementation delays (paragraphs 36-40)

The ECA observed that *'despite revisions, some RRF measures risk not being completed within the RRF deadlines, which can affect the results achieved.'*⁴³ The Commission recalls that each RRP revision, including the revised milestones and targets, put forward by the respective Member State is assessed on the basis of available evidence and in line with Article 19 of the RRF Regulation. As set out in the Commission's guidance, revisions must not reduce overall ambition, particularly regarding country-specific recommendations and green and digital objectives⁴⁴. To mitigate the risk of non-completion, Member States were invited to review their plans comprehensively, revise the estimated costs accordingly and ensure that only measures that can be fully implemented by the 31 August 2026 deadline remain in their RRP⁴⁵.

The ECA notes that some measures supporting 'one-stop-shops' in the Member States were not operational, noting that *'the platforms were not entirely ready to provide tailored advice to citizens'* and or had a *'need for additional features to be deployed'*⁴⁶. The Commission is of the view that the platforms are operational and that, for both physical and digital 'one-stop-shops', additional features and services can always be added throughout time. In relation to the Cypriot measure analysed by the ECA, the Commission notes that the Cypriot platform was operational, including all functionalities expected by the milestone set by the Council Implementing Decision for this measure. For the

³⁹ https://commission.europa.eu/document/download/402c1eae-6127-4982-bd78-ed8a1a1b427a_en?filename=2025%20NGEU%20Green%20Bonds%20Allocation%20and%20Impact%20Report.pdf

⁴⁰ See under the section "Green impact" at this link: https://reforms-investments.ec.europa.eu/recovery-and-resilience-facility-1/rrf-impact_en

⁴¹ European Commission, factsheet on the Impacts of the Recovery and Resilience Facility: Energy Efficiency, November 2025 (Data cut-off: March 2025).

⁴² [The Contribution of the Recovery and Resilience Facility \(RRF\) to Reducing Greenhouse Gas Emissions in the EU, June 2026](#)

⁴³ Paragraph 10.

⁴⁴ Commission Guidance on recovery and resilience plans, C/2024/4990, respectively pages 3 and 6

⁴⁵ Commission Communication *NextGenerationEU – The road to 2026*, COM(2025) 310 final/2 (2025), available at: [ad5f00c9-4101-41a0-9d8f-e78f06c0c7ed_en](#).

⁴⁶ Paragraph 38

Lithuanian measure analysed by the ECA, the Commission also notes that all legal expectations have been met.

5. Cost-effectiveness (paragraphs 62-69)

The special report states that *'neither the Commission, nor the selected Member States tracked the cost-effectiveness of the measures implemented, as this is not required by the RRF Regulation.'*⁴⁷ The Commission notes that the Regulation indeed explicitly states that the *'payments should not be subject to controls on the costs actually incurred by the beneficiaries'*⁴⁸. The RRF's specific objective is *'to provide Member States with financial support with a view to achieving the milestones and targets of reforms and investments as set out in their recovery and resilience plans'*⁴⁹. As noted in the Commission replies to Special Report 14/2026⁵⁰, the efficiency of the RRF should accordingly be assessed by comparing the payments to the Member States against the achievement of the relevant milestones and targets, and the underlying reforms and investments, as set out and approved by the Council. Furthermore, Member States have the possibility to submit actual cost data to justify RRP revisions. In such situations the Commission duly considers this data to assess the reasonability and plausibility of the overall RRP and requests further clarifications and evidence from the Member States when needed. In particular, the Commission informed Member States, as noted in the Guidance on REPowerEU chapters⁵¹, about the possible use of a major increase of actual incurred costs versus the original estimate as an objective circumstance justifying the revision of an RRF measure.

In this context, the special report also notes some cases where the initial cost estimates were *'overestimated'*⁵² compared with actual costs now incurred. The Commission observes that differences between initially estimated costs and evolving implementation costs do not, in themselves, demonstrate *'overestimation'*. Cost estimates are prepared *ex ante* under uncertainty and are affected by implementation dynamics (e.g. project pipeline maturity, procurement outcomes, unit cost evolution, and revisions justified by objective circumstances). As acknowledged by the report⁵³, prior audit work has also identified cases where implementation costs were higher than estimated. While neither situation is favourable, such differences are an expected feature of a performance-based system, which provides a clear incentive for Member States to implement measures cost effectively. Where the Commission became aware of major cost savings under a specific measure, it requested that the respective Member State to address this when revising its RRP.

⁴⁷ Paragraph 63

⁴⁸ RRF Regulation, Recital 18

⁴⁹ RRF Regulation, Article 4(2)

⁵⁰ Commission replies to ECA Special Report 14/2026

⁵¹ Commission Notice Guidance on Recovery and Resilience Plans in the context of REPowerEU 2023/C 80/01, page 11.

⁵² Paragraph 68

⁵³ Paragraph 69