

STEPPING PLUS – Output 3.2

ACTION PLAN
for the EPC schemes roll-out in the public buildings sector
of the Savinjska-Šaleška region

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1. Introduction

In compliance with the EU Renovation Wave Strategy for buildings, the aim of the STEPPING PLUS project is to boost the adoption of EPC contracts for an effective improvement of public buildings energy efficiency in the Mediterranean countries. While EPC models are indeed diffuse in the Northern Europe, many barriers and obstacles are still in place in the Southern countries for their proper implementation.

The purpose of the present Action Plan is to design a regional roadmap for the future roll-out of EPC schemes, taking into account the intrinsic patterns (legislative framework, market conditions and actors, financing institutions, governance, etc) of the region. The Action Plan reports also about regional stakeholders' consultation and preliminary investigation of future investment program in the public buildings sector. The Action Plan results from a STEPPING PLUS pathway of mutual learning and exchange among project's partners and it highlights especially how outputs, methods, tools, lessons learnt and recommendations from STEPPING PLUS project can be transferred in the concerned territory, paving the way for a full EPC implementation in the short-medium period.

For EPC contracts to play a role in future regional policies/investment programmes, the Action Plan is finally expected to be integrated/adopted in official strategic planning tools of the concerned region.

2. Savinjsko-Šaleška region specific EPC context for public buildings

Legislative and market framework

The status of the legislative and regulatory framework in Slovenia remains rudimentary in a sense that it doesn't directly address EPC. The Energy Act (Energetski zakon, EZ-1, Official Journal of the Republic of Slovenia – OJ RS, No. 17/14, 81/15), Public-Private Partnership Act (Zakon o javno-zasebnem partnerstvu /ZJZP/, OJ RS, No. 127/06) and Public Procurement Act (Zakon o javnem naročanju /ZJN-3/, OJ RS, No. 91/2015) outline EPC indirectly, which leads to implementation risk, as potential EPC project could be subject to variable interpretation of regulatory conditions. On the other hand, non-binding regulation on the operational level has seen several improvements in recent years. A project office for energy renovation of buildings was established within the Ministry of Infrastructure in 2015 with a purpose of guiding and navigating the vast scope of the energy renovation field. Within this effort an important document „Detailed guidelines for public partners for energy renovation of public buildings“ was elaborated in 2018 which outlines budgetary, legal and implementation aspects of EPC in public buildings in Slovenia.

Slovenia has over 2 decades of experience in carrying out energy renovation of existing buildings through energy performance contracting. As in other EU countries Slovenia recognized positive benefits of EPC early on, such as engagement of private capital, economic viability, transferring risk to private investors, facilitation of technical expertise, measurement of savings, provided assistance in financing individual projects and transparency of individual projects. However, the market development in Slovenia has been volatile due to its heavy dependence on national policy and external factors such as the economic instability, unexpected trends of energy prices, ect. Despite the fact, that all EPC models that exist in EU also exist in Slovenia, the dynamic development of this area hasn't happened yet and the energy contracting market in Slovenia remains underdeveloped.

The size of the market continues to be a major restraint to further development, particularly from the perspective of the supply side, where only a few ESCOs remain operational, making the market extremely uncompetitive. According to the latest data of Ministry of Infrastructure 8 ESCO companies currently exist and operate in Slovenia. The reason for such small number of ESCO companies in Slovenia are mainly high barriers obstructing the entry into the industry, related to financing and the complexity as well as length of development cycles of ESCO projects, which smaller companies have difficulty sustaining. For better development of EPC in Slovenia several project promoters and additional players in the field of financing (investment funds for guarantees) are needed as well as quality monitoring system and certification of ESCO companies.

In early stages of EPC introduction, Slovenia has experienced boost in EPC projects, as EPC became one of the key measures of Operational Programme for the Implementation of the EU Cohesion Policy in the period 2014 – 2020. EPC was strongly encouraged in combination with cohesion funds in the ratio 40 % cohesion funds and 60 % ESCO company investment (either through bank loans, their private funds or other). EPC also became one of the key measures within the Slovenian Energy Efficiency Action Plan (until 2020), that provided some more concrete actions for mechanisms supporting EPC.

Indeed, the number of projects has risen sharply, from an average of two new projects per year to more than 15 in 2013, and this growth continued in a similar way in 2016. The dominating EPC model was the guaranteed savings scheme. Most EPC projects that were implemented within this operative programme (the latest data is until 2019) were implemented by municipalities. The reason for municipalities being in the forefront of EPC market was possibility to combine EPC with other instruments (ELENA) and because of strong local promoters and facilitators (energy agencies). Municipalities such as Ljubljana and Celje, as well as association of 25

municipalities in West Slovenia implemented 80 public building renovations (39,9 mio EUR) until 2019 through EPC. But the numbers still left a lot to be desired.

In 2019 a strong decline in EPC as well as in other energy renovation projects was apparent. In 2019 only 44,7 % of the building area was renovated of the planned value for that year. While Slovenian ESCO market has been able to overcome a few critical barriers in the early years, many problems remain, with some of the barriers reduced only temporarily. The most crucial barrier currently is related to high-risk perception. Market actors fear the changing environment linked to legislative changes, lack of information, lack of trust, and complex accounting/booking rules (Staničič, 2015), because of which they tend to evaluate the risks to be higher than in general investment projects.

Furthermore, while there is a legislative framework it leaves a space for misunderstandings and issues with interpretation. This is somewhat mitigated by local energy agencies' support, but a more systematic resolution of this problem is needed. EPC projects in the public sector are performed in the framework of the Public Private Partnership Act and in line with Public Procurement Act, both introducing additional complexity into an already complex EPC implementation process and are consequently increasing costs. Strong decline in EPC projects in Slovenia is also related to the specifics of the building stock. As most of the buildings that had high savings potential were renovated in the first years of widespread introduction of EPC in Slovenia, allowing ESCO companies to have their investment returning in 10 to 20 years, now only buildings remain that are no longer interesting for private investors, as they do not represent safe and relatively risk-free return investment.

In 2021 a new strategy was implemented after a long preparation period: Long-Term Strategy for Energy Renovation of Buildings until 2050 (DSEPS). The strategy foresees that around 825 mio EUR investments are needed in the period 2021-2030 for renovation public building sector and emphasizes once again the importance of engaging private capital through ESCO companies. Strategy aims at reviving ESCO market with measures such as:

- developing appropriate financial products for EPC service providers, such as ensuring guarantees for the bank loans;
- developing mechanism for encouraging more companies to step on the ESCO market;
- supporting the development of the EPC through appropriate support measures, such as training, professional and technical assistance in project preparation, quality assurance program for EPC projects, preparation of tools for evaluation of EPC projects, certification of ESCO companies etc.

3. Former experience on EPC schemes in the Savinjsko-Šaleška region

3.1. Renovation of 8 public buildings in Municipality of Celje

In Savinjsko-Šaleška region 1 larger EPC project was implemented in the last years. In municipality of Celje 8 buildings were renovated (mostly schools and kindergartens) in 2018. Technical documentation for the project was prepared within ELENA framework, which covered up to 90% of technical assistance/project development costs. The value of the entire investment amounted to 4,054,573.16 including EUR with 40 % EU cohesion co-funding. Other 60 % were guaranteed by ESCO company (Energetika Celje) in amount of 1,9 mio EUR and Municipality of Celje in amount of 450.000 EUR. Guaranteed savings for all 8 facilities are expected to amount to approx. EUR 175,000 per year (the amount of savings in the entire contract period will amount to approx. EUR 2 million). Contract period is 15 years.

Energy measures implemented vary from building to building and include both organizational and physical measures:

- thermal protection of the building envelope
- replacement of energy inefficient windows/doors
- replacement of lighting and installing motion sensors
- modernization of heating and ventilation systems (modernization of boiler rooms, installation of thermostatic valves with thermostatic heads, hydraulic balancing of the heating system ...)
- in some cases, the installation of a heat pump for the preparation of hot sanitary water, the implementation of thermal protection of the ceiling and thermal protection of the floor
- energy monitoring

3.2. Energy renovation of Primary school Plešivec and Public pool Velenje

In Municipality of Velenje Primary school Plešivec and Public pool Velenje were renovated. The value of the entire investment amounted to 1.389.286,97 EUR. Investment in Public pool Velenje was co-financed by Cohesion funding in amount of 282.236 EUR. ESCO provided 701.950,66 EUR and municipality the remaining 176.613,86 EUR. For Primary school Plešivec cohesion funds amounted to 91.588 EUR, ESCO contribution to 89.374,26 EUR and municipality funds to 47.524,19 EUR. The investment is expected to bring final energy savings of 445.850 kWh per year.

Energy measures implemented in Primary school Plešivec:

- implementation of meters for remote monitoring of energy consumption
- thermal protection of external walls
- thermal protection of the ceiling against the attic
- installation of external blinds
- modernization of the heating system and replacement of heating energy
- replacement of energy inefficient lighting

Energy measures implemented in Public pool Velenje:

- installation of a central control system, which includes the installation of indicative meters for monitoring the energy consumption of the building and the main consumers. Control over the operation of energy systems in the building has been established. Meters are installed to monitor the internal environment.
- thermal protection of external walls

- thermal protection of the roof-ceiling
- replacement of energy inefficient joinery
- renovation of pool water heating
- renovation of domestic hot water preparation system
- lighting renovation
- installation of UF system for pool water preparation

Renovation of 8 public buildings in Municipality of Celje	
Year of implementation	2018
Public Authorities involved	Municipality of Celje
Type of tendering procedure adopted	Public-Private Partnership
Amount of investments awarded (€)	The value of investment: 4,054,573.16 EUR - 40 % EU cohesion co-funding. - ESCO company (Energetika Celje): 1,9 mio EUR - Municipality of Celje: 450.000 EUR
Energy savings targets (%) and/or MWh	175,000 EUR per year
PDA service provided	ELENA

Renovation of Primary school Plešivec and Public pool Velenje	
Year of implementation	2019
Public Authorities involved	Municipality of Velenje
Type of tendering procedure adopted	Public-Private Partnership
Amount of investments awarded (€)	The value of the entire investment: 1.389.286,97 EUR. Public pool Velenje - Cohesion fund financing: 282.236 EUR - ESCO company 701.950,66 EUR - Municipality of Velenje: 176.613,86 EUR. Primary school Plešivec - Cohesion funds financing: 91.588 EUR - ESCO company: 89.374,26 EUR - Municipality of Velenje: 47.524,19 EUR
Energy savings targets (%) and/or MWh	445.850 kWh per year
PDA service provided	

4. Barriers for the EPC implementation in the Savinjsko-Šaleška region

There are several barriers slowing down the EPC implementation in the region, mainly:

1. Lack of experience within local and state administration with EPC approach and strong intention of local stakeholders to keep the usual practice of public procurement approach. Especially combination of multiple financing sources (ESCO, cohesion fund, own resources) introduces additional complexity into an already complex EPC implementation process. Complex relations between several financial stakeholders in such projects means administratively complicated procedure, which local administration is often not ready to undertake.
2. Oftentimes decision-making procedures in municipalities are dependent on municipal mandates (4 years), which makes a decision to implement long term EPC projects more difficult.
3. Low availability of calculation tools and sample contracts, which would make the administrative process somewhat easier. High initial costs for structuring the contract and the legal complexity related to balancing interests and several financial resources oftentimes prove to be task too complex for local administrators.
4. Lack of local promoters and facilitators of EPC, that would actively promote EPC on local or regional level and provide guidance and support in the process.
5. Lack of good practice examples that would show transparently all administrative procedures and clarify complexities of EPC projects.
6. The buildings that were renovated in the first years of the widespread introduction of EPC in Slovenia had the biggest potential for energy savings and ESCO companies could see their investment returning in the next 10 to 20 years. After initial wave of renovations buildings remain, that are not interesting for private companies as they tend to evaluate the risks to be too high.
7. The size of the supply side of the ESCO market is below expectations and competition is scarce. In Savinjsko-Šaleška region there are no active ESCO companies, as high barriers, related to financing, legal complexity, and length of development cycles of ESCO projects, are obstructing the entry into the industry for smaller and medium sized companies.
8. Lack of financing options (grants) for SMEs (potential ESCOs). Although it is possible for private and public subjects to apply for subsidies, there are numerous limitations in practice that slow-down and disable the optimal use of grants for co-financing EE with EPC. An obvious example of this is an existing clause that prevents companies offering energy services to compete for funds on the behalf of the contracting party. The terms of subsidy schemes are often designed in a way that does not fit the actual need of EPC.
9. In 2015 a project office for energy renovation of buildings was established within the Ministry of Infrastructure, with the purpose of leading energy renovation of public buildings, establishing adequate organizational support for the promotion, supervision and quality monitoring of PPP and EPC projects. Project office did not provide adequate function in the following years, and some of their tasks, such systematic monitoring of projects, quality control, guidance, training of relevant actors and other supporting mechanisms were never performed due to lack of financial resources and staff changes.
10. Because of the lacking support from governmental bodies, stakeholders (including ESCOs), end-users, policymakers at all levels and financial institutions have trouble recognizing the technical, economic, and financial benefits of EPC thus not adopting and promoting it properly.

5. STEPPING PLUS mutual exchange

Recommendations and lessons learnt to be transferred in the Savinjsko-Šaleška region, enabling elements for the EPC market uptake

1. **Making a good building selection.** One of the barriers preventing Slovenian ESCO market to experience boost is shortage of buildings, that would guarantee high saving potential. STEPPING PLUS has provided some guidelines on how to combine several buildings in a single project to make the project more appealing for investors. The projects suggest so called *“stepping approach”*, outlining the importance of making good building selection and comprising of pools of buildings for renovation that would be beneficial for the ESCO in terms of investment and returns – while also including less-profitable buildings in the mix. Including larger buildings with complex building system within an EPC contract could also help the EPC to be more successful. Pooling of projects is also a way to develop an attractive business volume for ESCO, since ESCOs sometimes don't answer to projects under a value of 2 to 4 mio EUR.
2. **Aggregating municipalities.** EPC projects can also be implemented by aggregating municipalities, which can be a win-win situation for municipalities that want to include less profitable buildings, but also for ESCO, since the volume of buildings and scope of renovation can present an attractive return investment.
3. **Reducing administrative complexity.** Bundling of buildings and aggregating municipalities also bring another benefit – reducing administrative work. Implementing a great number of energy retrofits within a single procurement and contract can help reduce administrative pressure and complexity as well as pressure on the resources in terms of staff and finance.
4. **Include energy supply.** For critical buildings with low energy savings potential, it is recommended to include in the energy service also energy supply to increase the financial attractiveness (energy supply can be higher than 50% of the EPC budget). This way ESCOs are ensured that low energy savings potential investment will also be paid back through the energy supplied and sold to the local authority. PV production can also be a way to increase investment and financial efficiency.
5. **Engaging EPC facilitators.** STEPPING PLUS outlines the importance of engaging EPC facilitators, who would serve as a mediator, bringing knowledge, know-how and experience to the table, help guide the vast administrative complexity as well as promoting ESCO to the inexperienced local authorities. Promotion of EPC would also eliminate lack of trust in the ESCO industry, that can be apparent in the region, and provide some of the support in developing EPC projects, that is otherwise lacking from the government side. Establishing an active participation of EPC facilitator(s) in the region is the best way for standardization of procedures and introducing trust for both public and private parties. STEPPING PLUS also provided an arrangement of how EPC facilitator can be financed in the framework of the EPC project itself.
6. **Engaging SMEs in the EPC process.** One of the bigger obstacles in the region is that local companies don't wish to enter ESCO market, as the benefits are usually not high enough in oppose to high financial risk and the administrative and technical skills necessary to implement such project. STEPPING PLUS thus suggested ways to engage SMEs and other smaller companies to enter the market by helping them reduce some of the risk of performing EPC projects, such as adapting projects as much as possible to their limitations and capacity as well as providing training and assistance. STEPPING PLUS also suggested imposing larger

ESCOs to arrange fair subcontracting with SMEs or organize joint deal between ESCOs and regional companies to answer to an EPC tender. STEPPING PLUS provided guidelines on how fair subcontracting from the ESCO to SME could be established. This can create a stimulating regional and local environment and would boost local business.

7. **Standardising measurement & verification practices.** One of the aspects that is missing in Slovenia and in the region is standardized measurement & verification process. Establishing a Performance Measurement and Verification Protocol (PMVP) would identify areas to be addressed within an M&V plan and provide guidance on areas such as the trade-off between measurement accuracy and measurement cost. PMVP would help to standardise approaches to measuring savings, although each project is unique and therefore carefully developed M&V plan is a key element of the contract and successful implementation of EPC project. Additionally training in IPMVP protocol for ESCOs, facilitators and other actors could be very fruitful (also through Efficiency Valuation Organization).
8. **STEPPING PLUS simulation tool.** The EPC Simulation Tool and app can be used autonomously. The user will be able to easily find and enter all the necessary data for the simulation of one or more Energy Performance Contracts (EPC) and related Financial and Economic Plan (PEF) for the energy requalification of existing buildings. This tool can also be useful for share simulation examples with municipalities.

6. EPC implementation

Connection and integration with SECAPs and planning tools in place

The first steps have already been taken by the Ministry of Infrastructure with the preparation of “Detailed guidelines for public partners for energy renovation of public buildings”. Many activities have also been implemented in the field of promotion and education of a very wide range of recipients. ELENA initiative, by providing technical assistance, has enabled municipalities of Ljubljana, Novo mesto, Kranj and Celje to successfully carry out pilot EPC projects in Slovenia. It is however necessary to take more active approach towards transfer of knowledge and experience between municipalities and other relevant actors in the future, possibly through more active involvement of external stakeholders.

In the past most experienced stakeholder group proved to be energy advisers to local public authorities (such as energy agencies). Local energy agencies presented a strong support system for local administrations with respect to energy and GHG mitigation and proved to be key actor in promoting the EPC on regional and local level, where municipalities often lack specific knowledge and experience. Energy agencies can play a key role in project preparation, identification of potential, transfer of knowledge and good practices as well as in training. It was shown that municipalities, that have a strong support in local energy agencies, are usually more successful in implementing their SEAPs/SECAPs and generally more successful in obtaining financial resources, which also extends to more successful implementation of EPC projects.

While local energy agencies are certainly most equipped to initiate and advise in EPC projects, there are additional steps that could be taken in Savinjsko-Šaleška region in the future, to boost the EPC development so that EPC model becomes a standard possibility in local energy planning.

- Analysing building stock in the region.** Provide municipalities with necessary knowledge about their own buildings and consumption data. Local energy agency analysing building stock and providing municipality with idea on how much it can save in energy costs by retrofitting is a first step in motivating them to boost the renovation process. It will provide an idea of the actual scope of the investment needed, number of buildings that need to be renovated and most importantly, potential savings that can be achieved (yearly).
- Approaching municipalities with ready to go suggestions.** Identification of potential EPC projects and suggesting simplifying the tendering process by accumulating buildings in larger projects within one contract would help municipalities to decide on the implementation easier. Energy agencies could already create pool of buildings that are inviting for the ESCOs as well as for municipalities, as it would include buildings with high savings potential as well as buildings that municipalities would have a hard time renovating through ESCO otherwise. Proposition can also consist of only one type of buildings (i.e., schools) or one action (10 pellet boilers). This would give municipalities a common goal.
- Informing on available grant schemes and tenders.** In this regard it is also recommended to promote a specific approach, that relies on the available grants first and foremost. To support comprehensive energy refurbishment of buildings that are considered less attractive (investment wise) for ESCOs, the principle of this model relies on the approach that the public partner acquires all grants that are available “a priori”, only then the ESCO finances the difference.
- Encouraging municipalities to aggregate projects.** Local energy agency should encourage aggregation of municipalities to implement a larger number of renovation projects within one EPC contract, making the whole administrative process even less complex, approaching municipalities once again with ready to go pre-structured suggestions.
- Carrying out tendering and negotiation process.** EPC facilitator could provide tender documents and assist in the preparation of these and could also (depending on client experience and skills) run or participate in negotiation procedure.
- Balancing private and public interests.** EPC facilitator should always present realistic example of measures and savings and provide outlook on different but realistic scenarios, which is why it is important to carefully tailor EPC projects so that there is always a win-win scenario for municipality as well as for ESCO company. Municipalities aim at reducing the financial, administrative and personnel burden, while ESCO companies are often not willing to enter high-risk and complex investments. Adapting projects as much as possible to their limitations and capacity (both ESCO and municipality) is therefore very important.
- Providing tender and model documents.** Provide easy access to model templates and tender documents as well as assistance if needed. Clearly define time schedule for tendering procedure.
- Promoting standardized contracts.** To reduce legal complexity, it can be encouraged to use standardised (but flexible) contracts that have a built-in guarantee for savings and a fair balance of interest. By providing standardised contracts to municipalities exhibited a strong probability for municipality to decide on an EPC project, as it reduces administrative pressure. Reducing the (legal) complexity of an EPC solution through promoting standard contracts is highly recommended to accelerate appropriate uptake of EPCs in

the public sector. Standardisation reduces transaction costs related to designing and negotiating the contract.

- **Organizing workshops.** Destigmatize fear of the EPC projects by increasing awareness of the benefits of EPC in public sector, document results and success stories, provide knowledge on how to start the EPC process, provide assistance and support, present the procurement process - who does what when, available financing options, laws and regulations etc. Some EU countries (i.e., France) are reckoning, that without EPC European goals for energy renovation and energy savings can never be reached, estimating that without EPC only around 70% of target savings are possible, making awareness about EPC even more important.
- **Engaging local SMEs.** Encourage SMEs to step on to the ESCO market by organizing workshops with ESCOs and SMEs. Present option of including SMEs through subcontracting with larger ESCO companies. Present financing options and grants.
- **Providing oversight over implementation of the EPC projects.**
- **Encouraging municipalities to integrate EPC in SECAPs.** If Local energy agencies are the ones developing or supporting development of SECAPs, it is important to include EPC as an option in the SECAP Action plan.
- **Working with national authorities.** Provide expertise from the experience to help national authorities in preparation of policies, strategies, action plans and guidelines. Motivation from above would boost the implementation of EPC projects on the local level.

7. Regional stakeholder analysis

The analysis of the regional stakeholder conditions showed that an information deficit and lack of expertise on the demand side of the EPC market for implementation in public buildings is apparent. There is a high level of awareness amongst experts working in investment and development departments within the municipalities as well as on the level of national facilitators regarding the basic concept of EPC as well as some best practice examples of EPC project developed in the past. However, technicalities associated with practical EPC implementation are still unclear to most relevant stakeholders.

The basic ideas and concepts of EPC in Slovenia are best known to national authorities, potential local facilitators and ESCOs. These groups have so far been the driving forces towards the development of EPC markets in public buildings in Slovenia as well as in the Savinjsko-Šaleška region. Deficits in know-how concerning the basic ideas and concepts of EPC are the biggest among local decision makers and local authorities. The most experienced stakeholder group were the energy advisers (potential EPC facilitators) of local public authorities, which also showed to have the best overview of existing EPC projects.

More than 80% of those stakeholders who had the biggest experience in EPC projects (ESCOs and facilitators) were convinced that there is a large potential for EPC projects in public buildings, whereas other stakeholders,

lacking in proper experience (local authorities and SMEs), usually don't share this optimism. This indicates on the one hand that those who have the most experience and who know EPC the best in practical applications, are the most optimistic regarding the future market potential of EPC in public buildings. On the other the lack of experience of local authorities and SMEs is probably the major reason why their expectations regarding the application potential of EPC are relatively pessimistic.

Based on interactions held with regional and local stakeholders we established, approximately two thirds of all stakeholders believe that changes are required in politics and in national as well as local public administration to overcome acceptance barriers for EPC models. Moreover, national, and local decision makers often indicated that there is a need for changes in municipal finance to adapt the EPC concept. Finally, most of the SMEs reported, that they need incentives and facilitation from the financial sector to be capable to implement EPC projects and become ESCOs.

When relevant stakeholders identified priority issues, generally, the priority issues correspond with the areas that present the major barriers for EPC implementation in general, which are financing options, tendering procedures, and the existing legal background. This is followed by contract models, economic and technical risk assessment/risk mitigation options as well as the measuring and verification of savings. ESCOs tend to be most interested in options for risk mitigation, the mechanisms, and tools for measuring and verification of guaranteed savings, as well as the tendering procedures. The largest share of local decision makers wanted to increase their understanding of tendering procedures for EPC implementation, which confirms the assumption about rigid and prohibitive nature of procurement protocols in place. Most SMEs interested in EPC implementation were interested in available financing options.

The most experienced stakeholder groups proved to be advisers of local public authorities on the field of GHG mitigation, such as energy agencies. These groups are also most equipped to take on the role of EPC facilitators:

- Local energy agencies are certainly key actor in promoting the EPC on the local level, where municipalities often lack specific knowledge and experience. From this point of view, energy agencies can play a key role in project preparation, identification of potential, transfer of knowledge and good practices, as well as in the preparation of baseline data and assistance to municipalities in project management. Energy agencies are the most suitable bodies to take over the role of the EPC facilitator as in the past positive effects were often very apparent in the municipalities, where energy agencies are working closely with the local authorities. It was shown that municipalities, that have a strong support in local energy agency, are usually more successful in implementing their SEAPs/SECAPs and generally more successful in obtaining financial resources, which also extends to more successful implementation of EPC projects. Currently [Energy agency KSSENA](#) is the only energy agency active in the Savinjska-Šaleška region. KSSENA also already has previous experience in the EPC project preparation.
- Regional development agencies, such as [Savinjska regional development agency \(RASR\)](#) certainly has knowledge on the EPC in Slovenia and has, in the past, organized many workshops on challenges related to implementation of EPC. Next step would be an integration of the EPC in the regional development strategy.
- [Development agency of Savinjsko-Šaleška Region \(RA-SAŠA\)](#) was established with the aim of joint development of the local and regional environment, with emphasis on the establishment of effective support services to promote entrepreneurship and entrepreneurial culture. RA-SAŠA was established as a direct result of Savinjsko-Šaleška region transition from coal to encourage ways of sustainable and greener living. EPC can play a vital role in region restructuring as it brings new ways to engage capital,

stimulate energy efficient renovations and entry of SMEs on the energy market. RA-SAŠA could play a vital role in promotion and knowledge sharing.

- The Chamber of Commerce and Industry of Savinjsko-šaleška (SŠGZ Savinjsko-Šaleška gospodarska zbornica) aims at creating competitive conditions for business and development in the SAŠA region. The mission of SŠGZ is to connect economic entities of various activities in the SAŠA region and to establish wider social environment to increase the competitiveness. In the lieu of region restructuring (phasing out coal) it will play a vital role in encouraging sustainable development and strengthening local SMEs also in the field of energy efficiency
- The Institute for Public-Private Partnership was established in 2008 with the aim of promoting scientific research in the field of legal and economic science, with special emphasis on issues related to the concepts of public-private partnerships, public services, public tenders, and public procurement. They are the knowledge hub on the field of EPC market and are continuously promoting EPC, providing support and know-how.

8. Preliminary investigation of future investment programmes in the public building sector

The Slovenian building stock comprises of 87.3 million m² of floor space, of which 76 percent belongs to buildings built before 1990. Public buildings represent 9,7 million m² of floor space. Long-Term Strategy for Energy Renovation of Buildings until 2050 (DSEPS), that was implemented in 2021 foresees that around 825 mio EUR investments are needed in the period 2021-2030 in Slovenia for renovation of public building sector. There are 2 main goals of Long-term strategy:

- Reducing GHG emissions in buildings by at least 70% compared to 2005 by 2030
- Achieving at least 2/3 of energy use in buildings from renewable energy sources (share of RES use in final use of energy sources without electricity and district heat) by 2030.

Technical potential for energy renovation of public building sector is estimated to be 3% per year until 2050. The future development of the EPC/ESCO market for the public building sector seems more favourable as in the last few years, as DSEPS puts special focus on the need to boost renovations through EPC, although it's estimated that ESCO market development in Slovenia will remain sporadic and closely tied to co-financing tenders.

Despite expressed concerns, ESCO companies and SMEs interested in participating in the EPC market showed favour for development of EPC market. Local authorities on the other hand are less favourable, which corresponds to the low level of trust that local administrations have in the EPC mechanism despite it being recognized as the only viable way to achieve the ambitious refurbishment targets of 3% of building surface per year within the public sector.

Municipality of Velenje and Municipality of Celje, two of the biggest municipalities in Savinjsko-Šaleška region, have had developed their Local energy concepts (LEK) in the last years. Closely tied to DSEPS and other relevant policies, both municipalities have set up goals to reach annual energy refurbishment of public buildings of 3%. Energy consumption in public buildings in Municipality of Celje (49 buildings included in LEK) amount to 14.083 MWh (heating) and 6.644 MWh (electricity) (preliminary assessment), while in Velenje energy consumption in public buildings (35 buildings included in LEK) amount to 9.604 MWh (heating) and 2.756 MWh (electricity) (preliminary assessment). Assessments has shown majority of the buildings do not comply with principles of efficient use of energy in buildings. Many public buildings have inefficient thermal insulation and windows. Some public buildings that are not connected to the district heating system have outdated heating systems, additionally

in many public buildings heating systems are not adequate or optimally set. Municipality of Celje also has a long-standing issue with air quality due to excessive air pollution with PM10 particles.

Municipality of Celje and Municipality of Velenje set a goal to establish long-term quality supply with energy from a variety of sources. Heat consumers are encouraged to connect to district heating system. Consumers are made aware of the efficient and rational use of energy. The local community encourages new construction and reconstruction of existing buildings, namely so that they will need as little energy as possible to operate and will provide part of their energy needs from alternative sources. *More specifically, both municipalities set to reduce heating consumption in buildings of non-economic sector by 12% by 2028 compared to 2017 as well as reduce electricity consumption in public building by 5% by 2028 compared to 2017.*

Both municipalities proposed measures to be implemented in the public building sector in the future, such as thermal insulation of building envelope and roof, replacement of old and inefficient windows and doors, replacement of inefficient lighting systems, installation of recuperation and ventilation systems, replacement of inefficient heating systems as well as suggestions for exploitation of renewable sources among others.

Potential savings in 49 individual public buildings owned by the Municipality of Celje (that were included in the analysis the total potential for energy savings in public buildings) was estimated to be 30 % if all suggested energy efficient measures are implemented. In Velenje potential savings, if all suggested measures for 35 public buildings are implemented, can reach up to 43%.

9. STEPPING PLUS roadmap for the EPC roll-out in the Savinjsko-Šaleška region

2030 objectives and performance indicators

It is not easy to assess how much ESCO will contribute to the energy renovation of public buildings in Celje and Velenje. Ideally all foreseen renovations would be implemented through EPC model in the future, meaning in Velenje and Celje there is potentially a multi-million EUR market in the region that could be triggered. We can estimate, if all unrenovated public buildings out of 49 analyzed in Celje and unrenovated buildings out of 35 analyzed buildings in Velenje would undergo complete deep energy renovation, it would amount to around 20 mio EUR of investments in Celje and 12 mio EUR renovations in Velenje. This could be considered potential ESCO market.

But considering the commitment of 3% rate of deep renovation to be achieved in the public sector yearly, we can assume approximately 4000 m² of public building area in Celje and 2500 m² of public building area in Velenje will be renovated each year to reach this commitment. This means 650.000 EUR and 400.000 EUR of investments respectively and leads to more conservative estimations of potential ESCO market in Velenje and Celje – approximately 6 mio EUR ESCO market in Celje and 3,6 mio EUR ESCO market in Velenje could be triggered by 2030 if each year 3% of planned public building stock is renovated.

The future development of the EPC/ESCO market for the public building sector seems more favorable than in last years and will constantly adapt to current trends and opportunities in the national and international context. EPC will remain closely tied to co-financing tenders (cohesion fund etc.). Moreover, energy price growth observed in Slovenia and in EU in last year could expand the scope and number of economically feasible investment project and would further accelerate market development.

Overview of possible intervention measures, that would accelerate energy renovation as well as boosting the EPC market development:

9.1. Advancement of local, regional, and national energy policy for promoting energy renovation of buildings

The evolution and enforcement of policy related to renovation of buildings as well as energy production and use in general (including policy on public funding, provisions on monitoring of energy use, energy tariffs, taxes and levies, capital requirements and access to capital by private enterprises, accessibility of credit lines, etc.) is the key driver determining the scope, pace, and efficiency of all energy saving/climate mitigation initiatives.

The primary actions undertaken by KSSENA are therefore related to policy development ranging from national towards regional and local level of intervention (inclusive of for e.g., the transposition of European Regulations and Directives into national legislation to the development and uptake of local energy policy such as action plans and strategies). The following actions are envisaged under this category:

Elaboration of SECAPs for partner municipalities	
Sustainable Energy and Climate Action Plans (SECAPs) are one of the most essential pieces of local policy on energy and climate sustainability. KSSENA is set to develop SECAPs for two administrative centers of the region in the first step - City municipality of Velenje and City municipality of Celje. Both municipalities are signatories of the Covenant of Mayors initiative and have submitted SEAPs in 2011 and 2015 respectively. It's expected that additional municipalities will be included at a later stage to expand the territorial outreach of the action plan.	
Specific actions	Preliminary consultation with policy makers and municipal departments; Engagement of utility companies and other relevant external stakeholders; Analysis of status and progress since the adherence to the CoM initiative, SECAP technical development (elaboration of the Baseline Emission inventory (BEI), development of the Risk and Vulnerabilities Assessment (RVA), elaboration of the action plan document; etc).
Timeline	Development of revised SECAPs from July 2022 until May 2023, with follow-up monitoring activities up to 2030. Milestone: SECAP for the City municipality of Velenje finalized by end of November 2022.
Stakeholders and target groups	City municipality of Velenje; Komunalno podjetje Velenje; City municipality of Celje; Energetika Celje, etc.

Revision of Local Energy Concepts (LEK) and annual monitoring of implementation	
<p>Local energy concept (Lokalni Energetski Koncept – LEK) is a strategic document for the advancement of a local community or several local communities in the field of energy supply and use, including measures for the efficient use of energy and the way in which energy is supplied from renewable sources, cogeneration, surplus heat, and other sources. They are developed in accordance to the Rules on the methodology and mandatory content of the local energy concept OG N. 56/16)</p>	
Specific actions	<p>Analysis of energy energy product consumption by sector and for the local authority; analysis of energy supply; including the identification of network and facility areas; an analysis of emissions; identification of energy supply and consumption vulnerabilities in terms of stability and environmental acceptability; assessment of the projected energy consumption and guidance for future energy supply; an analysis of energy efficiency options and an analysis of renewable energy potentials; establishment of the local authority's own energy planning objectives; analysis of possible measures to achieve the energy planning objectives; action plan development, etc.</p>
Timeline	<p>Development of revised LEKs for the period from 2022 until 2032 between June and end of April 2023 Milestone: LEK for the municipality of Šoštanj will be finalized by end of September 2022. LEK for the City municipality of Velenje will be concluded by end of December 2022.</p>
Stakeholders and target groups	<p>City municipality of Velenje; Komunalno podjetje Velenje; Municipality of Šoštanj, Managers/custodians of public buildings, etc.</p>

Amendment of the Rules on dividing and billing heating costs in multiple-dwelling and other buildings with several units (official Gazette of the Republic of Slovenia n. 82/15, 61/16 in 158/20 – ZURE)	
KSSENA will undertake a research study on the application of heat cost allocators that will provide one of the key expert basis on which the Ministry of Infrastructure will revise the above mentioned legislative document. The objective of the research study will be to identify the cost-benefit for economic as well as environmental impacts of the current accounting system and attempt to improve its efficiency by providing additional incentives to building owners that demonstrate a reduction in final demand through energy renovation. It's expected therefore that the amendment will further increase the feasibility of energy renovation and thus support of the ESCO market, particularly within residential buildings.	
Specific actions	Organization of consultation workshops with building managers, energy companies and specialized companies providing services related to heat cost allocation; Identification of reference pilot buildings; Implementation of interviews; Categorization of specifics related to the heating system; Data collection; Development of policy recommendations; Communication of key results to interested stakeholders.
Timeline	The research activities will be implemented between June 2022 and September 2022. The research must be completed in time to allow for policy integration before the onset of the main heating season 2022/23. Milestone: Organized consultation of preliminary workshop and adherence of managers/owners of reference buildings to the initiative by June 15th 2022.
Stakeholders and target groups	Ministry of Infrastructure of the Republic of Slovenia; Borzen - power market operator; Chamber of Commerce and Industry of Slovenia; Building managers; Owners and residents of multi-apartment residential buildings; Partner municipalities, District-heating systems operators; etc.

9.2. Preparation and implementation of investment projects within the Just Transition of the Savinjsko-Šaleška coal intensive region

Savinjsko-Šaleška is one of the two Slovenian coal intensive regions in transition (the other being Zasavje) and the only one with a still active coal industry. Representing from one quarter to one third of electricity production in Slovenia, the phasing out of coal will have an immense impact not only on the region but rather on the national power market and economy overall. KSENA has been actively engaged in the restructuring process through the development of project proposals, policy revision and recommendations, communication with national decision-makers and partners, technical support to local authorities, strategy co-development, etc. from 2019 onwards. In its capacity as the local energy manager and technical expert, KSENA will support several pillars of the energy transition (phasing out of coal):

Elaboration and implementation of Project Development Assistance (PDA) for the transition of the regional energy supply and use through multi-level integration and novel financing mechanisms	
The implementation of PDA activities in the cooperation of regional partners and beneficiaries will provide the framework for investment into key sectors related to the energy transition: energy renovation of buildings, restructuring of the local district heating system to optimize capacity, operational management and operate with a renewable energy source, sustainable mobility in the region and increased renewable power generation.	
Specific actions	Development of technical and investment documentation; Analysis and modeling of RES generation sites; Renovation of the regional transport service; Energy auditing; Public procurement activities; Market research; Communication with infrastructure/equipment vendors.
Timeline	The PDA activities will be implemented from beginning of July 2022 to end of June 2025. Milestones: Publication of the public call for tender for energy renovation of public buildings utilizing a PP/EPC mechanism in May 2023.
Stakeholders and target groups	City municipality of Velenje; Municipality of Šoštanj; KOLEKTOR group; University of Ljubljana; Public utility company Velenje; City municipality of Celje.

Preliminary revision and continuous implementation of the Cohesion policy related to the acquisition of Just Transition Mechanism (JTM) funding for investment projects in energy efficiency and renewables.	
KSSENA will continue to provide technical support within the finalization of the territorial just transition plan (TJTP) for the Savinjsko-Šaleška coal intensive region to be completed in 2022. KSSENA will take part in the implementation of the TJTP as part of the Operational programme of the Cohesion policy for the period 2021 – 2027 in the field of sustainable energy and climate protection.	
Specific actions	Consultation with national decision makers (Responsible ministries and the Government Office for Development and European Cohesion Policy; Technical support to local/regional partners; Development of project applications to public calls for tender; Implementation of investment projects; etc.
Timeline	The implementation of planned activities will take place from June 2022 throughout the programming period and until the formal deadline for phasing out coal in 2033. Milestone: Confirmation of the TJTP for the SAŠA region and publication of the Operational Programme for the period 2021 – 2027.
Stakeholders and target groups	City municipality of Velenje; Municipality of Šoštanj; Public utility company Velenje; Other regional stakeholders.

9.3. Development of innovative energy renovation approaches for public buildings – procuRE PCP

At present, the market for energy renovation services is fragmented, frequently untransparent and not efficient in its capacity to achieve the highest long-term benefit in terms of energy and GHG reduction compared to the allocated resources necessary. Despite its huge potential, energy renovation is making only a modest contribution to decarbonization (0.4 to 1.2% per year) and complete replacement of existing stock is very slow (1-1.5% per year). Moreover, the practical implementation of EPC/ESC funding schemes had advantaged partial renovation of buildings utilizing only particular renovation measures with most favorable economic returns (instead of deep renovation and pooling of buildings), creating less economically feasible projects in the process. To mitigate against these challenges, KSSENA together with the consortium of technical experts and public procurers has developed a pre-commercial procurement (PCP) project to support the development of novel renovation approaches that will utilize a full integration of on-site renewable energy (procuRE project).

Specific actions

Signature of contracts with suppliers and execution of PCP phases 1 – 3; Evaluation and revision of offers for the call-off; Signature of contracts and implementation of phase II activities; Signature of contracts and implementation of phase III activities; Co-design procedure with procurers and suppliers; System installation and validation; Project management; Communication of results to the EC/CINEA, legislative bodies and replicators; IPR management and commercialization of developed solutions/renovation approaches, etc.

Timeline

The pre-commercial procurement activities will be implemented between November 2021 and July 2024 with the possibility for extension (extended period for system integration and validation). Milestones: Operating models and prototypes are developed and validated April 2023. Commencement of Phase 3 activities end of May 2023.

Stakeholders and target groups

City municipality of Velenje; City of Nuremberg; Vila nova de Gaia – Porto; City of Barcelona; Metropolitan area of Istanbul; Municipality of Eilat; Suppliers – private companies taking part in the PCP; Research institutions; Secondary implementers – replicators; Ministry of Infrastructure SI, Ministry of Environment and Spatial affairs SI; Subcontracting companies from the pilot regions, etc.

9.4. Other measures

In accordance with its mandate and core set of responsibilities KSSENA will continue to promote energy renovation of buildings among its beneficiaries

Specific actions

Technical project development; Organization of public events on the topics of energy renovation and the use of PPP funding mechanisms (consultations, conferences, workshops, webinars, etc.); Capacity development and awareness raising; Research and analysis; Training and education of building managers and public authorities responsible for building renovation; Energy management of local communities.

Timeline

Continuous realization of the organizations mission and vision throughout 2030 and 2050 (climate neutrality)

Stakeholders and target groups

Partner municipalities; Research institutions; ESCOs; Utility/energy companies; National decision makers; General public, etc.

10. Strategic projects and plans for adoption or integration of STEPPING PLUS roadmap

The Republic of Slovenia is a decentralised unitary state composed of devolved state administration units and 212 municipalities. For development and statistical purposes, the country is divided into twelve statistical and two cohesion regions, which have no administrative function, therefore the uptake of strategic indications takes place on the national and local level of government.

The national policy on energy related matters is the most prevalent in terms of its direct and indirect impact on EPC and energy renovation in general. The most relevant piece of national strategy is the [National Energy and Climate Plan \(Nacionalni Energetski in Podnebni Načrt – NEPN\)](#) which determines objectives and milestones on renewable energy supply, GHG emission reductions and contributions from the energy demand side (increase in energy efficiency). The existing version of NEPN from 2020 mandates performance targets, intervention measures and responsible organizations specifically for energy performance contracting. The NEPN will undergo a public amendment procedure in 2023/24, where key findings of the roadmap may be integrated.

It's also highly likely that any amendment of NEPN that will enforce a notable deviation from the existing version will also lead to an amendment of the [Long-Term Strategy for Energy Renovation of Buildings until 2050 \(DSEPS 2050\)](#). Despite its acceptance by the government only in the last year, an even stronger emphasis on the energy efficiency and energy security dimensions will require a unification of the objectives, actions, and milestones. The DSEPS is also amended by means of a public review which is expected to occur in 2024-2025 following the acceptance of the revised NEPN.

From the national policy framework, the operational engagement is passed down to local authorities, private enterprises, and all other types of organizations through legal acts, rules, and regulations, which in turn influence the bottom-up strategic development. For local authorities, that are key organizational bodies responsible for the operational uptake of sustainable energy practices, the most relevant strategic documents are [Local Energy Concepts \(Lokalni Energetski Koncept – LEK\)](#) and [Sustainable Energy and Climate Action Plans \(SECAPs\)](#).

LEK is an action plan for energy management of municipalities and the most important tool for planning the local energy policy strategy. In accordance with par. 7 article 29. of the Energy Act EZ-1 which defines the LEK, it must be developed and updated once every 10 years or more frequently if the national strategy is changed in a notable way. Following the provision of the Rules on the methodology and mandatory content of the local energy concept, the implementation of intervention measures outlined in LEK are monitored consistently on an annual basis. The development of LEKs is one of the core mandates of KSENA in its role as the energy manager of local communities within the Savinjska statistical region, therefore STEPPING PLUS roadmap will be integrated both in development and monitoring phase of Local Energy Concepts of Savinjsko-Šaleška municipalities.

The other important document in terms of energy strategy is the SE(C)AP, which provides a platform for transnational cooperation, exchange of experiences and aggregation of political capacity. Three founding municipalities (Velenje, Celje and Slovenj Gradec) of Energy agency KSENA became first local authorities to adhered to the Covenant of Mayors initiative as early as 2010/11. Energy renovation is one of the key aspects of sustainable energy policy on the local level and KSENA will attempt to integrate key findings of the roadmap into further development of SECAS for all its partner municipalities.

Furthermore, the STEPPING PLUS roadmap will provide input to the development and implementation of other relevant strategic documents based on the Promotion of Balanced Regional Development Act such as [Territorial](#)

development programme of the Savinjsko-šaleška region (Območni razvojni program SAŠA 2021-2027) and the Regional Development Programme of the Savinjska region (Regionalni Razvojni programa Savinjske razvojne regije 2021-2027).

KSSENA will utilize the above-mentioned documents as platforms for transferring relevant findings of the STEPPING PLUS roadmap, which will take place in the form of stakeholder workshops, thematic conferences, information campaigns and other communication activities.