



EVALUATION OF THE IMPLEMENTATION OF MEASURES TO STRENGTHEN THE TRANSITION TO A **LOW CARBON ECONOMY (OT4)**

Final Report - Executive Summary

November 24th 2020

co-financed by:



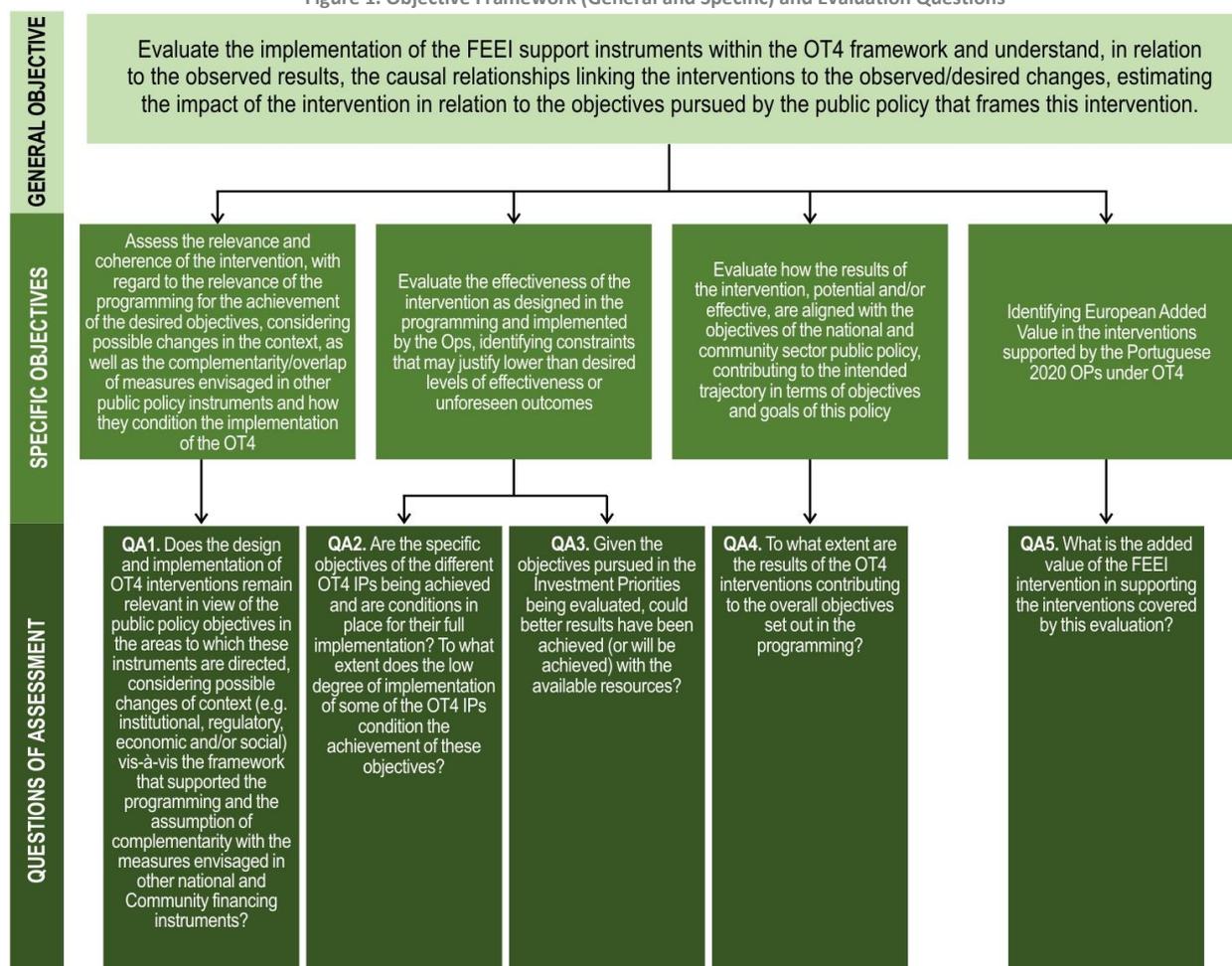
CONTENTS

1. OBJECTIVES.....	3
2. OBJECT.....	3
3. METHODOLOGY.....	4
4. MAIN FINDINGS IN RESPONSE TO THE EVALUATION QUESTIONS	5
5. RECOMMENDATIONS	9

1. OBJECTIVES

1. The **Evaluation of the implementation of measures to strengthen the transition to a low carbon economy (OT4)** was a process evaluation, mainly oriented towards "*improving the quality of the preparation and implementation*" of the operations supported by the Operational Programme Sustainability and Efficiency in the Use of Resources (POSEUR) and by the Regional Operational Programmes (ROPs) of the Continent and the Autonomous Regions under Thematic Objective 4 (OT4) - Supporting the transition to a low carbon economy, focusing on the design and implementation of operations, the effectiveness and efficiency of their process and their ability to trigger the mechanisms that lead to the desired change in public policy. At the same time, it has been assumed as an impact assessment, in this case oriented towards "*determining the effectiveness, efficiency and impact*" of operations supported by OT4, focusing on their contribution, potential or practical (depending on the results already observable), to the fulfilment of national commitments for the reduction of national Greenhouse Gas (GHG) emissions by reducing the carbon intensity of the economy.
2. The following figure summarises the context, objective structure (general and specific), and Evaluation Questions (EQ) of the evaluation exercise.

Figure 1. Objective Framework (General and Specific) and Evaluation Questions



Source: CEDRU/EY-AM&A, based on the Terms of Reference

2. OBJECT

3. The evaluation was based on OT4 and its Investment Priorities (IP) and Types of Operation (TO) mobilised by POSEUR and the OPs of the mainland and the Autonomous Regions, financed by the Cohesion Fund (CF) and the European Regional Development Fund (ERDF). The territorial scope of the programme was the five NUTS II regions of the mainland and the two Autonomous Regions, and the period between the start of implementation of Portugal 2020 (2014) and May 2019.

Table 1. Investment Priorities associated with the OT4

Intervention Priorities (IP)	OP	Types of Operation (TO)
4.1 Promotion of the production and distribution of energy from renewable sources	POSEUR	» Diversification of energy supply sources of renewable origin
	OP Azores	
4.2 Promotion of energy efficiency and the use of renewable energy in enterprises	ROP	» Investments in energy efficiency measures and use of renewable energy in enterprises
4.3 Support for energy efficiency, intelligent energy management and the use of renewable energy in public infrastructure, in particular in public buildings and in the housing sector	POSEUR	» Investments in central public administration (energy performance contracts - ECO.AP) and operationalization of the Energy Efficiency Policy in private housing
	ROP	» Investments in local public administration (including street lighting) » Energy Efficiency Policy in Social Housing
4.4 Development and deployment of intelligent energy systems	POSEUR	» Intelligent energy systems
4.5 Promoting low carbon strategies for all types of territories, including urban areas, including the promotion of sustainable multi-modal urban mobility and adaptation measures relevant for mitigation	POSEUR	» Operations to improve the electric mobility network » Promoting energy efficiency in public passenger transport » Energy diversification, including the promotion of renewable energy sources, in the public passenger transport sector
	ROP	» Mobility plans » Operations in the area of sustainable mobility

Source: CEDRU/EY-AM&A, based on Partnership Agreement 2014-2020 (2019)

3. METHODOLOGY

4. The evaluation was organised in four phases. Considering the number of instruments and objectives and the size of the Theory of Change (ToC), it was mobilized a wide range of methods.
5. The first phase contemplated the deepening of the evaluation object and the construction of the investigation tools (scripts for interviews, surveys, and case studies). In the second phase, was collected the information (32 entities interviewed: 500 responses to the five survey typologies). The third phase included collecting evidence using case studies (15 case studies selected, interviews with promoters, and a Focus Group with beneficiaries and relevant local and sectoral actors). The results and preliminary conclusions and recommendations were discussed at the end of this phase in seven regional webinars. The fifth phase comprises the validation and possible re-wording of the framework of the findings and recommendations presented above.
6. The mobilization of these methods throughout the various phases sought not only to ensure a comprehensive collection of evidence related to the multiple instruments and TO that structure the programmatic architecture of OT4, but also a triangulation of distinct perspectives.
7. Thus, the main methods used in the collection of information are: i. documentary collection (collection of framework documents and regulations of Community and national public policy in the field of decarbonization of the economy, including the programmes, rules, and AAC that compete for OT4, as well as the collection of qualitative information in the operations files, when relevant, and documents relating to other funding mechanisms and incentives for the implementation of activities within the framework of public policy); ii. the collection of data and statistics (collection of quantitative information - data and indicators - which highlight and allow for a detailed analysis of the performance of the OPs implementing OT4, their achievements, results, and impacts, as well as the evolution of the sectoral and territorial context); iii. Benchmarking (review of the literature and public policies recently developed and implemented in the European area aiming to incorporate renewable energies into the energy mix and increasing energy efficiency and the performance of other programmes at the European level, with similar characteristics); iv. the semi-structured interviews (involving actors who participated in the design and management of the WP2020 and the respective OT4 implementation OPs, entities responsible for the definition and monitoring of sectoral policies for the domain under evaluation, as well as other relevant sectoral actors); v. the case studies (collection of the relevant documents relating to each operation subject to the case study, semi-structured interviews with the entities promoting the operations and holding Focus Group sessions with the relevant territorial and sectoral actors); vi. the survey of beneficiaries.
8. For the latter, the inquiry process used as a base unit the promoter/TO, which corresponded to a stratified sampling by five key operation typologies. The high number of responses obtained (500, representing a response rate of over 80%) and the fact that the sample's representativeness was ensured in all typologies (95% confidence level and 5% error margin) should be noted.

Table 2. Results of the Inquiry Process

Typology	Universe		Sample - 95% confidence level and 5% error margin (no.)	Responses (no.)	Response rate (%)
	Promoting entities (no.)	Operations (no.)			
A. Production and distribution of renewable energy sources	9	16	9	9	100,0
B. Energy efficiency in public infrastructure	272	664	160	231	84,9
C. Energy efficiency in social housing	65	131	56	56	86,2
D. Energy efficiency in public transport	37	50	34	34	91,9
E. Sustainable urban mobility	239	680	148	170	71,1
Total	622	1.541	407	500	80,4

Source: CEDRU/EY-AMA (2020)

9. It is noted that the implementation of the evaluation exercise was slow in the first phase (Initial Report) due to the need to define a ToC with a high range of critical dimensions, which was not explicit in the programming documents and in which the current key actors were not present or were not mobilised during the programming process. This high range of dimensions interfered with the implementation of the evaluation, making it complicated in the methodological design phases and time-consuming in the development of the research, namely due to the difficulty in gathering evidence for such a wide range of assumptions and risks of the ToC and the problem in ensuring levels of response to the surveys, which would guarantee their representativeness (the unfolding of the surveyed universes into five large ToC, placed enormous demands on the survey process, especially in ToC where, given the small number of beneficiaries, ensuring the representativeness of the sample implied their total or almost total mobilisation for the process). In the latter case, thanks are due for the effort and high commitment of the management and technical support structures of the OPs, in particular POSEUR, which at various times sought to mobilise and encourage the participation of beneficiaries in the inquiry process, making it possible to ensure the statistical representativeness of the process.

4. MAIN FINDINGS IN RESPONSE TO EVALUATION QUESTIONS

10. The approach advocated in OT4 concerning the activities and sub-activities underpinning the chain of impacts that structures TdM is coherent and fully aligned with the policy mix in the field of decarbonisation of the economy and its contribution to the achievement of the intended objectives (highlighted in the international - EE2020/energy-climate 2020 benchmarks - and national - the NEEAP 2016 and NREAP 2020 and, more recently, the PNAC 2020/2030 and RNC2050).
11. The existence of various public policy planning instruments developed in recent years allowed for the critical dimensions of the OT4 programming chain (renewable energy production and energy efficiency) to have strategic and programmatic benchmarks to guide the needs, challenges, and opportunities to be pursued in the national territory (as well as the goals to be achieved and the structuring actions to be developed) and whose operationalization derived from the best pursuit and use of community support. Thus, because of alignment with the structuring actions/measures established in the public policy and sector planning instruments, the activities and sub-activities have, in general, been achieved and maintain their current relevance. It should be noted, however, that to meet the targets and objectives set out in the new instruments (PNAC 2020/2030 and RNC2050) for reducing GHG emissions (more ambitious than the EE2020/energy-climate 2020 package), there are vital dimensions that are not currently within the scope of OT4 support and whose sectoral objectives are critical: agriculture, fisheries, forestry, waste (including wastewater) and, more broadly, the circular economy. Within this framework, it will be essential for them to continue integrating and being part of the Community funding to be made available in the next cycle of support. Still, they must be given another degree of priority and focus, central components of the investments to be made (improvement of EE/reduction of GHG emissions). The change in the energy matrix with more renewable energies and more significant investment in low-carbon assets requires more excellent investment in digital technologies to increase efficiency and lower emissions, also in these sectors.
12. As a result of TO alignment with the State Budget and, in part, with potential beneficiaries' needs, the activities and sub-activities have been achieved. They are generally leading to the expected outputs. However, significant time lags in their full operationalisation have been signalled on the one hand. In some regions, the specific TO associated with the soft mobility activity and promotion of a low carbon urban environment (IP 4.5) are not being operationalised on the other, due to their inadequacy to regional specificities.
13. The little listening or participation of certain key actors in the programming process did not allow for the anticipation of potential constraints and different behavioural aspects, with subsequent impact on their mobilisation (IP 4.2 and IP 4.3). Beneficiaries such as companies and municipalities in the absence of active participation, requests for contributions and even knowledge about the programming process, the priorities, and objectives to be pursued, conditioned their mobilisation. However, the main inhibiting factors of this mobilization result from the fact that the

conditions of support are not the most attractive and do not meet their expectations, as well as from the thematic areas targeted for help not being assumed as priorities about their most relevant object and perimeter of action (the modality/intensity of support is not sufficient to place the issue at the centre of their investment priorities).

14. In general terms, reprogramming sought to respond to the main difficulties and constraints that marked the operationalisation of achievements and the mobilisation of demand. The poor delivery of the OPs in terms of implementation meant that the reprogramming process of the OPs involved focused on the intervention logic subordinate to their mobilisation, the forms of financing, changes in eligibility, and the inclusion of new target groups of beneficiaries. However, the impact of reprogramming has been generally reduced so far. There are still mismatches (the adjustments made are still insufficient, not fully responding to regional specificities - IP 4.5 and the promoters' expectations - IP 4.3 Local Administration).
15. Some of the support instruments outside the WP2020 are attractive (as they have much fewer rules, do not fall within the limits of public procurement and the associated processes are less problematic). However, this type of support is mostly conditioned by the small amounts made available in energy efficiency and the different support typologies and target groups in electric mobility. In this context, these offers are mainly complementary to the FEEI (they contribute to the promoters' intervention strategies in the fields concerned). However, in EE's case in the residential sector and industry/companies, by financing similar TO, some instruments (PPEC, FEE) are potentially competitive with OT4 (IP 4.2 and 4.3). Support for actions associated with research and innovation activities, fundamental to the promotion of sustainable energy use and a greater focus on RES. In this framework, impacting the definition of TO or achievements under OT4 (IP 4.1) is noted under the FAI and HORIZON 2020.
16. In terms of effectiveness, AACs' launch has not always been developed in a planned and regular manner. Still, the dissemination of support has proved to be useful due to the efforts of the entities involved in the implementation of support in terms of communication and providing clarification to potential promoters. The AACs launched, and the application examination processes are technically complex and demanding, requiring an intense and continuous training of both the entities responsible for programming and implementing the instruments, and the (potential) promoters, which is being progressively built.
17. The operationalisation of a new intervention area for most OPs has required an increased and continued effort in terms of capacity building of the technical structures, the articulation between the entities responsible for its implementation and communication, and proximity to potential beneficiaries. On the part of the promoters, in some cases, the limitations of resources and technical knowledge have been a constraint in the phase of examining applications, which has been remedied by recourse to external consultancy. The articulation and role of the entities responsible for implementing public policy (in particular DGEG and ADENE) have proved to be fundamental in the implementation of the FEEI, but their involvement is not formalised with all the MAs of the funding OPs, occurring in a relatively punctual manner and to cope with phases of the process and specific needs.
18. The AACs' eligibility conditions have not always guaranteed the mobilisation of actors and potential beneficiaries, imposing requirements with different essential and complexity levels among OT4 IPs/TO. The reprogramming process has made it possible to readjust some conditions, eligibility, and targets to be achieved. However, there are still mismatches between the needs and expectations of promoters in the various territories, on the one hand, and the funding possibilities, on the other, with a differentiated intensity between IP/TO, for instance, the requirements and conditions imposed in the TO regarding energy efficiency in housing and public infrastructure (IP 4.3) seem much more demanding than those regarding energy efficiency in transport (IP 4.5), generating also differentiated levels of demand attractiveness.
19. Following the 2018 reprogramming, the possibilities of achieving the contracted outputs and results and the targets set for the OPs are strengthened because they are updated with the state of play of the levels of approval and execution of operations on 31 of May 2019. Still, the reporting as of 31.05.2019 does not yet allow for their effective implementation. With most operations in progress, achievements and results are still quite limited in most IPs/TO. Nevertheless, both the GA of the OPs and the approved project promoters are optimistic and confident regarding the prospects of financial implementation of operations and the achievement of the contractual indicators and the targets set for the OPs.
20. The quantification of the physical implementation indicators, when available, shows a significant gap between the values approved and implemented at the level of achievements for most IPs/TO, which indicates the occurrence of difficulties in the implementation (which is intended to be expeditious) of the approved operations. Simultaneously, the promoters interviewed report less favourable prospects regarding the fulfilment of the project timetable, considering or even requesting a longer time frame for implementation. The low level of achievement of a significant number of physical indicators about their respective targets, together with the constraints encountered in the performance of operations, may effectively jeopardise the achievement of the objectives pursued by the funding OPs by 2023, both financially and physically.
21. The effectiveness of the implementation of support has been promoted through the monitoring of operations, of a preventive and proximity nature, which is developing as management entities and promoters increase their knowledge

and skills in this area. Despite the initiatives designed to date to strengthen preventive monitoring of operations, there seems to be room for improvement if this function effectively promotes their implementation.

22. The procedural process is perceived by most of the entities surveyed as complex and resource-intensive, not only in the submission and decision/approval phases of applications but also in the execution of approved projects. The processes associated with the validation of expenditure are considered bureaucratic and administratively demanding, generating difficulties and implementation delays. The verification and validation of expenditure documents often lead to refusal of acceptance of cost incurred due to non-compliance with the respective eligibility conditions, which could be alleviated by strengthening close monitoring towards the promoters.
23. About efficiency, compliance with ex-ante conditions and the associated Community regulations is noted as an unverified assumption, with an impact on the start-up and operationalisation of support instruments geared towards energy efficiency in the building, reflected in the efficiency of governance of the OPs.
24. The research carried out, and the evidence gathered concerning the verification of assumptions and risks indicate that the resources allocated are globally sufficient. The forms of financing envisaged are adequate, ensuring the efficiency of achieving the objectives pursued.
25. The dissemination of Community support for energy efficiency targeted at private housing has been a critical factor in submitting applications. It is sufficient to overcome the potential difficulty of mobilising FIs as a more leveraged and resource-efficient form of support. The knowledge provided by the various forms of information and dissemination of Community support aimed at energy efficiency for public administration has also contributed to mobilising demand, making it possible to strengthen investment in energy efficiency in building rehabilitation processes.
26. Of the assumptions that were clearly made, all associated with IP 4.3, the mitigation of demand inhibiting market failures for promoting energy efficiency in private housing is noted. FIs have more attractive financing conditions than those provided by the traditional market, facilitating access to credit. The appropriate response to existing market failures has been through the attractiveness of FIs financing conditions and the creation of other conditions that overcome the difficulties of mobilising demand for forms of support that are still little "rooted" in potential promoters, but with greater leverage and more efficient from the point of view of public resources.
27. In parallel, FIs provide the financial leverage of EU incentives at the level of private housing. The advantageous conditions made possible by the FIs compared to those existing in the conventional market allowed their financial leverage. However, the levels are foreseen for the Loan or Equivalent in the Ex Ante Evaluation of the Financial Instruments of Programmes for Portugal 2020: Lot 3 - Financial Instruments for Energy Efficiency and Efficient Water and Waste Management cannot be rigorously measured. However, in the case of the FIs targeted at private housing, average leverage of 1.16 euros of bank funds per 1 euro of public funds was recorded for projects contracted until April 2020 (funding). There was the leverage of 3.07 euros of investment for every 1 euro on average public funds in terms of investment.
28. In the case of the repayable grant, the lack of culture about this form of support has conditioned, at least partially, a quicker reaction of the beneficiaries, inhibiting a faster implementation of operations, even if for the local public administration bodies it is an exciting form of financing to promote investments in public lighting.
29. Regarding public infrastructure, access and eligibility conditions ensure the overall rationality of investments, even if they are of limited effectiveness. It should also be noted that the economic rationality of investment is not called into question by the need for other structural measures to support the technical solutions identified, even if rare situations which could not be improved are signalled. A few constraints on drawing up, implementing, and monitoring contracts with ESCOs are also signalled.
30. However, it is noted that the high potential for energy savings in residential buildings could be leveraged by changing eligibility conditions and especially the form of support (extension of supported expenditure typologies to non-reimbursable grants) and that, in the case of public administration, the appropriateness of eligibility conditions to the objectives of operations could achieve better results.
31. Regarding the capacity to implement the defined technological solutions and their connection to the grid, it is concluded that the FEEI is a vital financing instrument for the support and development of emerging and low-dispersive technologies, but that there is a small number of entities capable of implementing projects of power generation from renewable sources, with tested and low-dispersive technologies. Simultaneously, the requirements for applications in this typology inhibit or make it impossible to submit projects with high potential. Also, the administrative instruction procedures required for applications also demand inhibiting.
32. Even so, only a minority of the supported operations - whatever the form of support - would have been implemented in the absence of the FEEI, thus concluding the general lack of observation of free-riding behaviour. In a scenario of no Community financial support, the investments that would have been made, in small numbers, would have taken place over a more extended period and less monetary expression.
33. The operations supported show significant cost-to-realization and cost-to-result ratios. These disparities in cost-effectiveness ratios may be partly related to difficulties and methodological differences in calculating the indicators. For this reason, another conclusion seems to indicate that better results could be achieved in some operations, thus

contributing more to national targets and public policy commitments for the decarbonisation of the economy, gaining greater leverage of the FEEI.

34. As mentioned above, the interventions supported correspond, to a large extent, to the operationalisation of policy instruments (NEEAP and NREAP) and, in this context, contribute to Portugal's achievement of the objectives identified in the EE2020 about sustainable growth. In a context marked by constraints in implementation, the impact of the supported operations on the fulfilment of national and international commitments regarding reducing GHG emissions by reducing the carbon intensity of the economy has, to date, differentiated powers but are still generally deficient. However, there is an expectation on the part of the managing entities and beneficiaries to achieve the defined results and impacts, and there is already evidence of their contribution to i. greater incorporation of renewable energies in the national energy mix (reduction of energy dependence on the outside); ii. a reduction in the carbon intensity of the economy; and, above all, iii. a reduction in national GHG emissions.
35. Regarding the first impact, there was a positive evolution in the incorporation of renewable energies in the national energy mix in the period 2014-2018, especially in the Azores and the Madeira, with the contribution of renewable resources to the production of electricity reaching 50.8% in 2018 (the production of electricity from renewable energy sources through new technologies or technologies little disseminated in the national territory reached 859.9 MW; an increase of 15.8% between 2014 and 2018, with additional renewable energy production capacity, resulting from the implementation of operations supported by POSEUR and POA, estimated at around 40 MW).
36. Regarding the decrease in carbon intensity in the economy, in 2017, Portugal showed an energy intensity of 104.6 toe/M EUR (the EU-28 average was 111.8 toe/M EUR), reflecting a downward trend compared to previous years. Primary energy savings in urban mobility systems for transport sector savings are around 12.5% (an essential saving for what it represents in meeting the country's target - 10% of energy from renewable sources in the final gross consumption of energy in the transport sector), based mainly on the renewal of public transport fleets for less polluting vehicles and on a consistent and robust commitment to creating conditions for increased electric mobility. However, except for the reduction in primary energy consumption in transport, in the remaining leveraged sectors defined by the NEEAP (business, local and central government, residential), the contribution of OT4 to a consistent and more accelerated decrease in carbon intensity in the economy is not yet achieving the desired impact. It should be noted that in the social housing dimension (PI 4.3 - POR), the most visible and significant effect occurs at the level of comfort and habitability (the central objective should not be to reduce consumption), which has a significant social benefit, including indirect health impacts (it is mainly a question of achieving better results in the quality of life of disadvantaged populations), which is one of the main principles that should guide the implementation of the cohesion and convergence policy.
37. In 2005, a process of "decarbonisation" of the Portuguese economy began (lower carbon emissions per unit of wealth produced). This trend was accelerated until 2010, but between 2010 and 2017, it entered a stabilisation process, mainly as a result of the consolidation of changes in the national energy model to less carbon-intensive forms of energy (use of natural gas; implementation of less polluting fuels in transport; increase in energy produced from renewable energy sources), implementation of energy efficiency measures and stabilisation of GDP, especially between 2013 and 2017. Between 2015 and 2016, national emissions fell by 2.6%, although Portugal reached 70,546,000 tonnes CO₂eq in 2017.
38. The contribution of OT4 to reducing CO₂ emissions appears to be negligible overall, although it is of considerable significance in terms of one of the main emitting sectors (Transport). Nevertheless, the impacting role of other factors (external to OT4) contributing to the observed trajectories (OT4 results and impacts) should be recognised, namely the pro-cyclical behaviour of energy consumption and GHG emissions indicators, recorded not only in Portugal but also in most EU Member States (the dynamics of economic activities, namely in industry and tourism/air transport, was impacting for a further reduction of energy consumption and GHG emissions). The reduction of GHG emissions associated with primary energy savings generated by supported interventions at the public transport fleets and urban mobility systems (39,197 Ton CO₂ eq) is positive.
39. The operationalization of additional financing/regulation mechanisms enhances the results generated (or to be developed) by OT4, leading to more significant impacts in terms of consumption and GHG emissions reductions and, consequently, the targets and objectives assumed by Portugal can be achieved (being the GHF, the PPEC, and the Environmental Fund examples). Most of them were based on energy policy criteria, namely related to the articulation and complementarity between energy policy mechanisms and instruments, contributing to national targets and contributing to European objectives.
40. Most beneficiaries would not have made the investments if they had not obtained the support of the FEEI mobilizable in OT4, so the availability of Community funding, in the forms proposed, was crucial (given the amounts involved, if these possibilities did not exist, some of the operations would not have taken place, at least not in the short term). In this context, the availability of Community financing has allowed a faster and broader scale implementation of operations and has contributed to the pursuit of the country's ambitious public energy policy targets.

5. RECOMMENDATIONS

R.01 Strengthening support to promoters to ensure achievement of OT4 objectives (all IPs)

- » In the implementation of the PT2020, identify the operations with low levels of performance about what was foreseen in the schedule presented in the application, reinforcing the follow-up actions of the respective promoters to support the resolution of possible bottlenecks - bureaucratic, administrative, technical, etc. - which call into question the fulfilment of the physical and financial targets defined in the OPs about OT4.
- » Strengthen initiatives to bring promoters closer together (on the ground) to monitor the implementation of operations, creating the conditions for achieving the contractual results.
- » To study the feasibility and, possibly, request the approval of specific legislative amendments because of the impact on the execution of approved litigation operations in public procurement procedures.

R.02 Increase the scope and simplify the eligibility criteria for expenditure (IP 4.3)

- » In the implementation of the PT2020, to contribute to the robustness of the results and to ensure a further reduction of the energy bill in buildings, the performance of renewable energy production systems for self-consumption, namely photovoltaic systems for electric energy production, is crucial. In this case, it seems essential to weigh the advantages and disadvantages (and to negotiate with the EC the possibility) of not limiting the eligible expenditure to 30% of the reasonable total cost of the operation (also thinking that all energy production contributes directly to the results to be achieved, namely the 30% reduction in energy consumption, compared to the value recorded previously).
- » To make the process of evaluation and implementation of operations less cumbersome administratively and less bureaucratic, in a context where the application of standard costs does not add any value to the proper use of public money (in a framework where eligible expenditure is supported by public procurement procedures, where the MAs always verify the eligibility of payment and in most cases these are reimbursable subsidies), consideration should be given to maintaining standard costs for improvement measures that are intended to discourage the co-financing of construction expenditure.

R.03 Increase co-financing rates for "clean buses" (PI 4.5 - EE public passenger transport sector) to enhance the attractiveness of funding for fleet renewal

- » In the implementation of the PT2020 and the preparation and implementation of the 2021-2027 programming period, to consider increasing co-financing rates for "clean buses" to stimulate and cover the investments of concessionaires being awarded the new concessions for regular passenger transport by municipalities and MCPs, namely in territories with lower critical mass/potential demand and companies with lower financial capacity. Once the uncertainty surrounding the future of road passenger transport operators has been overcome (by the end of 2019), the conditions must be created to make fleet renewal funding for less polluting vehicles more attractive. Given that the state aid scheme approved by COM for the co-financing of "clean buses" implies that eligible expenditure is established based on the counterfactual scenario (reducing the attractiveness of this support, in particular for companies with less financial capacity), it will be decisive to increase the co-financing rates to make this support more attractive.
- » Therefore, it is considered that despite the requirements defined by DG Competition in its own Decision (State Aid SA.45694 (2016/N) - POSEUR Programme for Clean Buses in Urban Areas). Even though the limitations mainly condition the question of the support provided (support intensity) in terms of eligible expenditure (due to the application of the counterfactual), it is essential to make these supports more attractive to stimulate the renewal of (less polluting) fleets and to guarantee a better quality service, especially in territories where low demand does not generate revenues that will encourage operators to proceed with more massive investments.

R.04 Ensure that the ToC is defined and made explicit in the programming documents

- » In preparing for the 2021-2027 programming period - and because of the constraints signalled in the process of drawing up this evaluation - ensure that it is done in good time:
 - The definition of the ToC, making it explicit in the programming documents, to frame the methodological roadmap and the development of research associated with the evaluation exercise(s);
 - The simplification of the framework of assumptions and risks that integrate ToC, making it objective and pragmatic, facilitating the process of gathering evidence, giving it usefulness for the operationalization of programs and/or reprogramming exercises to be developed.

R.05 Expand the target support TO's (immaterial) associated with IP 4.3

- » In the preparation and implementation of the 2021-2027 programming period, to open notices on typologies of operation (and for certain key actors), also relevant for the promotion of energy efficiency, in particular:
 - Awareness campaigns and promotion of energy efficiency, to be developed by energy agencies, at municipal and/or regional level;
 - Preparation of municipal or inter-municipal action plans (defining pilot and structuring activities), in the area of the territories' transition to a new economy, based on sustainable energy and more localized and circular forms of production;
 - Campaigns of diffusion of information and creation of social perception, namely through the realization of training actions, awareness-raising, and social involvement, to be promoted by the municipalities, the CIM/AM and/or the

municipal and/or regional energy agencies, with the various sector actors (public) and with the municipalities (private).

R.06 Ensuring rapid and effective compliance with the *enabling conditions* and related Community regulations

- » In the preparation of the 2021-2027 programming period, to trigger the procedural and regulatory mechanisms promptly by the Portuguese State to ensure compliance with the applicable favourable conditions (enabling conditions), following the provisions of Article 11 and its annexes to the proposal of COM (2018) 375 final, in order not to jeopardise the start-up and operationalisation of the support instruments targeted at the dimensions supported under the energy policy.
- » In addition to the transposition of the new Directives of the European Parliament and the Council, it is also essential to ensure that any specific transpositions for the Autonomous Regions are swift.

R.07 Promote greater participation and involvement of key actors in the design phase of the programming processes of support instruments

- » In the preparation of the 2021-2027 programming period, promote the listening and participation of individual key players (municipalities, companies, central government entities, public transport concessionaires...) to anticipate constraints, signal different behavioural specificities, identify needs and the potential for local and regional demand, through meetings, seminars, *workshops*, information sessions, working groups, written consultations with the main entities representing these actors and sectors, which can be considered by the Tutelage and AD&C, and support the preparation of programming exercises. Given the regional specificities, these listening moments should also have regional focus (at NUTS II level) to allow the definition of potential TO that is more adequate to the needs of the actors and specificities of these territories, establishing a prior articulation and a collaborative process between the PO MAs and the potential promoter/beneficiary entities.
- » In particular, the contexts and specific characteristics of the Autonomous Regions should be taken into account, given their island and peripheral nature, whose needs and priorities do not always correspond to the constraints imposed at European and national level (e.g., in terms of the possibilities for using renewable energy to improve the energy performance of buildings).

R.08 Expand the target dimensions of support in the FEEI, which are currently found in other funding instruments

- » In the preparation of the 2021-2027 programming period, consideration should be given to expanding the TOs to be made available in a TO focused on these dimensions of public energy policy, because of their importance in meeting the needs of particular target groups and for the robustness of results. By way of example, TO that cover:
 - R&D, innovation and knowledge production, in the case of the current IP 4.1 (assessment of environmental impacts of RES supported by biomass and of their sustainability; assessment of the feasibility and risk of implementing geothermal energy production solutions in small and variable production units; ...);
 - Biomass plants, biorefineries, biomethane, and green hydrogen production centres, under IP 4.1 and IP 4.2;
 - Intelligent urban logistics, within the current IP 4.2;
 - Sustainable Energy Communities in the framework of the IP 4.3;
 - Renewal of government vehicle fleets in the case of the current IP 4.5.
- » Similarly, given the *know-how*, specific technical skills and proximity/relationship to certain target groups, it would be essential to accommodate as a potential typology of beneficiaries (e.g., in the context of current IP 4.3), regional and municipal energy agencies, namely for the development of awareness campaigns, information dissemination, and social empowerment and perception - capacity building, awareness-raising and social involvement actions). Another hypothesis to be considered, an alternative (preferential), maybe the possibility of the MAs being assisted in this theme, which has a vital technical component, by these specialised entities (through specific support from the FEEI), while ensuring the presence of entities dedicated to the OT4 with the necessary technical knowledge and that can bring together the relevant *stakeholders* in the elaboration of AACs and foster their participation and future mobilisation.

R.09 Supporting and reconciling integrated investment rationales (EE housing; sustainable urban mobility)

- » In the preparation of the 2021-2027 programming period, in the case of social housing, to consider the mode and conditions of support for structural interventions to support technical solutions (which guarantee the expected results), such as cladding and renovation of the roof of buildings, to incorporate thermal insulation in the roofs; complementary work on the façades of buildings, such as repairing cracks and structural stabilisation of masonry. The programming process must consider the need for articulation between building rehabilitation processes and EE interventions (not fragmenting support/candidatures under the same contract). The adoption of energy certification at the building level should also be considered, rather than by fraction.
- » In the case of sustainable urban mobility, consider concentrating support for "building cycle paths" and "purchasing bicycles" on the same instrument, making it impossible to fragment operations by the Eligibility of POR/POSEUR (concentrating support for infrastructure and rolling stock on the same instrument, including larger-scale initiatives and investments).

R.10	Reduce the spraying of support for similar energy efficiency areas in territories with a lower critical mass of potential promoters (RAA)
<ul style="list-style-type: none"> » In the preparation of the 2021-2027 programming period, in the AAR, to consider the possibility of promoting a greater concentration of support to the ES for the same target audiences, in a single instrument (considering the advantages and disadvantages of eliminating AAR eligibility for help in some OT4 typologies or, on the contrary, eliminating similar eligibility in other support instruments for the same target audiences), facilitating the dissemination of information, reducing the fixed costs of participation and ensuring more excellent receptiveness and ease of knowledge of the support available to the relevant target audiences. 	
R.11	Continue the current initiatives (PAMUS) by not creating innovative instruments in the next programming period that have relevant learning costs and constrain operationalisation
<ul style="list-style-type: none"> » In the preparation of the 2021-2027 programming period, promote the revision and updating of the PAMUS, in particular, the priorities and structuring interventions (implemented, ongoing or missing), rather than the creation of new instruments, which may have relevant learning costs and may lead to increased delays in operation. This planning exercise is particularly suitable in regions where the available financial amounts are reduced, giving greater importance to redefining priorities and updating the structuring operations to be prioritised (inducing more significant results). 	
R.12	Adapt eligibilities and typologies to regional specificities in the dimension of Sustainable Urban Mobility
<ul style="list-style-type: none"> » In the preparation and implementation of the 2021-2027 programming period, the range of TOs in the dimension of Sustainable Urban Mobility (current IP 4.5) should be broadened to accommodate regional specificities and generate a better adaptation of the TOs to the realities of the territories (pe. In the low-density parts of the NUTS II Alentejo, Centre and North, the focus should be on TO aimed at inter-municipal transport networks based on green mobility; mobility platforms as a service - shared; mechanisms and solutions for interurban modal articulation in complementarity with soft intra-urban mobility; transport solutions on demand, for access to public services at urban-rural and low-density territorial scales,...). The standardised availability of a reduced number of TO should be avoided, given that regional needs and specificities are different, for example, between metropolitan areas and low-density territories (consider whether the Alentejo should have the same eligibilities as AML, in a context of quite different urban density, size of commuting and road traffic and expression of the public transport system, potential demand). 	
R.13	Formalize an institutional partnership agreement and JASPER support to the funding OPs
<ul style="list-style-type: none"> » In the preparation and implementation of the 2021-2027 programming period, consider the possibility of formalising an institutional partnership of the Portuguese State with JASPERS (Joint Assistance to Support Projects in European Regions), taking into account the necessary compatibility with the continued collaboration with promoting entities, beneficiaries of the support. Institutional proximity to the European Investment Bank (EIB) generates an in-depth knowledge of the principles that the European Commission values in applications and projects, especially in more rigorous cost-benefit analyses geared to critical parameters. This ensures that applications are more robust, thanks to JASPERS's strategic vision and objectivity, and limits delays and successive requests for clarifications and improvements. The benefits of JASPERS' experience and know-how should be harnessed through the formalisation of technical assistance that allows, for example, the sharing of best practices and benchmarking exercises, supporting and enriching the analysis will be undertaken by the Managing Authority for some larger projects. 	
R.14	Continue the effort to build the capacity of the technical structures of the OPs on energy policy issues
<ul style="list-style-type: none"> » In the preparation and implementation of the 2021-2027 programming period, promote the capacity building of the technical structures of the OPs on energy policy issues in particular: <ul style="list-style-type: none"> ▪ Through the training and qualification of the specialized technicians/analysts of the Technical Secretariats of the MAs, which will also constitute an additional added value in the process of monitoring the implementation of operations; ▪ Using specialised technical consultancy and close articulation and monitoring by entities such as DGEG and ADENE, in the Mainland OPs and AREAM and DREn, in the Autonomous Regions, both in terms of training and monitoring of the implementation of the dimensions of the OPs associated to the OT4, formalising their participation and involvement utilizing delegation contracts with the GA of all the OPs and financing the technical assistance to be carried out by these entities. The participation and support of the entities responsible for implementing public policy in implementing the FEEI should be promoted, clarified, and formalised. 	
R.15	Promoting the simplification of the procedures for the preparation and submission of applications
<ul style="list-style-type: none"> » In the implementation of the 2021-2027 programming period, at the level of communication/dissemination of support and the stage of preparation and submission of applications, it is essential: <ul style="list-style-type: none"> ▪ Defining, disseminating, and complying with the annual plans to open competitions while promoting greater regularity in their updating and considering deadlines for the submission of more extended applications; ▪ Produce an online document/site that aggregates the various existing funding instruments, their respective eligibility, and the procedures to be followed for the appraisal of applications; 	

- Simplify the process at the application stage by transferring some requirements to an earlier stage of the application process (e.g., housing licensing, technical advice, etc.);
- Consider, in the case of large projects, a pre-qualification phase, in which the applicant projects would be assessed under general criteria (such as corresponding cross-border effects or impact on carbon emissions, for example); following the serialization of the projects, and for pre-qualified projects, the application would be submitted in two phases: i. support for studies (more simplified); and ii. financial support for works (more complex);
- Promote more incredible speed in analysing applications, stimulating articulation between the entities involved in the process, and speeding up decision-making procedures.

R.16 Continue efforts to simplify the procedures associated with payment claims and validation of expenditure

- » In preparing and implementing the 2021-2027 programming period, it is essential to continue the effort to simplify procedures associated with payment requests and validation of expenditure, including considering the adoption of differentiated approaches according to the types of operation and/or the financial dimension and/or the strategic nature of the investments. It is essential to speed up the validation of public procurement procedures, when applicable, and to promote close monitoring with beneficiaries to clarify doubts regarding expenditure eligibility.
- » The simplification of procedures aimed at should be designed and made operational in close liaison with the IGF audit body, to ensure the necessary audit trails and thus prevent a posteriori non-conformities and possible need for funds to be returned by the promoters.

R.17 Apply new criteria and requirements for support for electricity generation from renewable sources

- » » In the preparation and implementation of the 2021-2027 programming period, new criteria, and requirements for support for electricity generation from renewable sources should be considered to stimulate higher demand:
 - The revision and simplification of the eligibility rules for operations;
 - The review of the maximum intensity of public funding for large companies, in strict compliance with Community and national legislation on state aid and other constraints, to be articulated with the EC, in particular, DG Competition;
 - The redefinition of the minimum degree of maturity required of operations, particularly concerning the approval of their technical requirements;
 - The redefinition and simplification of the procedures before obtaining licenses, making them compatible with the deadlines usually set for the submission of applications to AACs;
 - The possible revision of environmental permits for the types to be supported (biomass, offshore wind power, etc.);
 - The legislative review concerning the issuance of permits for the production of energy from renewable sources;
 - The simplification of the procedures for connection to the electricity distribution network and the framework for support in the GBER, in strict compliance with Community and national legislation on state aid and other constraints, to be articulated with the EC, in particular, DG Competition;
 - Encouraging investments that integrate energy storage infrastructure, such as batteries, which are essential to bridge the gap between production and storage, thus increasing the share of electricity from renewable sources.

R.18 Increasing the attractiveness of and conditions for the implementation of energy efficiency financing in companies, in the context of integrated projects

- » In preparation for the 2021-2027 programming period, consider continuing support to business/industry in the OT4, given the availability of support through the Energy Efficiency Improvement Incentive Schemes. In the case of enterprises, the unbundling of an overall investment plan (withdrawal of a component for a subsequent application for another type of support - EE) is, from a business point of view and the point of view of investment, unreasonable and inhibits its mobilization. Therefore consideration should be given to whether it is justified to maintain it (or what financing mechanisms, eligibility, bonuses, can be created to ensure the interest and attractiveness of this offer) within the framework of future operations which fall within OT4 in the current programming period.
- » If support for the European Schools in companies is to be maintained within the framework of OT4, to ensure more excellent attractiveness of supply in the preparation and implementation of the 2021-2027 programming period, the following changes should be considered about the eligibility of support:
 - Do not limit the condition relating to liquidity (or financial results) to the pre-project year, considering the average of the last three years of financial results alternatively;
 - Take on an exceptional character for industrial licensing, as many companies do not have it and the response time of municipalities tends to be extensive (a "green line" should be applied in these cases);
 - Continue to consider co-financing the costs of energy audits/studies/analyses.
- » In the analysis of merit, bonuses should be considered to encourage investment by firms in particular:
 - Promote investments in energy efficiency and circular economy to decouple the consumption of energy resources from the economic cycle;
 - Continuing benefits in low-density territories;
 - Valuing past investments in energy efficiency;
 - Consider the reduction of energy intensity in a more relevant way, highlighting the corresponding premium factor;
 - Penalise the consumption of energy from non-renewable sources.

R.19	Promoting the implementation of energy efficiency operations in public administration
<ul style="list-style-type: none"> » In the preparation of the 2021-2027 programming period, prioritise energy efficiency in public administration in Community financing and, also, promote the implementation of production operations for self-consumption in public administration, through the: <ul style="list-style-type: none"> ▪ Ensuring the budgetary appropriateness and multi-annual allocation in the entities for the implementation of energy efficiency operations; ▪ Clarification of the nature of debts associated with energy efficiency investments in the framework of the GGEEs (formalisation of the EUROSTAT opinion in the national legal framework). 	
R.20	Reviewing the criteria for access to Community funding for energy efficiency operations in public administration
<ul style="list-style-type: none"> » In preparation for the 2021-2027 programming period, the criteria for access to Community funding for energy efficiency operations in public administration should be reviewed: <ul style="list-style-type: none"> ▪ The need for a 30% reduction in primary energy consumption in the investment applied for, equating a more realistic benchmark adjusted to the experience recorded in the context of the current Community programming period¹; ▪ In the inventory of the built park of the central administration and the regional/local administration; ▪ In creating more attractive conditions for the financing model, in particular concerning the deadlines for repayment of repayable financing and the base rate applicable to non-repayable financing; ▪ The potential inclusion of areas that are currently eligible for other national funds (such as the Environmental Fund) and that shows a volume of demand with scale, fit for funding via the FEEL; ▪ In the specific case of IPSS, the issue of use versus public ownership has been resolved, as many IPSS does not own (or even do not know) the ownership of the buildings they use. 	
R.21	Adapt eligibility conditions targeted at energy efficiency in public administration to maximise savings potential
<ul style="list-style-type: none"> » In the preparation and implementation of the 2021-2027 programming period, targeted eligibility conditions for energy efficiency in public administration should be considered, which maximise the potential for savings, in particular by promoting increased demand, contributing more effectively and efficiently to national public policy objectives in this field: <ul style="list-style-type: none"> ▪ The inclusion of structural interventions to support technical solutions (which are not supported, and which reduce the economic rationality of the intervention); ▪ The revision of parameters associated with standard costs, which are excessively detailed and parameterised, or the introduction of a forecast of a maximum price of intervention per functional area intervened (equipment, infrastructure, social housing, etc., ...). 	
R.22	Adapt eligibility conditions targeted at energy efficiency in private housing to maximise savings potential
<ul style="list-style-type: none"> » In the preparation and implementation of the 2021-2027 programming period, targeted eligibility conditions for energy efficiency in private housing should be considered which maximise the potential for savings, in particular by promoting increased demand, contributing more effectively and efficiently to national public policy objectives in this area: <ul style="list-style-type: none"> ▪ The inclusion of structural support interventions, currently not supported, to the technical solutions implemented; ▪ The revision of the parameters associated with standard costs, which are excessively detailed and parameterised, or the introduction of a forecast of a maximum price of intervention per useful area of the intervened site; ▪ The revision of the financing rules and eligibility conditions, considering the possibility of supporting measures beyond those identified by the expert in the energy certificate; ▪ The revision of the requirements associated with the improvement of the building's energy performance, mainly intended for residential use. 	
R.23	Reviewing the procedures for drawing up and issuing energy certificates for energy efficiency investments in public administration
<ul style="list-style-type: none"> » In the preparation and implementation of the 2021-2027 programming period, trigger the mechanisms that make it possible to review the process of drawing up and issuing energy certificates to remove constraints that generate inefficiency and irrationality in investments, in particular: <ul style="list-style-type: none"> ▪ The elimination of errors in the quantities to be applied; ▪ The investment figures needed to implement improvement measures; ▪ the technical applicability of some of the suggested improvement measures and the respective savings to be achieved. 	
R.24	Review the procedures for the preparation, implementation, and monitoring of contracts with ESCO in public administration

¹ Despite what was stressed in the introductory text of POSEUR, "for 2020, the Community target sets an obligation to reduce primary energy consumption by 20%, and through the NEEAP, this overall target has been strengthened to 25%, and a specific target of 30% has also been set for the public administration, thus highlighting the national commission on these matters". Furthermore, "the reduction of at least 30% in primary energy consumption in public infrastructures that are the object of investment in energy efficiency in public administration should be ensured, in compliance with the applicable national and community legislation".

- » In preparing and implementing the 2021-2027 programming period, ensure the removal of some constraints encountered in the current period of Community support concerning the preparation, implementation, and monitoring of contracts with ESCO, in particular:
 - In the amendment of the current regulatory framework applicable to the CGEE, which allows for its simplification, the diversification/flexibility of contract models and the introduction of elements of more excellent attractiveness to the ESR, including the revision of specific legislation, especially in the context of the provisions of paragraph a) of no. 2 of article 18 of Decree-Law no. 29/2011;
 - In reviewing the administrative procedures associated with contracting;
 - In strengthening the resources and technical knowledge related to energy efficiency in public bodies;
 - In the review of contractual penalties for non-compliance, currently discouraging the participation of ESCO in financing projects because of the high risk they represent for these companies;
 - In adjusting the response time of the defined procedures, insufficient in some situations;
 - In determining more extended payback periods, particularly for central government entities;
 - In reviewing the methods for measuring and verifying actual savings obtained;
 - In stimulating the insurance market for the development of energy-saving insurance products, involving insurers;
 - In the eligibility of EC funding, implementing the provisions of the WP2020.

R.25 Fostering the knowledge of and demand from the FIs for energy efficiency

- » In the implementation of the 2021-2027 programming period - and assuming the continuity of FIs as a form of financing - foster better knowledge of companies and individuals (housing) to boost the demand of FIs for energy efficiency, through the definition of coherent and robust communication and dissemination strategies, which may involve the creation of *brands for FIs*, by typology, regardless of which PO finance them, through the respective definition, in terms of Reference, in the contractualisation with financial intermediaries.

R.26 Define standardised benchmarks and calculation methodologies and make available tools for the calculation of output and result indicators

- » In the preparation and implementation of the 2021-2027 programming period, ensure the definition of benchmarks and the construction and application of standardised calculation methodologies and the availability of tools for their application that makes it possible to calculate the indicators defined in future OPs and that should be rigorously used by all potential beneficiaries in the AAC and project implementation, in particular:
 - Of the indicators for determining the reduction in energy consumption (achievement - KWh and result - tep);
 - Of the indicators for the estimation of the decrease of GHG emissions (achievement - tonnes CO2 equivalent);
 - From indicators for the assessment of GHG emissions (result - tonnes of CO2 reduced);
 - indicators involving the calculation of kilometres in the case of the cyclable network;
 - Other indicators to be identified and/or defined for which the recommendation is justified.
- » At the same time, the process of preparing the output and result indicators should promote the articulation of audits with programming targets (programming indicators should be more in line with the indicators/measures contained in the certificates/audits).

R.27 Ensure the continuity of policy and investment options in urban mobility that contribute to a sustainable transfer from individual to collective transport

- » In preparing and implementing the 2021-2027 programming period, continue to realise the policy and investment options at national, regional, and local scales that contribute to sustainable behavioural change (transfer of IT-TC) leading to significant GHG emission reductions. To ensure the continued subsidisation of family purchases of intermodal passes (Central, Regional and Local Administration) and the expansion of sustainable urban mobility networks (Metro networks, articulated tram networks, cycle path networks), key actors should be made aware of the importance of ensuring their own financial resource needs.
- » The current POSEUR funding is based on a pure renewal of the public transport fleet (with funding for the technological change/cost differential of vehicles). Still, later it will be necessary to expand it, for which it will be essential to design a funding instrument that does not require the scrapping of current vehicles, as well as to extend eligibility to light surface electric vehicles (which should be equated to the surface meter, as they also contribute to the reduction of carbon emissions). In this context, air quality and noise reduction should be a factor in increasing Community support. The massification of electrical mobility in public transport fleets will also aim to make bus loading infrastructure (existing or created) more profitable.
- » Promoting the attractiveness and quality of public transport requires a strong commitment to digital platforms, which "bundle" the full service (digital solutions and integrated mobility services, which will even have to go beyond metropolitan areas and public transport). In the context of intermodal travel, training in digital skills will be crucial, and new support and eligibilities could be considered within the FEEI for this area.

R.28 Outline strategies and control mechanisms to guard against potential *rebound effects*

- » In the preparation and implementation of the 2021-2027 programming period, solutions should be studied to avoid possible rebound effects. The strategies and control mechanisms to be considered indicate, for example, the obligation to adopt internal consumption control systems, consumption monitoring (obliging beneficiaries not to exceed the historical and to comply with criteria of tangibility in energy consumption).



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Title of the study:

Evaluation of the Implementation of Measures to Strengthen the Transition to a Low Carbon Economy (OT4)

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General Secretariat of the Ministry of Environment and Energy Transition

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Phase:

Phase 4 Validation and eventual re-wording of conclusions and recommendations

Document:

Final Report **File Name:**

OT4_Final_Report_(Executive_Summary)_24nov2020_EN.pdf