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EXECUTIVE SUMMARY

GOOD PRACTICES IN THE ENERGY RENOVATION OF PUBLIC BUILDINGS IN AUTONOMOUS REGIONS

Energy renovation as a vector for economic recovery and job creation

1. INTRODUCTION

The Autonomous Regions are responsible for managing and conserving a very large stock of public buildings of different types, such as administrative, educational, customer service, health, sports and cultural buildings. In addition to the complex diversity of uses, these buildings are also spread far and wide throughout the country.

To give an idea of the variety, there are regions consisting of one province such as Navarre, which are responsible for managing 350 buildings with an energy use of 158 GWh a year. Others, like Castilla y Leon, the largest region in terms of area, have 1,500 buildings that use 200 GWh/year of electricity and 300 GWh/year of gas. Andalusia, the region with the largest population, has 4,000 buildings that use 1,000 GWh of electricity, more than 400 GWh in gaseous fossil fuels and four million litres of diesel oil for heating.

In general, the public buildings that use the most energy are hospitals, which account for around half of the regional energy bills. At the same time, they are the installations that are the most complex to renovate because of the work they carry out and their uninterrupted activity throughout the year, which is more intense now in the context of the health pandemic.

Another major challenge is the wholesale retrofitting of educational establishments, which can contribute not only to reducing the energy requirements for heating, but also to combating the extreme heat, particularly in the south of Spain, and also to dealing with the new requirements for accessibility and ventilation of classrooms to prevent coronavirus infection.

It falls to the Autonomous Regions to play an exemplary role and contribute to the country's commitments in building renovation. The Integrated National Energy and Climate Plan (PNIEC), in compliance with the Energy Efficiency Directive, is committed to energy renovation of more than 3% of the State General Administration's stock of buildings, which equates to an area of 300,000m^2 a year. The PNIEC also passes on this 3% target to the rest of the Autonomous and Local Administrations and "considers it feasible to renovate 3,390,000 m^2/year in public buildings in the Autonomous Regions and Local Authorities".

Meanwhile, the Plan for Recovery, Transformation and Resilience provides specifically for the design of a *Programme to Promote the Renovation of Public Buildings (Programa de Impulso a la Rehabilitación de Edificios Públicos* – PIREP). The ministry

responsible for drawing up this Programme is the Ministry of Transport, Mobility and Urban Agenda (MITMA), working in conjunction with the Ministry for Ecological Transition and the Demographic Challenge.

The PIREP is expected to lead the way by example and to have a comprehensive approach, as called for by the Spanish Urban Agenda and the new *European Bauhaus* (sustainability, inclusion and beauty), without losing sight of the principal aim of energy saving.

Of the 1.08 billion euros set aside for the PIREP, 480 million will be distributed among the Autonomous Region Administrations, according to specific distribution criteria, and the rest will be allocated to the Local Authorities.

In order to be able to define this programme in greater detail and ensure that the funds are used and developed correctly, the MITMA issued a call for expressions of interest to enable the Autonomous Regions and Local Authorities to supply information about viable specific projects in March 2021.

The results of this declaration of interest and the subsequent bilateral meetings between the Ministry and the Autonomous Regions are creating a profile of the information related to the possible sustainable retrofitting actions for publicly owned and public use buildings. The requirements to be met are that they should suppose an energy efficiency saving of at least 30%, with a guarantee that the work will be completed before August 2026.

We are at a critical juncture in which the Autonomous Regions have to draw up a list of priority actions to communicate to the Ministry of Transport, Mobility and Urban Agenda to plan the renovation of public buildings in the coming years.

Fortunately, the Autonomous Regions in Spain are not starting from scratch, although there are notable differences; some already have an energy assessment of how their buildings perform, a history of measures implemented and a plan for new investments to improve their performance.

The purpose of this report is to identify and describe the best practices and tools used to address the management and energy renovation of the public buildings owned by the Autonomous Regions in Spain.

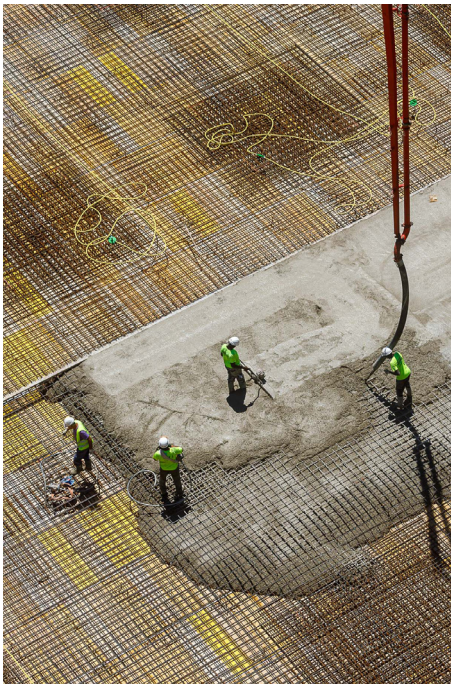
The inventory of plans, instruments and regional experiences has been drawn up from the replies received in response to a request for information sent to the seventeen Autonomous Regions, and resulting from the subsequent interviews, meetings and contacts to complete the information received.

2. GENERAL STRATEGIES AND PLANS FOR ENERGY EFFICIENCY IN PUBLIC BUILDINGS

- The experience demonstrates how useful it is to establish a compulsory deadline for the public administration to carry out energy audits for the buildings it manages. An example of this is the Basque Country regulation that fixes a legal deadline (March 2021) for the performance of energy audits for public buildings with certain characteristics. The results of these audits will be used to define a programme of energy actions enabling **the Basque Administration** to meet the saving and efficiency commitments it has already taken on. The Basque Government has adopted its own plan, called "the Energy Action Plan for the Public Sector in the Autonomous Basque Region", which sets specific objectives for its public sector to reduce energy consumption, the incorporation of renewable energy sources and improved energy classification for 2030 and 2050.

- **The Principality of Asturias** has launched the first regional strategy on energy renovation of buildings, "The Retrofitting Strategy for Buildings in Asturias", and has done so as part of its social dialogue with the business sector and trade unions. This is still a strategic document in the drafting stage, with further technical details to be defined by the players involved in this process before it is implemented.

- **The Catalan Administration** has a "Plan for Savings and Energy Efficiency in Buildings and Equipment", which it reviews every five years; the Plan involves a commitment for a 7.7% reduction in energy use in public buildings by 2022, as well as installing a minimum of 20MW of photovoltaic energy and 200 charging points for electric vehicles. The estimated investment required to meet the objectives of the Plan in the period 2018-2022 is €47.5 million, principally from Energy Service Companies (ESE). The results of applying this plan in the period 2018-2019 are 454 actions in 307 buildings representing 10% of buildings occupied, either owned or leased, by the Catalan Government. A total investment of €9.9 million in energy renovation, an energy saving of 19.9GWh and a reduction in CO_2 emissions of more than 4,000 tonnes.



- **The Castilla y León** 2020 Energy Efficiency Strategy is a document with a wealth of information, which uses as its starting point a very good analysis of the balance of the previous plans, provides an in-depth analysis of the current situation in all the sectors, and establishes a breakdown of measures and expected savings objectives. Given that the period for compliance ended in 2020, it does not yet have a full assessment of how the strategy has been implemented. At the moment, it only has preliminary data on end-user consumption for the public services and public administration, and still lacks additional information that helps to interpret how it has evolved in terms of the effectiveness and the efficiency of the actions carried out.

- The Savings and Energy Efficiency Plan for buildings in **the Madrid Region** is a document that, on paper, contains elements of great interest. Notable amongst these is the inclusion of a 3% target for renovation of buildings in line with the objectives of the European Directive (as well as other objectives for savings, renewables, etc.), the promotion of the figures or persons in charge of energy matters in a building or work centre, training actions, follow-up mechanisms (indicators, commissions, reports, etc.). The lack of information about the results of the execution of the plan demonstrates that, in many cases, great energy and expertise are expended on the analyses and planning of measures, but these are then diluted during the application of the work programmes. Similarly, communication is very good when announcing the plans, whereas in their final stages this only happens when the results are good. In this regard, it is important to emphasise the importance of transparency and public accountability.

3. SECTORAL PLANS AND OTHER INSTRUMENTS

- One of the most emblematic regional sectoral plans is the "*Plan Zero Plana*", a **Basque Government** plan that aims to improve the energy efficiency of its public housing stock of rented dwellings and achieve almost zero energy use for its existing buildings in the medium term. The Plan addresses actions in 136 buildings containing around 7,500 dwellings, managed by the Basque Government Public Rental Company, Alokabide; it has a budget of 193 million euros for the period 2020-2050 and €38 million to cover 2020-2025. The analysis of energy renovation requirements points to 67% of dwellings in the housing stock requiring a medium degree of action, while 15% require a high level of action and just 2% comprehensive action, including accessibility. The first planned refurbishments have already been carried out in 2020 and 2021.

- In the Teaching environment, the retrofitting plans for school centres developed by the Regional **Government of Galicia** (*Xunta de Galicia*) over the last decade are worthy of note. With its current Plan for Pedagogical Architecture, which has a budget of almost 190 million euros, it intends to strengthen its efforts concerning design and intervention in school centres, which from now on will be designed and configured to meet the educational, health and technological challenges, in the framework of new requirements in energy efficiency and respect for the environment.

- The Administration Energy Network is an instrument created by **the Regional Government of Andalusia** (*Junta de Andalucía*) to promote within the Andalusian administration principles of efficiency in contracting energy supplies, savings actions and energy efficiency, in addition to installing renewable energies in its buildings and installations. The results achieved since 2007 show that this network is correctly designed and has performed well in providing a user-friendly technical advice service and strengthening the abilities of the public administration to address energy transition in the institutional sector. 354 energy audits and 786 energy inventories have been promoted, and more than 1549 measures for savings, energy efficiency and implementation of renewable energy sources have been identified, valued at an investment of €67 million; the associated energy saving potential is 9,887.15 tonnes of oil equivalent (toe) per year, with annual energy diversification of 20,240.80 toe, and an annual economic saving of €9.6 million.

- Some governments have assessed the contribution made by the Energy Service Companies in the field of energy efficiency as being very positive, while the experience of other regional governments is that they are instruments that do not work in the desired way, or have asymmetric results, believing them to be better models for the replacement of heating systems than in retrofitting actions on the envelope. In particular, **the Catalan Administration** considered the development of the Contract for Energy Service Models with Guaranteed Savings, designed for use in the administration's public tenders, to be very useful, considering that the application of the energy efficiency sector companies' expert knowledge results in a greater saving than that which could be achieved in the usual manner.

- Still on the subject of public tenders, **the Principality of Asturias Health Service** found a way to incorporate measures to promote energy efficiency in electricity supply contracts for buildings and installations in the healthcare system. It included as a requirement in the technical terms and conditions and administrative clauses of the energy contracts the performance of energy audits and consultancy services and a system of monitoring energy use as a criterion for awarding the tender. The result was an accurate energy assessment of more than 200 hospitals and health centres, immediate monitoring of energy use and a comprehensive proposal for potential actions to improve the energy performance of the buildings. The experience was such a positive one that they are now considering introducing it in maintenance services contracts.

- **The Public Administration of the Navarre** region has implemented a system of energy information that has allowed it to analyse the energy performance of its public buildings, carry out a good inventory of energy use and consider appropriate measures to improve it. One interesting element of the implementation of this tool is the training and the involvement of the energy managers in the different departments of the regional administration that are responsible for contracting and managing public buildings. In addition, the decision was taken to publish in a very visual and didactic way the principal energy and consumption data for the Navarre administration's buildings so that they can be consulted by any member of the public. Finally, an open-use viewing tool that classifies the vulnerability of the buildings based on accessibility and social vulnerability criteria and the situation of the thermal envelope has been developed; this can be used to identify households with three-fold vulnerability that might potentially be subjects for extraordinary protection measures.

- **The Public Administration of Castilla y León** has started up its energy Datahub, a compendium of computerised energy information using the OPTE (Energy Optimisation of Regional Administration buildings) tool developed by the Regional Energy Authority. The database contains 1550 energy use centres corresponding to the administration's buildings and installations, and provides a comprehensive annual breakdown of the evolution of the energy use of the whole Castilla y León regional government. The tool can be used to monitor and reduce energy use, facilitate and optimise energy procurement, and promote investments in savings and efficiency. To date, energy spending has been reduced by more than 2 million euros a year and a potential energy saving of around 10% of the Administration's total energy use has been identified. The open publication of the data, together with an exercise in public transparency, allows the provision of useful technical information to encourage energy services companies to make proposals for energy efficiency actions.

4. RECOMMENDATIONS FOR SATISFACTORY RENOVATION OF THE STOCK OF AUTONOMOUS REGION BUILDINGS

Listed below are some of the key points to be taken into account when considering the energy renovation of the public stock of buildings used by the autonomous administrations with the best guarantees:

1. **Draw up an analysis of the energy use and performance of the public stock of buildings using energy audits.** To promote the performance of audits, a legal deadline can be established to carry out the energy audits, as the Basque Country has done for its public sector. Or, in the framework of the voluntary instruments, the performance of energy audits can be included as a requirement in a large portion of the energy supply contracts for public infrastructures, following the practice of the Principality of Asturias Health Department.

2. **Design strategies or plans to improve energy efficiency, retrofitting and inclusion of renewable energies in autonomous region buildings** that establish specific targets for the institutional sector. This will be a tool of great value in implementing the renovation commitments taken on by the public sector in the National Integrated Energy and Climate Plan. The Public Administration can be taken as an example to increase the requirement for annual renovation of the public stock of buildings to 6%, as many civil society organisations are now demanding.

3. **Develop work plans or programmes** that develop specific measures, provide means and budgets, allocate responsibilities, and establish annual indicators and intermediate targets for subsequent monitoring. It is interesting to note that these plans can promote and consolidate the figure of those responsible for energy management of buildings, as established by the Madrid Region Plan, defining their functions and responsibilities, and providing them with the skills to keep the inventories of data on energy use and decision-making for potential actions up to date.

4. **Accompany the performance of these plans with an analysis of the potential employment** that might be created, and also incorporate measures to maximise the local employment created. The monitoring of the jobs created by these public investment plans is a more common practice when European funding is received, and should be extended to cover the development of any public plan.

5. **Direct resources for the training and strengthening** of the technical teams in the Public Administrations, in particular the Departments' infrastructure and

maintenance teams. In this regard, it is worth emphasising the experience of the training programmes aimed at energy managers in the departments of the Navarre Government. The current frameworks for public aid to support the technical assistance of the administration teams should develop from providing occasional funding assistance to ensuring more long-term reinforcement. Finally, emphasis should be given to the work carried out by public organisations and autonomous bodies such as FAEN, NASUVINSA, REDEJA, ICAEN, IVACE, EREN, to name just a few, to support and promote the retrofitting and energy efficiency of the public buildings in the Autonomous Regions.

6. **Implement and/or develop good tools for the management and promotion of energy efficiency actions in public buildings.** Like the OPTE energy management tools implemented by the EREN in Castilla y León, or the Catalan Administration contract for models of energy efficiency services with guaranteed savings designed for use in public tenders.

7. **Set aside funds in the autonomous region budgets to address the renovation of public buildings**, in such a way that the available resources can be complemented with state financing or European funds.

8. **Review, adapt and simplify the administrative procedures for carrying out retrofitting works in public buildings.** This would lead, firstly, to facilitating the maintenance, renovation and retrofitting works on buildings, equipment and installations, preventing them from going to ruin. Secondly, it would generate favourable conditions for addressing the assessment of the energy performance of the building, and the optimisation of the energy demand prior to giving the building its own energy sources (for example: photovoltaic installations for own use), as is currently happening.

9. **Ensure appropriate monitoring of the actions taken on** in the work plans, creating a coordination committee, issuing annual reports, reporting information based on control indicators to measure the impact (energy saving, emissions avoided, return on the investment, jobs created, etc.), and communicating the results to civil society, etc. through periodic meetings. It is not difficult to find public action plans on energy, but it is less common to find reports of preliminary or final balances of how they have been implemented.

10. **Promote and strengthen administrative government coordination for the implementation of the retrofitting measures,** both internally between the different Departments, particularly those with competences for Housing, Energy, Taxation, Health, Education, etc.; and with the General State Administration and with the Local Authorities.

11. **Guarantee the transparency and communication** of the measures, monitoring of the actions and results achieved. The annual monitoring reports for these plans should be public. The viewing tools that publicise the energy use of the buildings in the institutional sector are very positive, as in the case of Navarre, or the Castilla y León Government's energy Datahub, which has openly available data.

12. **Promote public participation and social dialogue** throughout the whole process of design, creation, approval and monitoring of the plans and measures. Asturias has selected a participation model that promotes dialogue with the stakeholders in society to draw up its first strategy for energy renovation of buildings. It is important to emphasise that the participation processes should not only happen at the outset, when the plans and strategies are designed, but also during the whole implementation process until final accountability.

13. **Promote actions in the building for comprehensive renovation**; dealing with the energy aspects (envelope insulation, heating and hot water systems, lighting, integration of renewable technologies), accessibility (lifts, ramps, etc.), safety (asbestos removal, interior air quality), adaptation to extreme heat (cooling, shaded areas, etc.) and improved sound insulation.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