

Background and objectives

A [SECAP \(Sustainable Energy & Climate Plans\)](#) is a local planning document, voluntarily signed by a municipality, or group of municipalities, committing to concrete mitigation and adaptation actions to achieve climate objectives by 2030 and/or 2050, under the framework of the [Covenant of Mayors](#) launched by the European Commission in 2008.

[Recent data](#) confirm that **Italy** remains **one of the most active countries** in the Covenant of Mayors framework. Around 4,900 local administrations have signed the Covenant of Mayors, accounting for 61.4% of Italian municipalities and **45% of the Covenant signatories in the EU**. Many of these administrations participated through joint or group signatories, highlighting a strong national commitment to SECAP-type planning¹. Almost all (95%) of the about 4,900 Italian municipalities that signed the Covenant have less than 50,000 inhabitants.

This planning aims to strengthen methodologies for climate risk assessment, emissions inventories and energy poverty evaluation. However, recent assessments² highlight several persistent **challenges**:

- uneven regional distribution of municipalities with fully developed adaptation commitments;
- limited submission of monitoring reports compared with the number of plans (about 34%);
- capacity gaps in small municipalities, requiring regional or national support structures.

Overall, the Italian SECAP landscape is highly mature in terms of participation but still evolving in quality, monitoring, and the integration of new EU policy priorities, such as energy poverty and the operationalisation of the EE1st principle. The SECAP is a strategic policy tool rather than a technical project design, meaning that complementary technical and financial evaluation instruments are needed in later planning phases.

In June 2025, the **Joint Research Centre (JRC)** has issued [new guidelines](#) to enhance the quality of future SECAPs. Among the new developments compared to the [2018 guidelines](#), the 2025 ones refer to the EE1st principle, in line with Article 3 of the EED ([Energy Efficiency Directive \(EU\)2023/1791](#)). Exchanges with stakeholders during the pilot case have stressed the **need for additional guidance** or support to integrate EE1st in the process and practices of SECAPs. Indeed, almost all the SECAPs analysed for this pilot case refer to the 2018 guidelines, that were issued before the EE1st principle was formally established in the [Governance Regulation \(EU\)2018/1999](#)).

At national level, the EE1st principle is mentioned in Italy's updated NECP ([National Energy & Climate Plan, June 2024](#)) as a general objective for investment plans financed by the Structural Funds, covering the energy security and internal energy market dimensions (as required by the Governance

¹ The Italian acronym for SECAP is PAESC.

² See data about SECAPs on the [website of the Covenant of Mayors](#) and in the [JRC database](#)



Regulation). This updated NECP lacks further details and does not mention the requirements set out in the new Article 3 of the EED. Further provisions on the implementation of EE1st in Italy will be available once the decree transposing the EED has been approved. In the meantime, Italy's updated NECP highlights the important role of SECAPs to ensure the active role of municipalities to meet Italy's 2030 and 2050 climate objectives, notably through their close links with citizen.

ENEA is the **national coordinator** of the Covenant of Mayors in Italy to promote and support territorial coordinators. ENEA has set up a **steering committee** including the European Covenant of Mayors office³, ISPRA (Italian Institute for Environmental Protection and Research), and RENAEL (the Italian network of energy agencies). The Committee promotes networking activities involving municipalities that signed the Covenant, and provides technical support to develop, implement and monitoring of SECAPs. ENEA has also developed a [SECAPs Platform](#) within the Italian Sustainable Energy for Public Administrations "ES-PA", providing technical support⁴ to municipalities and local energy agencies in implementing and managing their SECAPs.

ENEA also provides technical support to the **Regional Energy Plans**, intermediate level between NECPs (national level) and SECAPs (municipal level). Regional Energy Plans are meant to coordinate local energy planning. Some Italian regions (e.g., Veneto, Emilia-Romagna, Piemonte, Puglia) are particularly active in their role as local coordinators, providing SECAPs' guidelines – in accordance with JRC Guidelines – adapted to their territory and providing technical support to signatories. For more details about the Italian context and resources for SECAPs, see chapter 5 in ([ENEFIRST Plus 2025](#)).

In this context, the **objectives** of the first Italian pilot case were:

- To assess to what extent the EE1st principle would already be implemented in SECAPs:
 - ✓ By reviewing the weight given to energy efficiency and the types of energy efficiency and demand-response actions found in SECAPs
 - ✓ By analysing current practices used to select actions during the preparation or revision of SECAPs
- To assess how the EE1st principle could be better integrated in the processes and practices for preparing a SECAP

Methodology

The Italian pilot case examined, in **two steps**, the extent to which SECAPs are consistent with EE1st and how EE1st could be further integrated into these plans:

- The first step reviewed a selection of well-documented SECAPs to analyse the **criteria for selecting and prioritizing measures**, the emphasis placed on energy efficiency, and the level of ambition of the targets.
- The second step was a more detailed analysis of a sample of measures (selected from the first step) using a **multi-dimensional evaluation**, an integrated approach (planning, investment decision, and market regulation), and a CBA methodology.

³ Represented by Climate Alliance in this steering committee.

⁴ See <https://datascience.codata.org/articles/10.5334/dsj-2023-037> and <https://iris.enea.it/handle/20.500.12079/70027>

The methodology was designed to be transparent, communicable, and replicable. To operationalise the EE1st principle, an in-depth lexical and conceptual analysis of the main European regulatory framework was conducted, including the Governance Regulation, the [Commission Recommendation \(EU\) 2021/1749](#) on EE1st, the EED, and the [Commission Recommendation \(EU\) 2024/2143](#) on the interpretation of Article 3 of the EED.

The **criteria to select SECAPs** for the first step included (i) SECAPs approved after 2015, with targets set for 2030 or 2050, (ii) a population of more than 10,000 inhabitants, (iii) the presence of monitoring reports (MEI), (iv) public availability of data, and (v) representation of different climatic and geographical areas. From this screening, five representative SECAPs were selected, distributed across Northern, Central, and Southern Italy, with particular attention to the most up-to-date and well-documented cases.

The analysis of the selected sample led, in the second step, to the development of a **multi-dimensional analysis (MDA)** methodology, created by ENEA to assess ex post whether and how SECAPs incorporate the EE1st principle. The City of Naples was chosen as the main pilot case due to the availability of a comprehensive plan and the local administration's collaboration.

The MDA is the main methodology for the identification of prevailing dimensions within the planned actions. The **operational phases** include:

- Collection and characterisation of the data contained in the SECAP.
- Assignment of a prevailing dimension to each action, based on identified keywords and indicators.
- Calculation of the percentage distribution of the dimensions in relation to the total number of actions.
- Verification of completeness: presence of all EE1st dimensions and their balance.
- Interpretation of the results and discussion with stakeholders.

The considered MDA dimensions are:

- **Energy** = reducing consumption and improving efficiency,
- **Financial** = economic evaluation and cost-benefit analysis (i.e. economic sustainability of proposed actions),
- **Regulatory** = regulatory and planning instruments (notably to remove regulatory barriers),
- **Awareness** = information and awareness-raising among citizens, and
- **Social** = equity and social inclusion, and energy poverty alleviation.

The **pilot case about the city of Naples** involved public authorities, regulators, network operators and civil society. Stakeholders were selected based on criteria of capacity, influence, and willingness to cooperate, thus ensuring a participatory and representative approach. The involvement of the main actors was as follows:

- **The Municipality of Naples** provided data and participated in reviewing the actions of its plan.
- **The University of Naples “Federico II”** contributed to the definition of indicators and technical analysis.
- **Regions** such as Emilia-Romagna, Sicily, Piemonte, Veneto offered experience in territorial coordination and alignment between regional and local plans.
- **Institutional networks** such as RENAEL and ANCI Emilia-Romagna facilitated stakeholder dialogue.

- **Energy operators** (RSE, SNAM, TERNA, e-Distribuzione) provided a valuable system-wide perspective for assessing the impact of reduced consumption on the grid and infrastructure investments.
- **Social organisations**, such as the Alliance Against Energy Poverty, highlighted fairness and the distributive impacts of energy policies.

ENEA coordinated a **structured dialogue process** divided into two main stages:

- A preparatory phase consisting of individual interviews, questionnaires, and online workshops to collect data and map local experiences.
- A discussion phase was held at a national public workshop in Naples in May 2025, dedicated to presenting the results and discussing challenges and opportunities.

The multi-dimensional analysis (MDA) made it possible to:

- Assess the presence and relative weight of EE1st dimensions within each plan.
- Measure the overall consistency of the SECAP with the principles of efficiency and sustainability.
- Identify the areas that need improvement (for example, governance or tackling energy poverty).

Main results

The analysis in the first step (**review of SECAPs**) showed that most SECAPs focus their actions on energy efficiency and renewable energy sources, but do not explicitly reference the EE1st principle. However, many actions — such as building retrofits, efficient public lighting, or rationalisation of municipal transport — **implicitly prioritise efficiency** over expanding energy infrastructure.

The analysis in the second step (**multi-dimensional analysis**) showed that more than half of the actions (53%) fall within the energy dimension, followed by the regulatory (35%) and awareness (12%) dimensions, while the social dimension remains marginal. These results reflect the **centrality of energy efficiency in the SECAPs**, while highlighting the need for a more integrated and inclusive approach, as required by the new EED.

The **pilot case of Naples** shows good coherence with the EE1st concept, with all dimensions adequately represented and distributed according to the expected priorities. The only exception concerns the social dimension, which was absent because combating energy poverty did not constitute a mandatory requirement under the former regulatory framework⁵. The ENEA team assessed the former SECAP, submitted in 2012 with three monitoring reports (2015, 2017, and 2020), and the new one submitted during the pilot case (just before the public workshop held in Naples in May 2025).

The discussions with the main actors highlighted **key enabling factors**:

- **An effective practice** in energy efficiency and local energy planning: the highly skilled staff brings to the SECAP significant expertise and highly valuable assessments from other

⁵ the energy poverty pillar has been introduced in the SECAP guidelines in 2022, whereas the previous SECAP of Naples was adopted in 2012.

advanced research projects and studies in crucial sectors, enabling a deep understanding of local vulnerabilities.

- **Broad stakeholder and research involvement**, such as public information campaigns on energy efficiency, and the synergy between public administrations and stakeholders: this allows the design of comprehensive projects.
- **Integration** of local municipal plans and projects in the environmental and energy sectors: this enriches SECAP commitment and results.

Moreover, a few **shortcomings** emerged, including:

- **Methods and data management** to be enhanced: too much data, not homogeneous, should be elaborated and integrated to achieve an exhaustive representation of municipal behaviour. Although large datasets are available, these are often heterogeneous and difficult to compare across municipalities. Data should be contextualised to the territory and take care of its peculiarity and main issues, divided by sectors (e.g. social, energy poverty, energy efficiency, and so on).
- Difficulties to **coordinate with the supply side of the electricity system** (lack of capacity and feasibility), highlighted by a few stakeholders: supply-side decisions are often beyond the municipality's decision-making level. Thus, they require greater involvement of energy utilities (TSO and DSO) and higher levels of governance (such as the Province and Region) in infrastructure investments. Utilities should plan and design further developments and improvements that take into account the challenges in their territories.
- Importance of **social and behavioural changes** to raise awareness in an integrated approach to planning activities and investment choice: increasing awareness about energy efficiency among citizens, businesses, and public administrations is essential, as is the adoption of integrated approaches that combine technical measures with behavioural change policies.
- Need for **harmonization between various levels of governance**, e.g., Region and Municipality coordination, that leads to conflict between interests and resources: coordination between regional and municipal authorities is still fragmented. Limited resources and competing priorities frequently lead to conflicts in decision-making.
- The need to preserve **historical and artistic heritage** often clashes with energy efficiency measures: there are additional requirements and technical difficulties that slow down procedures and raise costs.
- Uncertainty and **difficulty in accessing financial instruments**: many actions cannot be deployed due to a lack of funds. Sometimes there are underutilized funds (e.g., the national fund "Fondo Nazionale Efficienza Energetica"), but municipalities cannot collect them due to cumbersome bureaucratic procedures.

Overall, the pilot case has shown that strong stakeholder engagement and collaboration between public administrations, research institutions, and local actors, as done in the case of Naples, can enhance the integration of the EE1st principle.

Where/how implementing EE1st makes a difference

SECAPs are, in most cases, intrinsically focused on Energy Efficiency First. Hence, their preparation is a complex process that involves many assessments and considerations, some of which are not strictly related to energy efficiency. Besides, during the pilot case, a few requirements emerged:

- The **decision process for selecting the actions** included in the SECAP needs to be clarified further. Many choices stem from political decisions, other projects, or preliminary evaluations that have not been reported in the SECAP document. Therefore, it is not clear whether the EE1st concept has been considered.
- An **affordable data-collection** phase, providing available and coherent information about the municipality, may prevent misunderstandings of local needs and allow fair comparisons.
- Each municipality has different in-house skills and capacities (number of people, dedicated department, available time, competencies, etc). **Various types of support** can be offered to municipalities to help them. For example, a community of practice, a one-stop shop for retrieving key information, electronic sheets, and/or energy software. Those tools enable people with minor competencies to use complex algorithms to estimate consumption, emissions, and costs for common actions. For example, the [“ENEA Paes Platform”](#) allows municipal operators to assess energy consumption and CO₂ emission for the main sectors of SECAP, and simulate the effort required to reach an emission reduction; or CBA tools, such as the [ENEFIRST+ CBA tool](#), that helps estimate costs and benefits from energy efficiency interventions in buildings; or the [MICATool](#) that helps assessing multiple impacts from energy efficiency measures.
- Among several difficulties in filling bureaucratic documents, there is a **need for simplification** of regulations and an **increase in enforcement** of existing regulations rather than adding new rules.
- Other advice is related to tools to raise awareness of the EE1st concept: they should be **inclusive and tailored to a large audience**, with an adequate invitation campaign to involve people, professionals, technicians, and decision-makers in public events.

Conclusion

The proposed methodological framework represents a significant contribution to the systematic assessment of the integration of the EE1st principle within local energy policies. However, the methodology requires further investigation and validation to consolidate its applicability across diverse territorial contexts, constituting a promising area for future research in the field of multi-level energy governance.

The framework could provide a structured basis for comparing different generations of SECAPs over time, enabling policymakers to monitor how the integration of the EE1st principle evolves in response to regulatory updates, technological progress and shifting socio-economic conditions.

Stakeholder's experience: Municipality of Naples

Here are a few considerations within the project derived from Naples' experience.

MDA was applied to 83 actions in the Naples SECAP. It shows that:

- **Energy** dimension prevails in actions that include buildings, lighting, mobility, transport, and RES.
- **Regulatory** dimension prevails in territorial planning.
- **Awareness** dimension prevails in governance and cooperation.
- **Financial** dimension is always present in almost all actions.
- **Social** dimension is not available in this SECAP; it is lacking in every action.

Key issues discussed:

- The **multi-level governance** is essential for integrating local energy planning into broader regional and national strategies. Moreover, a **centralized energy department** with budget management capabilities within the municipality can achieve even better results.
- Regions and other intermediate bodies (public associations / local communities, provinces, or non-profit institutions) can support municipalities in **collecting funds** through a shared design of renovation strategies and in promoting them to raise awareness among citizens.
- **Data availability and monitoring** are critical for evaluating the effectiveness of energy efficiency actions.
- **Awareness and capacity building** are recurring needs at all levels of administration.
- Parallel projects could help to **include and develop peripheral neighbourhoods**⁶. If pilot cases involve these areas, it could be a groundbreaking way to address weak areas excluded from private commercial investment for political reasons.
- The **support for public administration** can be legal, technical, and/or financial. For example, energy communities have still found it challenging to spread since their establishment.
- The municipal operators suggest assessing the energy efficiency of **public buildings** with standard methods and adopting renovation strategies (cf. exemplary role).

⁶ For example, Scampia is a popular low-income residential area in Naples.

About Enefirst Plus

Enefirst Plus is a 3-year project (November 2023 – October 2026) co-funded by the EU LIFE programme. Building on the previous Horizon 2020 **Enefirst** project, the aim of Enefirst Plus is to provide key stakeholders in all Member States with the technical support needed to effectively implement Energy Efficiency First across various sectors, particularly focusing on key decision-making processes.

Energy Efficiency First (EE1st) is an overarching principle for planning, policies and major investments having an impact on energy consumption. EE1st is about considering **energy efficiency and demand-response as energy resources** in the energy system, just as supply-side resources (e.g. generation capacities, network infrastructures). Implementing EE1st means that in planning exercises, policy design or decision-making about investments, the options considered include energy efficiency and demand-response, and that these options are compared with supply-side options on a **fair basis**, considering **multiple impacts and a long-term perspective**.

Implementing EE1st is easier said than done. Therefore, the general approach of Enefirst Plus is to complement existing resources to **plug EE1st in the decision making** for investments in energy infrastructure, energy planning, and designing incentives and policies.

Enefirst Plus is testing this approach in four countries (Croatia, Italy, Greece and Poland) and scrutinise the implementation of EE1st with **pilot cases** in each country. Two cycles, with four pilot cases each, will provide a diversity of **real-life examples** addressing typical situations where EE1st should be implemented. The new resources and pilot cases produced by the project, as well as experiences from other countries, serve as foundational elements for capacity building and experience sharing activities, and for the development of a community of practice.

Enefirst Plus' partners



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