REGIO1ST

Implementing the Energy Efficiency First Principle in Regional Planning

POLICY BRIEF

October 2025

In a nutshell

While Slovenia does not have formal regional authorities, municipalities play a leading role in driving the energy transition at the local level. They are legally required to prepare Local Energy Concepts (LECs), which serve as the cornerstone of local energy policy. These ten-year strategic documents, together with Sustainable Energy and Climate Action Plans (SECAPs) and Sustainable Urban Mobility Plans (SUMPs), are aligned with both national and EU energy frameworks. The EE1st principle is increasingly shaping these planning processes by encouraging municipalities to prioritise energy demand reduction and cost-effective efficiency measures before considering additional supply.

Slovenia has already established a strong legal basis for integrating EE1st, but challenges remain. Municipalities, especially smaller ones, often **lack the technical and financial capacity** to develop ambitious strategies, leading to dependence on external experts and limiting local ownership of plans. Financing is centralised, with municipalities competing for national funds, while **fragmented heating infrastructure** further constrains the potential for systemic efficiency improvements.

Co-funded by the European Union under project ID 101076088. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

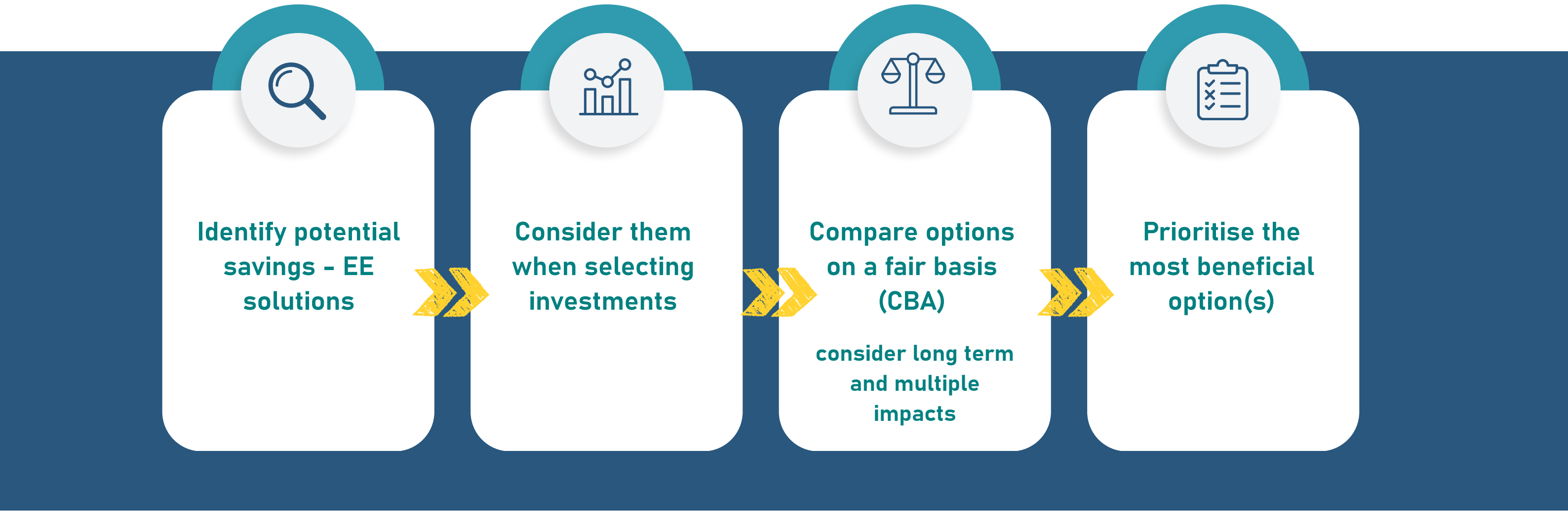
Despite these challenges, promising progress has been made. Regional workshops organised under the **Regio1st project** demonstrated that structured dialogue, stakeholder engagement, and practical tools such as cost–benefit and multi-criteria analyses can help embed EE1st in local decision-making. These activities strengthened collaboration between municipalities, increased awareness of funding opportunities, and promoted evidence-based prioritisation of energy efficiency and renewable measures. Training exercises also revealed the value of considering wider social and environmental impacts through **social cost–benefit analysis**, which helps justify public support for projects that may not be financially attractive but deliver significant societal benefits.

Overall, the Slovenian case illustrates both the potential and the barriers to implementing the EE1st principle. It demonstrates that while municipalities are willing and able to embrace efficiency-first thinking, they need stronger institutional support, targeted financing mechanisms, and greater stakeholder participation to fully realise its benefits.

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.

[1] Defined in 2018's Governance Regulation, reinforced in 2023's recast

EU context and policies

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

- **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.

Slovenian context

Regulatory framework

In Slovenia, energy planning is primarily mandated at the municipal level, as the country has no regional authorities. The Energy Act requires every municipality to prepare a Local Energy Concept (LEC), a ten-year strategic document approved by the Ministry of the Environment, Climate and Energy. The LEC serves as the cornerstone of local energy policy, outlining tailored measures for efficient energy use, renewable energy deployment, and air quality improvement, while also providing a basis for broader municipal economic and infrastructure development. Municipalities are further obliged to report annually on the implementation of measures and their impacts.

The preparation of LECs is governed by the Rules on the methodology and mandatory content of the LEC, supported by technical guidance. These plans are aligned with national and EU frameworks, including the Act on the Efficient Use of Energy (ZURE), the Act on Renewable Energy Sources (ZSROVE), building efficiency rules, and regulations on renewable self-supply. Such alignment ensures coherence between local strategies and national energy transition objectives, embedding the EE1st principle into the planning process.

[2] Directive (EU) 2023/1791 on Energy Efficiency
[3] Directive 2022/869 on guidelines for trans-European energy infrastructure (TEN-E)

Financing of measures remains centralized. Unlike in many EU countries, Slovenia has no regional operational programmes, relying instead on a single national operational programme. Calls for funding—covering areas such as building renovation, renewable energy investment, and district heating—are managed at ministry level. Municipalities can either use their own resources or compete for these national funds to implement measures identified in their LECs.

Implementation at the local level is progressing, with municipalities such as Ormož and Slovenska Bistrica developing LECs, SECAPs, and SUMPs. Nonetheless, significant barriers remain. Many municipalities, particularly those with fewer than 10,000 inhabitants, lack the technical and financial capacity to design and implement ambitious energy plans. This often leads to reliance on external experts, limiting local ownership and stakeholder engagement. In addition, the absence of district heating systems in most municipalities restricts their ability to substantially reduce fossil fuel use, as households remain dependent on individual heating systems.

Overall, Slovenia's regulatory framework provides a strong legal basis for integrating the EE1st principle at the municipal level. However, challenges linked to **limited local capacity**, **centralized financing**, and **fragmented heating infrastructure** continue to hinder the full realization of energy efficiency as the first resource.

Regional energy planning process

As described before, in Slovenia, energy and climate planning is primarily implemented at the municipal level, often with the support of external experts due to limited local capacity. Municipalities appoint a steering group and project manager to oversee the preparation of LECs and SECAPs. The process involves data collection from energy suppliers, grid operators, district heating operators, and other stakeholders, alongside analysis of energy use and identification of measures to improve efficiency and renewable energy deployment. Final plans are approved by municipal authorities and the relevant ministry and are made publicly available.

Stakeholder engagement typically involves energy agencies, utilities, and operators, with citizens rarely participating. National guidelines govern the methodology for LECs, while SECAPs follow the Covenant of Mayors framework. Both plans cover residential, public, industrial, and transport sectors, with a primary focus on energy efficiency and renewable energy, particularly in public buildings. While measures specify actions, detailed technical specifications are usually determined during implementation through feasibility studies and energy audits. Plans also include estimated costs, responsibilities, timelines, and potential funding sources, often from national programmes or municipal budgets.

Although the **EE1st principle** is increasingly recognized in Slovenia and integrated into national policies, it is not yet fully embedded in local planning. Cost-benefit analyses for proposed measures are performed but often do not account for wider impacts beyond energy costs. National and local efforts to incorporate EE1st include energy efficiency targets, regulations, financing mechanisms, and awareness campaigns, supported by institutions such as the Slovenian Environmental Public Fund (Eco Fund). Key challenges remain, including technical complexity, financing, regulatory barriers, and behavioural constraints, particularly in small municipalities with limited resources.

Slovenia employs a **multilevel governance** system, in which municipalities have autonomy to implement energy and climate measures, while national authorities develop overarching policies, including the Integrated National Energy and Climate Plan (NECP). Coordination mechanisms ensure alignment between local and national plans, with consultation processes involving municipalities, NGOs, and energy companies. Regional coordination is supported by bodies such as the College of Mayors and the Development Council of the Podravje region. **Local authorities** influence energy supply decisions, infrastructure siting, permitting, investment promotion, and incentives for clean energy and efficiency measures, thereby playing a crucial role in achieving sustainable development, reducing greenhouse gas emissions, and ensuring a reliable and affordable energy supply.

How to embed EE1st in regional governance structure and decisions

The EE1st principle emphasizes prioritizing energy efficiency measures before considering additional energy supply options. Its effective implementation at the regional level requires structured governance, active stakeholder engagement, and mechanisms to ensure transparency and mutual understanding between energy producers, consumers, and policymakers.

Stakeholder Engagement and Collaborative Decision-Making

Regional meetings demonstrated that EE1st implementation benefits from structured dialogue among all relevant stakeholders, including municipal authorities, energy suppliers, grid operators, local industries, and citizen representatives. Initial discussions revealed that municipalities often lack comprehensive data on energy demand and supply flexibility, limiting their ability to identify synergies between renewable energy generation and demand-side management.

Through facilitated workshops and working group meetings, stakeholders were able to:

- Map local energy demand and supply patterns, identifying opportunities for demand-side flexibility and better integration of renewable energy sources.
- Develop a shared understanding of priorities, constraints, and responsibilities across sectors.
- Establish transparent communication channels to report progress, share data, and evaluate the impact of proposed energy efficiency measures.

Mechanisms for EE1st Implementation

Based on the Regio1st framework, regional authorities can embed EE1st in governance and decision-making through:

1 Integration into local and regional plans

- **Ensuring that LECs, SECAPs, and regional development plans explicitly prioritise energy efficiency measures** before considering new supply infrastructure.
- **Aligning local efficiency targets with national and EU-level** energy and climate **objectives.**

2 Decision Support Tools and Data Transparency

- **Using energy modelling and scenario analysis** to assess the cost-effectiveness and environmental benefits of energy efficiency measures.
- **Making data on energy consumption, demand patterns, and renewable generation publicly available** to improve transparency and facilitate informed decisions.

3 Coordinated Multi-Level Governance

- **Establishing regional working groups or steering committees** to coordinate actions between municipalities, utilities, and national authorities. The National Consortium of Local Energy Agencies (KLEAS) plays an important role as the link between the local and national level.
- **Leveraging joint initiatives**, such as shared renewable projects or demand-response programs, **to maximise synergies.**

Lessons Learned

Regional experience shows that even in areas with limited technical capacity, EE1st can be effectively embedded by:

01 • Engaging stakeholders early and maintaining ongoing dialogue to build trust and mutual understanding.
02 • Using structured workshops and scenario analysis to reveal the interplay between energy efficiency, renewable energy, and demand flexibility.
03 • Formalizing agreements on roles, responsibilities, and monitoring procedures to ensure accountability and follow-up.

These practices are transferable to other regions, as they focus on general governance structures, stakeholder engagement methods, and transparent decision-making processes rather than region-specific technologies or energy mixes. By integrating EE1st principles into regional governance, local authorities can ensure more cost-effective, environmentally sustainable, and socially inclusive energy planning.

Available support for regions – Policies, Funding and more

Slovenian municipalities have access to a range of financial, technical, and advisory support mechanisms to implement energy efficiency, renewable energy, and broader climate measures.

Financial Support

The Slovenian Environmental Public Fund (Eco Fund) provides grants and low-interest loans for local energy efficiency projects, renewable energy installations, and environmental protection initiatives. At the national level, EU cohesion policy funding allocates resources for integrated energy-saving renovations of municipal buildings, support for local energy communities, and renewable energy projects. Additional financing options include collaborations between the Slovenian SID Banka and the European Investment Bank (EIB), offering loans for small-scale infrastructure and green energy measures. Targeted funding also supports vulnerable households; for example, the Action Plan to Alleviate Energy Poverty (2024–2027) provides EU funds for energy efficiency improvements for households facing energy poverty.

Technical and Advisory Support

Municipalities can benefit from expert guidance through the Energy Advisory Network (ENSVET), which provides free advice to improve energy efficiency, the National contact point for RES projects, with offices all over Slovenia and the Covenant of Mayors, a European initiative supporting municipalities in preparing and implementing Sustainable Energy and Climate Action Plans (SECAPs). These networks offer methodological guidance, capacity building, and access to best practices for energy and climate planning and implementation.

Collaborative Platforms

Institutional coordination is facilitated by the Association of Municipalities of Slovenia (SOS), which provides a platform for knowledge sharing and exchange of best practices. Regional initiatives, such as joint SECAP development in the Gorenjska region, demonstrate effective cooperation between municipalities for integrated energy and climate planning.

Overall, the combination of financial instruments, technical assistance, and collaborative platforms enables Slovenian municipalities to develop and implement energy efficiency and renewable energy measures. While resources are generally available at the national level, effective utilization requires local capacity, coordination, and active engagement with both national institutions and external experts.

What does EE1st change in the process and discussions?

The EE1st principle fundamentally changes the approach to energy and climate planning at the regional/local level by prioritizing demand-side measures before considering new energy supply. In the pilot region of Spodnje Podravje, Slovenia (municipalities Ormož and Slovenska Bistrica), LEASP organised six regional workshops between April 2023 and June 2025 under the Regio1st project to introduce EE1st and the associated Planning Framework and tools, including the Cost-Benefit Analysis (CBA) and Multi-Criteria Decision Analysis (MCDA).

Use and Uptake of the Regio1st Framework

The workshops demonstrated that municipalities in Spodnje Podravje were highly receptive to the Regio1st framework and tools. Participation ranged from 9 to 15 representatives from 11 municipalities, including municipal energy managers and planners. The workshops allowed stakeholders to explore how EE1st could be embedded into existing Local Energy Concepts and SECAPs.

While national legislation does not yet formally mandate EE1st, municipalities showed strong interest in testing the tools in practice and incorporating efficiency-first measures into local planning documents.

The CBA and MCDA tools were highlighted as particularly useful for prioritizing investments in energy efficiency and renewable energy projects. Participants valued the ability to compare alternative scenarios, evaluate cost-effectiveness, and make transparent, evidence-based decisions. The Monitoring Template was welcomed as a practical tool to track progress on energy efficiency actions and ensure accountability across different municipal initiatives.

Regional Workshop Outcomes

The six workshops combined presentations, practical exercises, and discussions on EE1st implementation. Key outcomes included:

- Strengthened collaboration between LEASP and municipalities, providing ongoing technical support and guidance for energy planning.
- Increased awareness of national funding opportunities for energy efficiency and renewable energy projects, enabling municipalities to link planning with practical investment options.
- A shared understanding among stakeholders of how EE1st reframes priorities—shifting the focus from additional energy supply to energy demand reduction, particularly in municipal buildings and public infrastructure.
- Enhanced capacity for multi-level decision-making, where municipalities could explore synergies between energy efficiency measures, renewable energy generation, and demand-side flexibility.

Workshops also highlighted challenges, including limited familiarity with the EE1st principle among local decision-makers, and difficulties in reducing emissions in sectors outside municipal control, such as transport and industry. Despite these challenges, the process fostered mutual learning: municipalities exchanged experiences on renewable energy installations, energy renovations, and project financing, while LEASP provided targeted guidance.

Impact on Stakeholder Discussions

EE1st influenced both the substance and quality of regional discussions. It prompted participants to consider:

- The cost-effectiveness of energy efficiency measures before investing in new supply.
- Opportunities for transparent, evidence-based planning, using tools to assess alternative scenarios and track progress.

- How to coordinate actions across municipalities, balancing local priorities with national and EU-level targets.
- The value of stakeholder engagement in generating a shared understanding of challenges and solutions.

The EE1st principle also encouraged municipalities to begin integrating efficiency-first thinking into their planning documents. For instance, in Ormož, discussions focused on incorporating EE1st into community PV installations and ongoing actions in the LEC and SECAP, while in Slovenska Bistrica, the principle was considered for inclusion in the final approval of the SECAP and LEC. Both municipalities recognized that EE1st provides a structured method to align local planning with CO_2 reduction targets, despite limited influence over external sectors.

Lessons Learned

The experience in Spodnje Podravje shows that EE1st can be effectively embedded through:

- **Early and continuous stakeholder engagement, creating trust and improving mutual understanding between municipalities, energy managers, and local authorities.**
- **Structured workshops and practical exercises, which allow municipalities to familiarize with the EE1ST principle and with the Regio1st planning framework**
- **Integration with existing planning documents, demonstrating that EE1st can complement existing local policies instead of creating new ones.**
- **Linking planning with funding opportunities, enhancing the feasibility of implementing efficiency measures.**

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:

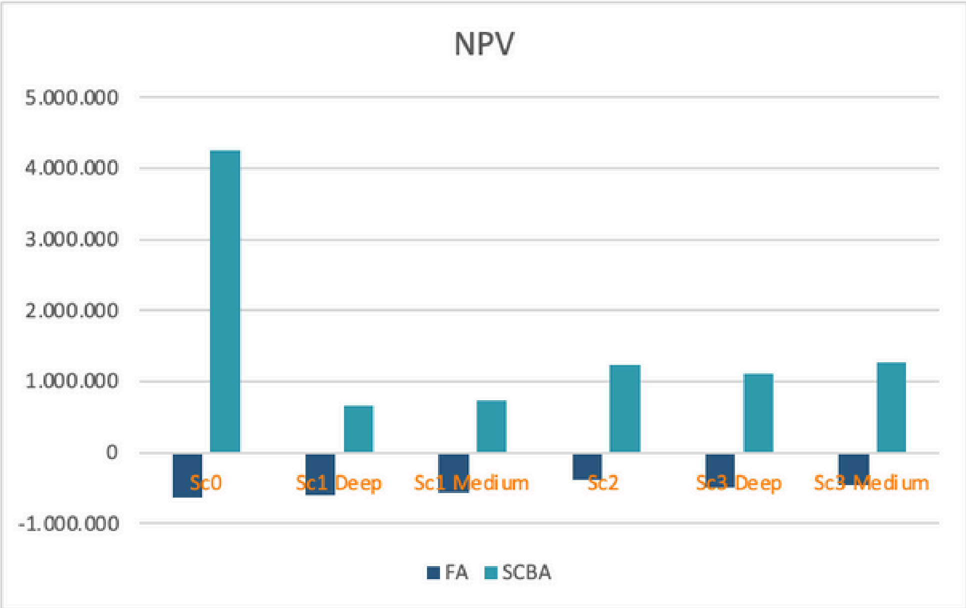
SCBA includes all the factors of CBA analysis. In addition to this, the environmental and social impacts are identified, and the evaluation is performed taking into consideration the impacts on the whole society. The analysis includes both the market prices and the external cost and benefits triggered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



In Ormož and Slovenska Bistrica, the baseline scenario yielded the best results. The baseline scenario is assumed to be the installation of efficient gas boilers (or other types of fossil fuel boilers), without any building upgrade. This scenario yielded the best results due to the high externality value of biomass.

In fact, the latter was assumed to have higher societal harms, following data found in the literature quantifying the societal harm in EUR/kWh. Gas boilers are seen as more efficient and less harmful compared to biomass. It needs to be understood that Ormož and Slovenska Bistrica is a mountainous region, not connected to a gas grid, still relying on the burning of wood (considered biomass). The burning of such fuel presents very low efficiency and harmful substances.

Additionally, this region is not connected to a renewables/electricity grid; hence entailing very high upfront costs and long working timelines. Thus, in this case the rollout of efficient gas boilers presents lower energy expenditures, higher household outreach, lower energy consumption, and a higher household energy connectivity and independence. This is a good example presenting a situation where idealistic proposals (including renewables necessitating high connectivity and large upfront costs) clash with the sociotechnical realities of the region. Lastly, the budget considered for the calculations and the application of the tool was rather low, which highly limits the long-term effects of more costly policy measures, as the outreach becomes minimal.

What's next?

The introduction of the EE1st principle in Slovenia marks an important step toward more cost-effective, sustainable, and inclusive energy planning. Yet, the experience so far also shows that embedding EE1st is not a one-off task, but rather a continuous and iterative process. Municipalities need to start with achievable actions, learn from practice, and gradually expand their capacity to integrate efficiency-first thinking into all areas of decision-making.

To move from initial experimentation toward full implementation, several improvements and next steps can help Slovenia better align its planning, governance, and financing structures with the EE1st principle:

- Systematic integration into local plans: Ensure that all LECs, SECAPs, and municipal strategies explicitly prioritise efficiency measures before considering new supply investments.
- Capacity building for municipalities: Develop training, peer-learning platforms, and technical assistance programmes to reduce reliance on external consultants and build stronger local ownership.
- Enhanced financing mechanisms: Introduce more flexible and targeted funds, especially for small municipalities and projects with strong societal benefits, as identified through social CBAs.
- Broader stakeholder engagement: Expand participation to include citizens, SMEs, and local industries, making planning more inclusive and better aligned with community needs
- Data and transparency: Establish shared data platforms and monitoring systems to support scenario analysis, track progress, and enable transparent evaluation of EE1st measures.

- No-regret actions: Promote quick-win measures such as lighting upgrades and energy management in public buildings, which deliver immediate benefits and build momentum for more ambitious efforts.
- Iterative learning: Treat EE1st as a step-by-step process, starting small and scaling up over time, while continuously sharing lessons and adjusting strategies.

By following these directions, Slovenia can strengthen the role of energy efficiency as the first resource, ensuring that municipalities not only meet national and EU targets but also deliver tangible local benefits such as lower energy bills, improved air quality, and more resilient communities.

Co-funded by the European Union under project ID 101076088. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.