REGI1ST

Implementing the Energy Efficiency First Principle in Regional Planning

POLICY BRIEF

October 2025

In a nutshell

In Asturias, as in all Spanish regions, the regional government is required to align its energy and climate strategies with the national Energy and Climate Plan (NECP) and to provide data and inputs that feed into Spain's national reporting to the European Commission. This process is essential to monitor progress toward the country's legally binding targets on energy efficiency, heating and cooling decarbonisation, renewable energy deployment, and greenhouse gas reduction. The region is therefore asked by the central state to provide updated information, especially regarding sectoral performance, regional energy balances, and the implementation status of measures included in Asturias' own energy strategy.

For Asturias, this role is particularly relevant given its ongoing industrial and social transformation linked to the closure of mines and thermal power plants, as well as the decarbonisation of energy-intensive industries. Regional authorities are expected to identify and report on opportunities for energy efficiency improvements, renewable integration, and the deployment of innovative solutions such as district heating, smart grids, and energy communities. Data on these initiatives are used at the national level to track compliance with EU targets and to ensure that Spain's overall progress reflects contributions from all its autonomous regions.

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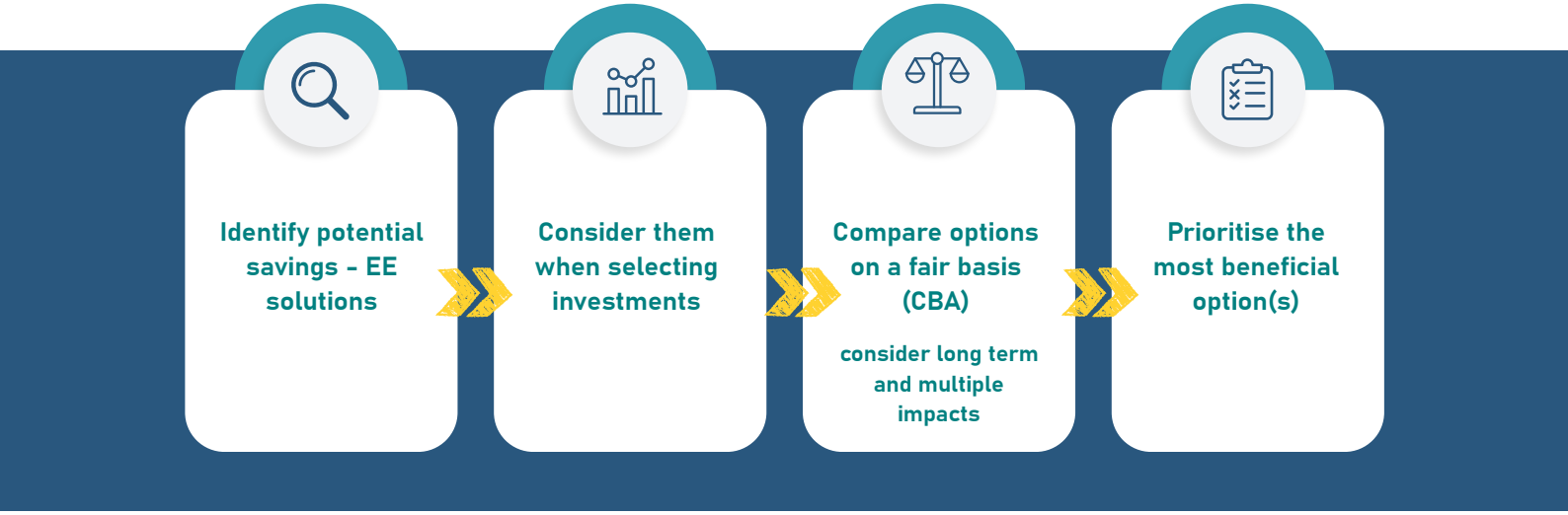
Engagement in this process also creates an opportunity for Asturias to influence national planning by showcasing regional best practices and challenges. By contributing reliable data and adopting tools such as the Regio1st framework, Asturias can strengthen its position within Spain's energy transition, ensuring that regional priorities (such as tackling energy poverty, boosting industrial efficiency, and promoting just transition measures) are considered in national policy decisions and in the allocation of European funds.

The basics

Energy Efficiency First Principle [1]: Prioritise energy demand reduction through cost-efficient energy efficiency measures in energy planning, policy and investment decisions. In practice, the EE1st principle balances demand and supply options to prioritise the most beneficial energy investments for the concerned community.

This is done by means of cost-effective end-use energy savings, demand response initiatives and more efficient energy supply.



The CBA does not make the decision, it helps in making it, depending on priorities.

EU context and policies

The European EE1st context and implementation is mainly set in the recast Energy Efficiency Directive [2], in particular:

[1] Defined in 2018's Governance Regulation, reinforced in 2023's recast
[2] Directive (EU) 2023/1791 on Energy Efficiency

- **Article 3 defines EE1st and sets the general frame** and highlights that the principle should be applied wherever it is relevant, including in regional plans;
- **Article 25 requires regional and local authorities to prepare local heating and cooling plans** in municipalities with 50 000+ inhabitants

In the perspective of EU-wide infrastructure development, TEN-E[3] also requires cost-benefit analysis to integrate EE1st principle in the planning of regional electricity, gas (incl. hydrogen) and district heating networks.

Spanish context

Regulatory framework

In Spain, the responsibility for energy and climate planning rests with the national government. The central administration develops the National Energy and Climate Plan (NECP), manages the planning of the electricity and gas markets and infrastructures, and oversees emission reduction obligations.

Regional authorities play a complementary role. They are responsible for licensing energy and industrial facilities, granting grid access, and monitoring and controlling emissions within their territories. While not mandatory, several regions have voluntarily developed their own energy strategies to define local priorities, influence national strategies, and address specific regional challenges. Asturias, for example, created its Regional Energy Transition Strategy (RETS) in 2021, aligned with the NECP, to identify and prioritize transition-related projects.

When regional or local authorities develop energy or climate strategies, they must comply with national legislation and frameworks. In particular, Law 21/2013 on Environmental Assessment requires that any plan with potential environmental impacts undergo an environmental evaluation. In terms of financing, regions such as Asturias manage their own operational programs to allocate regional funds, while national funds transferred to the regions can only be adapted in specific aspects, such as priority lines or timelines.

[3] Directive 2022/869 on guidelines for trans-European energy infrastructure (TEN-E)

This framework reflects a multi-level governance model in which the national government sets the overarching policy and regulatory direction, while regional governments, despite lacking a legal obligation, can develop tailored strategies and contribute to the implementation of national goals, particularly in areas such as licensing, emissions monitoring, and the promotion of projects aligned with regional needs. The most recent update of Spain's NECP was officially published in 2024, setting new targets and measures to align the country with EU climate and energy objectives for 2030.

Regional energy planning process

Asturias currently has its own Regional Energy Transition Strategy, which serves as the main reference framework for regional energy policy. Although Spanish regions are not legally mandated to prepare such strategies, the responsibility for energy and climate planning lies with the national government, Asturias has taken a proactive role in shaping its own pathway. The Regional Energy Transition Strategy was developed in alignment with the Spanish NECP, taking into account the most recent update of the NECP published by the national government. The entire process is now oriented towards producing a new, updated version of the Energy Strategy, ensuring that regional priorities continue to evolve in line with both national and European objectives.

The development of the Regional Strategy demonstrated the value of strong stakeholder engagement. A dedicated regional working group involving regional organizations, associations and individual participants from government, industry, academia, unions, and civil society provided essential input, helping to identify opportunities and challenges such as industrial decarbonisation, renewable energy deployment, and the just transition. The use of multi-criteria analysis and regional data sources like the Energy Balance of Principality of Asturias (BEPA) enabled the formulation of realistic scenarios and objectives tailored to local conditions.

Lessons learned from Asturias are highly relevant for other Spanish regions involved in a decarbonization process:

- **Challenges**, such as limited citizen participation, funding and human resource constraints, and the need to strengthen public acceptance of new projects remain central issues.
- **The integration of the EE1st principle,** which was not explicitly addressed in the first Regional Strategy, has been identified as a priority for the next revision.

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- The creation of the **Regional Energy Transition Observatory,** which is a positive step, offering a mechanism to monitor progress, coordinate regional and municipal strategies, and ensure alignment with national and EU frameworks.

Asturias shows that developing their own strategies, engaging stakeholders, and adapting national objectives to local realities. The ongoing revision of the Regional Strategy will ensure that Asturias continues to be an active contributor to Spain's national commitments under the updated NECP, while addressing its unique industrial, social, and environmental challenges.

How to embed EE1st in regional governance structure and decisions

EE1st principle's implementation in Asturias has highlighted the critical importance of fostering structured discussions between stakeholders, promoting mutual understanding, and ensuring transparency in decision-making processes. The principle goes beyond simple efficiency measures: it requires aligning energy demand reduction strategies with renewable energy deployment, exploring synergies between supply, demand-side flexibility, and integrating clear, accessible data tools to enable evidence-based policymaking.

At the start of the Regio1st initiative, Asturias faced several challenges in embedding EE1st in regional governance. While Spain had integrated EE1st into its NECP, at the regional level the principle was only indirectly reflected through strategies such as the Energy Improvement Plan (Plan ASUME), the Just Energy Transition Strategy, and the Energy Rehabilitation Strategy for Buildings Program (PREE 5000). These plans emphasized energy efficiency in public infrastructure, building rehabilitation, and coal transition efforts but lacked formal legislative backing, harmonized data, and practical tools for systematic implementation.

Local authorities demonstrated limited familiarity with EE1st as a planning framework. Although open to sustainable approaches, regional departments had little prior experience applying data-driven decision-making tools like Social Cost-Benefit Analysis (SCBA) and Multi-Criteria Decision Analysis (MCDA). Resource constraints, including limited human capacity, technical expertise, and up-to-date regional data, further hindered the full adoption of EE1st in regional energy planning.

Through a series of workshops and technical sessions organized under the Regio1st framework, several important outcomes were achieved:

- Initial workshops revealed a significant need to **increase awareness of EE1st** among local authorities. Hands-on demonstrations using actual regional data allowed participants to see the practical potential of SCBA and MCDA tools in transparent, efficiency-based decision-making.

- Bringing together the Directorate General for Energy and Mining, regional councils, technical staff, and national entities such as the Just Transition Institute (ITJ) and the Institute for Energy Diversification and Saving (IDAE) helped identify **key synergies**, for example between renewable energy supply and demand-side flexibility. Open discussions promoted mutual understanding of priorities, constraints, and the potential of efficiency-first approaches.

- Regional staff appreciated the **simplicity and applicability of the Regio1st tools**, particularly for evaluating investment scenarios under constrained budgets. The tools enabled scenario simulations, showing how efficiency measures could substitute or complement new infrastructure investments.

- Participants highlighted issues such as siloed departments, **inconsistent data**, and limited capacity to independently operate complex analytical frameworks. These insights pointed to the need for strengthened interdepartmental coordination, data-sharing agreements, and external support for capacity building.

- The tools were seen as valuable assets for revising regional strategies, such as the Regional Energy Strategy of Asturias, and for supporting industrial decarbonization agendas. Participants recommended **including SCBA and MCDA tools** in the impact assessment phase of future legislative processes.

Available support for regions – Policies, Funding and more

Asturias benefits from a wide and diversified range of financial instruments designed to promote energy efficiency, renewable energy, and decarbonisation across different sectors. Support comes from regional, national, and European levels, ensuring that local authorities, companies, and citizens can access funding to implement sustainable energy measures. The regional government manages its own programmes aligned with Asturias' specific needs, while also facilitating access to national schemes coordinated by the Spanish Institute for Energy Diversification and Saving (IDAE) and financed through the Recovery and Resilience Mechanism (MRR) and European Regional Development Fund (ERDF).

Building Renovation:

Asturias implements the **PREE 5000 Programme**, which supports energy renovation of buildings in municipalities facing demographic challenges. Grants cover between 50% and 100% of eligible costs depending on social and efficiency criteria, with a total investment of €1.9 million. Additional funding under the **Recovery, Transformation and Resilience Plan (MRR)** promotes the installation of renewable thermal systems across residential, industrial, and service sectors (€2.7 million).

Thermal Renewable Energy :

Specific calls support investment in renewable thermal energy production installations, particularly biomass and solar thermal systems, co-financed by EU funds. These programmes, with an estimated investment of €3 million, target individuals, companies, and public entities, ensuring compliance with EU Ecodesign and emissions standards.

Public Building Renovation:

The **PIREP Programme** aims to renovate publicly owned buildings, enhancing sustainability and energy performance. With €95.8 million allocated from the Next Generation EU funds, it aligns with Spain's Urban Agenda and the European New Bauhaus principles.

Industrial Energy Efficiency:

Asturias supports SMEs and large industrial companies through the **National Programme for Energy Efficiency in Industry**, encouraging investments in high-efficiency equipment and process improvements. This programme, funded with €4.7 million, seeks to reduce final energy consumption and CO_2 emissions in the industrial sector.

Tourism Sector:

Energy efficiency in tourism is promoted through grants under the **Plan for the Modernisation and Competitiveness of the Tourism Sector,** part of the MRR. This programme, with a total investment of €11 million in Asturias, supports energy-saving projects and circular economy actions in accommodation facilities.

Sustainable Mobility:

The **MOVES III Plan**, funded under the European Recovery and Resilience Mechanism, provides €11.2 million to promote the purchase of electric and hydrogen vehicles. This initiative supports individuals, companies, and public entities to reduce emissions and promote sustainable transport.

General Energy Efficiency and Renewables:

Additional funding opportunities are available through regional calls issued by the Ministry of Industry, Employment, and Economic Promotion. These grants support renewable energy installations—such as biomass, geothermal, and photovoltaic systems—and energy-saving actions in buildings and industries, with an estimated total of €11.2 million in investment.

What does EE1st change in the process and discussions?

In Asturias, the introduction of the EE1st principle has gradually shifted the focus of energy planning discussions from energy supply expansion to the optimization of energy demand and efficiency measures. Through the Regio1st project, and especially during the series of regional workshops and bilateral meetings with the Directorate General for Energy, policymakers and technical experts began to approach planning and investment decisions from a more analytical and evidence-based perspective. The Regio1st framework provided a structured methodology that helped participants understand how to operationalize EE1st in practical terms, using decision-support tools such as the **Social Cost-Benefit Analysis (SCBA)**, the **Multi-Criteria Decision Analysis (MCDA)**, and **the Monitoring Template.**

This process marked a key change in how regional discussions are conducted. Previously, most regional planning in Asturias had centred on energy supply infrastructure and the integration of renewables. The introduction of EE1st encouraged a broader dialogue on the demand side, focusing on reducing energy consumption, improving efficiency in industrial processes and buildings, and assessing non-energy benefits such as social impact, employment, and environmental gains.

The principle also helped bridge different policy areas, prompting collaboration between departments responsible for energy, industry, environment, and spatial planning. As a result, energy efficiency began to be seen not only as a technical measure but as a central driver of economic competitiveness, social inclusion, and sustainable growth in the region.

The discussion around EE1st also introduced a stronger emphasis on monitoring and data management, highlighting the need for reliable indicators (KPIs) to evaluate the performance of energy measures over time. During the workshops, regional authorities recognized that the effective application of EE1st requires consistent access to data on energy use, emissions, and investment outcomes, where the forthcoming **Regional Energy Transition Observatory** is expected to play a pivotal role. The Observatory will act as a coordination hub, facilitating cross-departmental collaboration and ensuring that efficiency measures are properly assessed before supply-side investments are considered

Overall, the EE1st principle has changed the way energy transition is discussed and planned in Asturias. It has moved the conversation from a reactive, project-based approach to a proactive and systemic perspective that values efficiency as the first option in any decision-making process. This shift aligns with the recent update of Spain's **National Energy and Climate Plan (NECP 2023–2030)** and positions Asturias to embed EE1st at the core of its forthcoming revision of the **Regional Energy Transition Strategy (RETS)**. The region's experience demonstrates that adopting EE1st is not merely a technical adjustment but a cultural transformation that strengthens multilevel dialogue, encourages transparent decision-making, and creates a solid foundation for more cost-effective and sustainable regional energy planning.

What can EE1st change in the analysis / assessment: example of social CBA

Two different types of CBA can be conducted, namely:

Original CBA:

A cost-benefit analysis (CBA) is conducted to measure the benefits of a decision or taking action minus the costs associated with taking that action. CBA includes measurable financial metrics such as revenue or costs due to the decision to pursue a project. In this research, the term economically feasible or not feasible are also used to explain the results of the CBA analysis. The economic impacts are identified, and the evaluation is performed taking into consideration the impacts on the national economy. The analysis is based on changes in the market prices.

Social CBA:

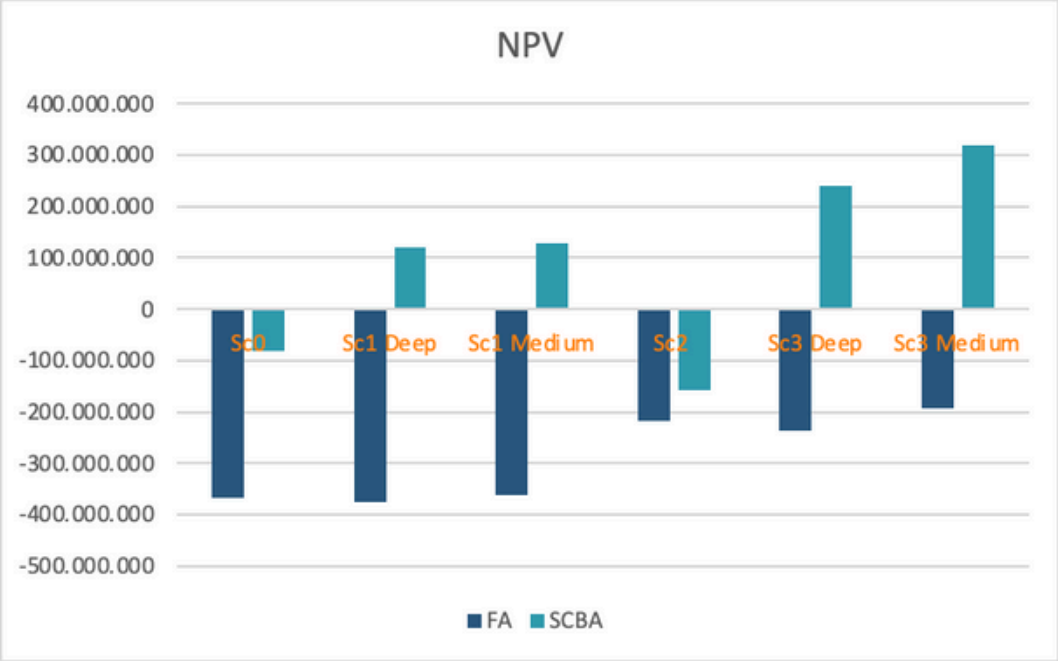
SCBA includes all the factors of CBA analysis. In addition to this, the environmental and social impacts are identified, and the evaluation is performed taking into consideration the impacts on the whole society. The analysis includes both the market prices and the external cost and benefits triggered by the examined investments.

The CBA aims to examine the social profitability of the examined energy efficiency projects, justifying the potential utilization of specific financial schemes (such as subsidies) in relation with the results of the financial analysis. The conduction of the financial analysis and the social CBA leads to the calculation of two different indicators, namely the financial Net Present Value (NPV) (or the financial Internal Rate of Return (IRR)) and the social NPV (or the social IRR respectively). Another considered metric is the Benefit-to-Cost Ratio (B/C Ratio).

Table 1: The results of financial and social NPVs and the decisions to move forward/to stop.

Potential result of calculations	Financial NPV	Social NPV	Conclusions	Next steps
1st	≥ 0	≥ 0	Economically and socially beneficial	Promoting these types of investments/interventions
2nd	≤ 0	≥ 0	Economically not beneficial. However, socially important	Providing financial supports, e.g., subsidies, increasing municipality's equity share in the investment
3rd	≥ 0	≤ 0	Economically beneficial to invest on a project but not socially.	Penalty for the investors and imposing the incentives that distribute the economic benefits among different groups, such as taxes.
4th	≤ 0	≤ 0	Economically and socially not beneficial.	Stop the investments/interventions

Figure 1: Overview of B/C ratios per scenario for Asturias.



When comparing to the baseline scenario, the best performing scenario for Asturias was **Scenario 3 with medium renovation**. In fact, this scenario presented the **highest social NPV,** whereas the **economic NPV was negative for all scenarios.** The results clearly show how more costly investments generate higher economic and social gains in the long run. Additionally, due to the broader coverage of the baseline scenario, the latter was found to affect the **highest number of households,** explaining why policies relying on fossil fuels might still be favoured by national or regional authorities, as such short-term economic measures can reach a larger share of the population.

Furthermore, all scenarios including building renovations performed better than more economic options such as the replacement of heating technologies with more efficient fossil fuel boilers or heat pumps. Among them, Scenario 3 with medium renovations presented not only the highest social NPV but also the highest Internal Rate of Return (IRR). At the same time, the deep renovation scenario (Scenario 1) achieved the highest Benefit-to-Cost (B/C) ratio, demonstrating that deeper interventions remain the most beneficial in the long term.

What's next?

EE1st principle's introduction in Asturias represents an important milestone toward a more efficient, sustainable, and evidence-based regional planning framework. However, as the regional experience has shown, embedding EE1st into governance and decision-making is not a one-time exercise but rather a progressive and iterative process. The Regio1st project has provided the foundation for understanding the principle, testing the methodology, and identifying how it can be applied within Asturias' own planning and institutional context.

Moving forward, several actions and improvements can help ensure that EE1st becomes an integral part of regional energy governance and future policy cycles.

The upcoming revision of the **Regional Energy Transition Strategy (RETS)** offers a key opportunity to integrate EE1st principles and tools such as SCBA and MCDA into the planning process, ensuring that efficiency measures are prioritised before new supply options.

Capacity building and technical support should be strengthened for regional and municipal staff to ensure that the methodologies introduced through Regio1st can be applied independently in future planning cycles. Establishing a regional working group on EE1st composed of representatives from the Directorate General of Energy, universities, and municipalities could also support coordination and promote knowledge sharing across departments.

The **Regional Energy Transition Observatory** will play a central role in monitoring EE1st implementation, improving data collection, KPI tracking, and transparent evaluation of energy measures.

Strengthening **multi-level and cross-sectoral dialogue** across energy, transport, housing, and industry along with awareness-raising among citizens and SMEs, will enhance commitment and support for EE1st in Asturias.

REGIO1ST

Regio1st raises awareness about the Energy Efficiency First principle (EE1st) among regional governments and their agencies and supports them to make related decisions in their planning.

Scan here to visit our Planning Framework:

www.fedarene.org/project/regio1st

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