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Energy Performance Contracting for Gorenjska ACTION PLAN

Project STEPPING

Contractor:

TIM VALORES Ltd

Subscriber:

BSC, Business Support Centre, Ltd, Kranj, RDA Gorenjska

Content

1. Executive Summary

To ensure Gorenjska stays competitive and will be able to respond to the increasing energy needs and CO2 emissions, there is a regional Sustainable Energy and Climate Action Plan (SECAP) 2019 – 2030 supported by the Covenant of Mayors for Climate Change and Energy. To demonstrate active cooperation and to accompany the PEACE_Alps (Interreg Alpine Space) project, in frames of which the SECAP was produced, we launch the Energy Performance Contracting action plan:

- The action plan is designed to be delivered in partnership with the eighteen Gorenjska municipalities.
- It is directly addressing the urgency of tackling poor energy efficiency of public buildings, air quality and climate change.

1.1 Why it is needed?

The levels of today's investments in sustainable energy and energy efficiency are not sufficient to meet the EU's targets and goals set for 2030. The use of private finance and increased public-private collaboration will be progressively required to deliver the needed investments in energy efficiency, in particular in buildings.

Specifically in the building sector, projects concerned with energy efficient measures often require high upfront investments, are perceived to possess higher risk, relate to complex planning and stakeholder issues, and suffer from split incentives. The building sector is also one of the largest energy users in Europe and this major investment challenge should be addressed, nonetheless, as the building sector presents major opportunities to make cost-effective energy savings, which should be utilized.

1.2 What is in the plan?

This action plan aims to improve the financial feasibility and attractiveness of investments in the energy efficiency measures in Gorenjska public buildings through the set-up of EPC facilitation unit, re-establishment of a proven effective Regional Guarantee Scheme specifically tailored for EPC projects, creation of a regional map interactively displaying energy efficiency of public buildings and other data relevant to support the selection of public buildings to be bundled in the EPC scheme, as well as through organisational, educational and financing methods.

The described actions, guidelines and tools can be used by municipalities to improve their readiness to bundle investments in energy renovation of public buildings and installation of RES through EPC, thus increasing the effectiveness of the matching between the technology providers, ESCOs and the financial sector.

2. Introduction

2.1 Background

This action plan is being delivered as part of the Mediterranean Transnational Programme, a financing instrument of the European Territorial Cooperation (ETC), better known as INTERREG. ETC is one of the goals of the European Union cohesion policy and provides a framework for the implementation of joint actions and policy exchanges between national, regional and local actors from different Member States. The project is called **STEPPING – Supporting The EPC Public Procurement IN Going-beyond**, testing innovative investment schemes for efficient energy renovation of public buildings across 7 Mediterranean countries. The projects strategic objective is to adapt energy performance contracting to the conditions of the MED area, which are not comparable to those of northern and central EU countries. In eight pilot areas, project partners are enhancing the following:

- pooling and sharing experiences from successful EPC projects,
- accomplishment of EU directives on energy saving in public buildings,
- development and testing of 8 new EPC investment plans with the launch of 4 new EPC tenders to prove their effectiveness in the MED context,
- training to raise capacity for better management of EPC in public buildings,
- transfer the lessons learned into practice with realization of “EPC MED Guidelines” for energy efficiency in public buildings,
- policy recommendations and actions to overcome existing regulation barriers that are slowing down wide application of EPC.

In the Testing work package, BSC, Business Support Centre Ltd, Kranj, Regional Development Agency of Gorenjska undertakes a pilot testing of the **Joint EPC Investment Plan** for efficient energy renovation of the municipal building and health center in the municipality of Bohinj and of the nursery school in the municipality of Tržič, located in the Gorenjska region. The goal is to improve energy renovation process by facilitating cooperation between municipalities and energy service companies (ESCOs), to prove that EPC is an opportunity to generate alternative financial sources when used to deliver energy efficient measures in public buildings and to show how energy savings can be used to increase the return on investment.

Figure 1: Municipal building (1) and health center (3) – Municipality of Bohinj; Nursery school "Deteljica" (2) – Municipality of Tržič

EPC training sessions along with the online learning interactions were held to increase knowledge and raise competences of public procurers and market players to:

- develop long-run investment strategies for energy efficiency in public buildings;
- evaluate and report about current types, numbers and locations of public buildings renovated through EPC;
- investigate and optimize EPC energy renovation measures;
- propose and implement EPC energy renovation projects;
- design, implement and manage EPC investment plans and tenders for awarding energy efficient works on public buildings in MED context.

Abovementioned pilot activities led to the elaboration of the **Policy recommendation paper** and **EPC MED guidelines** to prepare the ground for development of future feasibility studies and investment plans for EPCs in Partners countries and in MED area.

This **action plan** addresses measures to encourage the use of energy performance contracting in energy refurbishment projects of the Gorenjska municipalities. It takes into account the baselines set out in the STEPPING pilot activities, training sessions and EPC MED Guidelines, prepared by BSC Kranj in cooperation with project partners from other Mediterranean regions.

Aim is to improve the market knowledge of stakeholders so that they can make better-informed decisions based on evidence. The barriers and success factors for energy efficiency services, their quality determinants and as well as the related legal, political and institutional framework will be described in the following chapters.

2.2 Energy Efficient Services

According to the European standard EN 15900:2010 and Energy Efficiency Directive (2012/27/EU)[1], energy efficient service is an improvement action – technological, behavioural and or economic change – with agreed performance criteria to deliver an increase in energy efficiency. It includes:

- Energy audit – identification and selection of actions according to EN 16247;
- Implementation of energy efficiency improvement actions;
- Measurement and verification (M&V, according to IPMVP) of energy savings.

Description of the proposed or agreed framework for the actions and the follow-up procedure has to be provided – often referred to as an Investment Grade Proposal. Improvements in energy efficiency are measured and verified over a contractually defined period by contractually agreed methods.

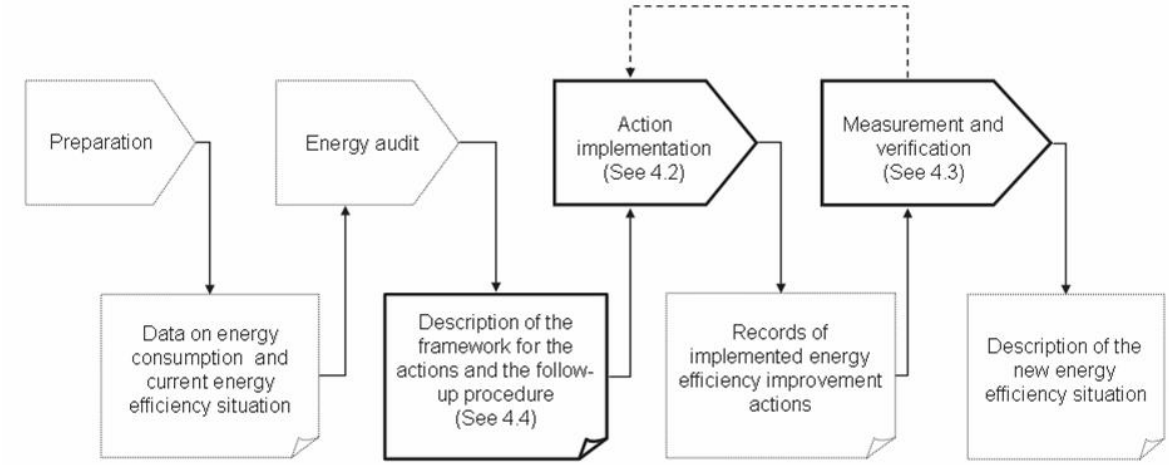

Figure 2: Process of providing energy efficiency services according to the European standard EN 15900:2010 (source: Consulenza Integrata S.r.l.)[2]

There are many types of EES in Slovenia, but the most commonly applied are the Energy Performance Contracting (EPC) and Energy Supply Contracting (ECS). This indicates that EPC is not the only type of energy services.

[1] https://ec.europa.eu/energy/en/topics/energy-efficiency/targets-directive-and-rules/energy-efficiency-directive#content-heading-0
[2] https://www.consulenzaintegrata.eu/en/consulenza-gestione-energia-cei-11352-esco

Energy Performance Contracting

EPC can provide substantial energy savings using the principle of repaying the energy efficiency investments directly from the saved energy costs.[3]

The **key characteristics** of an EPC project are the following:

- **Turnkey service**: The energy service company (ESCO) provides all services required to design and implement a comprehensive energy saving project at the customer's facility, from initial energy audit to measurement and verification of savings.
- **Without the need for up-front capital**: Energy efficiency investments are repaid directly from energy savings and related financial savings, so there is not need for up-front capital on the customer's side.
- **Risks for customers minimized**: The ESCO assumes the contractually agreed performance risks of the project.
- **Savings guarantee**: The ESCO guarantees the achievement of the contractually agreed level of savings and is obliged to compensate savings shortfalls.
- **Support in finding financing**: The capital to finance the EPC project can either be supplied out of the Client's own funds, by the EPC provider or by a third party. Provision of financing by the EPC provider is an option, not a necessary part of the EPC project.

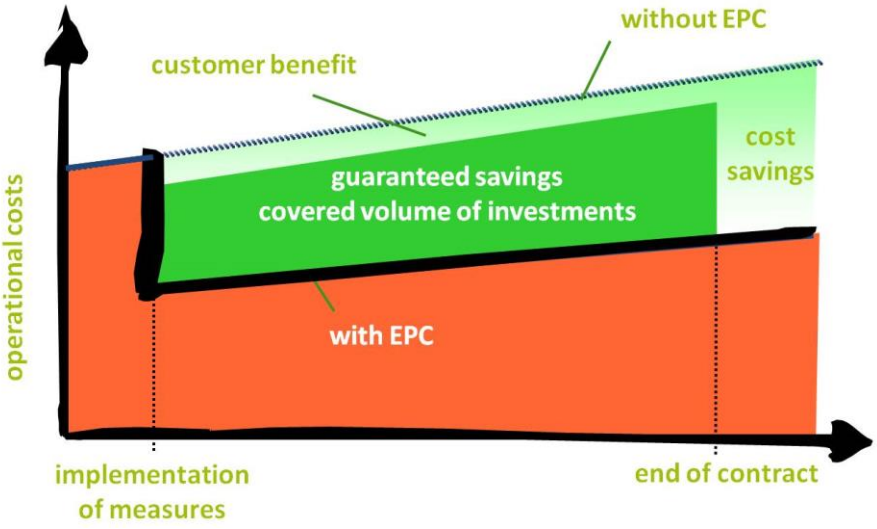

Figure 3: The key characteristics of an EPC project (source: TransparENSE project, IEE)

Energy Performance Contracting allows facility owners and managers to upgrade ageing and inefficient assets while recovering capital required for the upgrade directly from the energy savings guaranteed by the ESCO. The ESCO takes the technical risk and guarantees the savings.

[3] http://www.transparense.eu/eu/epc-qa/what-is-epc

The ESCO is usually paid a management fee out of these savings (if there are no savings, there is no payment) and is usually obligated to repay savings shortfalls over the life of the contract. At the end of the specific contract period, the full benefits of the cost savings revert to the facility owner.

Energy Efficiency Directive defines EPC as a "contractual arrangement between the beneficiary and the provider of an energy efficiency improvement measure, verified and monitored during the whole term of the contract, where investments (work, supply or service) in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criterion, such as financial savings."[4]

EPC may include additional services connected to efficient energy supply. Measures can be based on low or no up-front investment.

This action plan focuses on EPC projects where the above mentioned "contractually agreed level of energy efficiency improvement" is **guaranteed** by the EPC provider. The **guarantee of energy efficiency improvement** is the commitment of the service provider to achieve a quantified energy efficiency improvement (EN 15900:2010).

This is in line with the EED, Annex XIII that lists guaranteed savings among the minimum items to be included into energy performance contracts with the public sector or in the associated tender specifications. In addition, according to the Article 18 of the EED, Member States are required to promote the energy services market and access for SMEs to this market. This has to be done on the first place with disseminating clear and easily accessible information on available energy service contracts and clauses that should be included in such contracts to **guarantee energy savings**, as well as final customers' rights.

As defined by the European Code of Conduct for EPC (Code)[5], prepared in frames of the Intelligent Energy Europe (IEE) Transparense project, **EPC provider takes over the contractually agreed performance risks of the project throughout the duration of the EPC contract**. These involves the risks of not achieving contractually agreed savings, as well as design risks, implementation risks and risks related to the operation of installed measures. If an EPC project fails to achieve performance specified in the contract, the EPC provider is contractually obligated to compensate savings shortfalls that occurred over the life of the contract. The excess savings should be shared in a fair manner according to the methodology defined in the contract.

[4] https://qualitee.eu/the-project/ees-definitions/
[5] http://www.transparense.eu/eu/epc-code-of-conduct/

Energy Service Contracting

ESC means a contractual arrangement for the efficient supply of energy. ESC is contracted and measured in Megawatt hours (MWh) delivered. This definition is a simplified version of IEA DSM Task force 16 definition.[6]

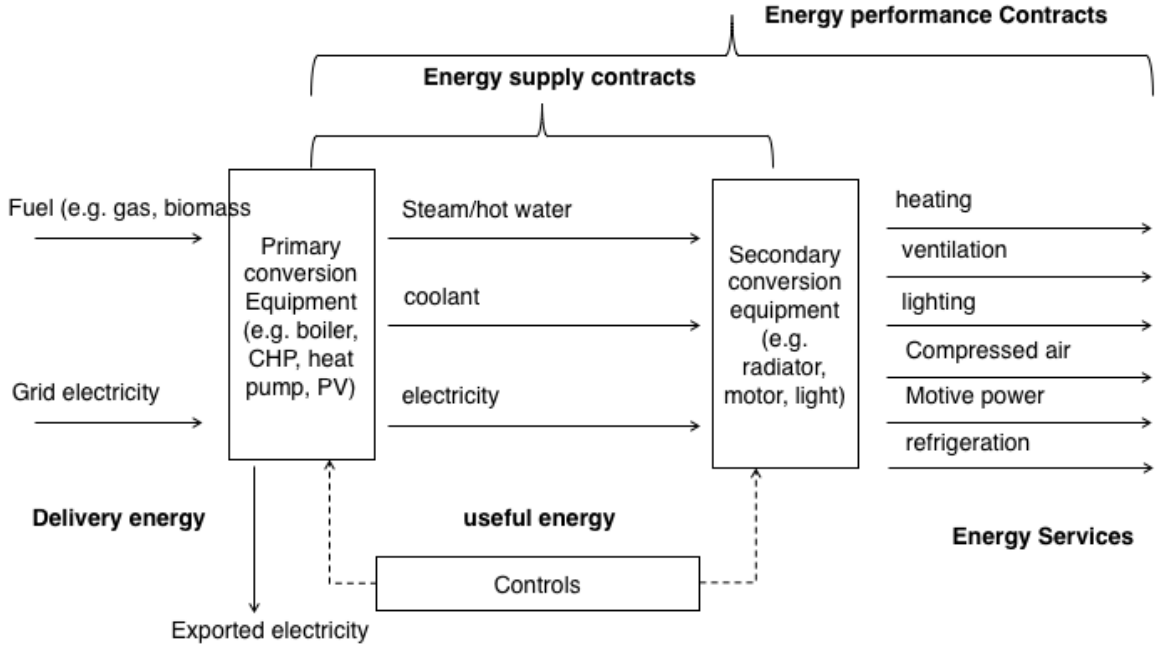

Figure 4: Energy supply contracting and energy performance contracting (source: Instituto Superior Técnico)[7]

Other types of energy efficiency services

Other types of energy efficiency services in Slovenia cover mostly:

- **Comprehensive EPC Plus** means extension of the energy efficiency service to comprehensive structural measures on the building shell like insulation or window replacement. These services are usually not part of the classical EPC because of too long pay-back periods. The contractual arrangement within Comprehensive EPC therefore contains special regulation on financing. Usually the customer has to pay a share of the investment through a grant or by combination of EPC with subsidy programmes. The Comprehensive EPC plus model is furthermore extended with specific technical requirements on the building measures together with special regulations on interfaces and warranties.

[6] https://qualitee.eu/the-project/ees-definitions/
[7] https://inmais.github.io/ELAEB/energy-contracts-1.html

- **Integrated Energy-Contracting (IEC)** means a combination of energy efficiency measures with energy supply contracting typically with short term 'operational verification' rather than ongoing Measurement & Verification.
- **EPC Light** means energy savings are mainly achieved through organisational measures with low or no investments in technical equipment. The energy efficiency service company (EESC) acts as external energy manager taking over the responsibility to operate and optimise the energy related installations (for example heat boilers, building automation, lighting control, etc.). Since pay-back of high investments on hardware is not necessary in EPC light, the contract duration is short (2-3 years). The main feature of EPC to guarantee savings and relate savings with the remuneration of the EESC is included in the EPC light contract.
- **Green EPC** means EPC model with special focus on reduction of greenhouse gas (GHG) emissions.

However, the IEC, EPC Light and Green EPC market volume is small, and is not in a focus of the action plan.

Market Actors

The EES providers, clients, market facilitators and project facilitators operate the energy efficient services market.

EED definitions are the most commonly used:

- An "**Energy service provider**" means a natural or legal person who delivers energy services or other energy efficiency improvement measures in a final customer's facility or premises. "ESCO" is as an equivalent term of energy service provider.

  As defined by EED, energy service[8] is a physical benefit, utility or good derived from a combination of energy with energy-efficient technology or action. This action may include operations, maintenance and control, necessary to deliver the service. Service is delivered based on a contract and has in normal circumstances proven to result in verifiable and measurable or estimable energy efficiency improvement or primary energy savings.

Above-listed definitions can be used to define the following terms:

[8] According to the Energy Efficiency Directive: "An 'energy service' means the physical benefit, utility or good derived from a combination of energy with energy-efficient technology or with action, which may include the operations, maintenance and control necessary to deliver the service, which is delivered on the basis of a contract and in normal circumstances has proven to result in verifiable and measurable or estimable energy efficiency improvement or primary energy savings."

- An "**EPC provider**" means an energy service provider who delivers energy services in the form of EPC.
- An "**ESC provider**" means an energy service provider who delivers energy services in the form of ESC.
- A "**Client**" means any natural or legal person to whom an energy service provider delivers energy service.
- An "**Energy service project facilitator**" means an advisory company working on behalf of the client to procure and/or implement an energy services."

2.3 The EPC Market Challenges

Current research advises focusing on the development of smart infrastructures and innovative solutions that will use renewable energy sources in the public buildings energy systems while EPC facilitates evolution in financing energy renovation projects and in managing related performance risks.

It is considered a smart solution to support public energy programmes, because investment costs are shifted to private entities. Nevertheless, experiences show that EPC in MED area had a success in RES investments in lightning mainly and very low application on buildings, due to peculiar energy needs related to climate conditions, energy market structure, buildings typology and financial framework. In order to adapt the EPC scheme to MED area conditions it is important to design investment plans and SEAPs for EPC purposes from the very beginning, exactly assess suitability of buildings for EPC to avoid non-participation of ESCOs to tenders and to develop contract schemes and tenders procedures that take into account capacities of local market offer. Innovative technology solutions for MED energy needs should be introduced to reduce the return on investment period. Public funding measures (like ERDF) have to be better integrated into the EPC tenders and contracts. It is also important to increase the awareness of MED public procurers, especially of small municipalities, and policy makers on use of EPC.

Horizon 2020 projects QualitEE and GuarantEE surveys indicate continuous growth of Slovenian EPC market since 2012 and its major expansion in 2016, being a consequence of a strong uptake of the EPC in public sector. This has been driven by the success of public buildings deep energy renovation framework that offers standardised Energy Performance Contracting project development processes, procurement requirements and contracts, as well as up to 40% grant financing. Typical projects are found to have a capital outlay of EUR 1-5 million, a contract length of 11-15 years due to prevailing buildings deep energy renovation, use a guaranteed savings model and are paid by using the provider's internal funds or debt arrangements and grant. Shared savings business model is used in 20% of EPC

projects.[9] EPC provider or independent third party delivers energy savings performance analysis. Mainly automated measurement and verification processes are used for reconciling performance and there is small but highly professional market for independent measurement and verification services.

Ongoing programme for financing public buildings energy renovation via EPC, availability of ELENA projects development support, only a few EPC providers and partly different climate conditions differentiate Slovenian EPC market challenges from other MED regions. In frames of the QualitEE survey, respondents did not identify any problems in high costs of project development and procurement and staff cost as EPC projects development assistance is provided through several ELENAs. Even customer demand and subsidies are considered minor barriers due to national EPC support programme. Complexity of the concept is not issue like in other countries covered by the analysis, which is encouraging.

Below sets out some of the national and regional strategic challenges related with the adoption of EPC scheme that an improved EES will contribute.

Climate change, particulate pollution, C02 emissions

Building sector, which records one of the highest shares of energy consumption in most Mediterranean countries, needs a concrete contribution to cutting CO2 emissions.

Making a switch from fossil fuels to a cleaner energy, generated with renewable energy sources, is a significant factor to mitigate for negative impacts.

This plan will enable the Gorenjska region to help Slovenia achieve the target.

Lack of trust in the ESCO industry, complex book-keeping rules and administrative barriers

Where Slovenia differs significantly is strong emphasis on the lack of trust in ESCO industry, complex book-keeping rules and administrative barriers in public sector, being three main obstacles for EPC business. This shows that growing market is becoming increasingly sceptical about the quality of services offered by a very limited number of Slovene EPC providers for considerable number of projects. To certain extend administrative barriers reduced by the Public Buildings Energy Renovation Projects Implementation Unit.

Obtaining viable finance

In Slovenia, following EPC financing options are used:

- EPC provider on-balance sheet debt financing
- EPC provider own financing
- EPC client grant

[9] Note: Client pays the ESCO a pre-determined percentage of its achieved cost savings from the project

- EPC client own financing

By far the most recognized tool for financing EPC projects are grants and subsidies (67%) followed by loan taken by service provider (44%) and its internal funds (11%), which is in line with the ongoing EPC financing model established for the public sector. Sale of claims (receivables) and finance lease are rarely used as main collateral in EPC projects. Debt arranged by client is usually not a choice.

Eurostat guidance note[10] considers EPC provider as an economic owner of non-removable assets that are subject to performance guarantees, taking EPC project off the clients' balance sheet.

However, raising viable finance is still difficult although there is a range of public financing options available until 2020. Since debt arranged by the service provider is the most used funding method in the Slovenian EPC market, small and medium EPC providers with modest credit rating have issues entering and surviving. Consequently, only three national EPC providers dominate the market, which is considered uncompetitive. But even in this case, ESCOs equity financing sources are limited. Quite often, they face financing problems because assets and liabilities placed on ESCOs balance sheets significantly limit their creditworthiness and range of their activities. In the National Energy Efficiency Action Plan 2014–2020 (NEEAP) (first version) there is a measure designed to underpin opening of the EPC market to new EPC providers establishing a guarantee scheme enabling SME EPC providers to get debt financing for EPC projects. Since the adoption of NEEAP in 2015, there has been no effort to implement this measure, until recently when SID Bank in cooperation with the Ministry of Infrastructure published a loan programme for the comprehensive energy renovation of public buildings in May 2019.[11]

Unresponsiveness of ESCOs to a call for promotors

In some cases, ESCOs do not respond to the call for promotors to submit an expression of interest in the implementation of an EPC project (concession partnership), which enables them to suggest other facilities in the municipal ownership they deem fit for inclusion in the project.

[10] https://ec.europa.eu/eurostat/documents/1015035/7959867/Eurostat-Guidance-Note-Recording-Energy-Perform-Contracts-Gov-Accounts.pdf/
[11] https://www.energetika-portal.si/javne-objave/arhiv-energetika/javni-razpisi/r/posojila-za-financiranje-projektov-celovite-energetske-prenove-javnih-stavb-ee-1213/ and https://www.sid.si/mala-srednja-podjetja/posojila-za-financiranje-projektov-celovite-energetske-prenove-javnih-stavb-iz

Interest is sometimes low because of the low substantial energy savings potential[12], limited equity financing sources, or a slightly arrogant behaviour may arise due to a limited number of ESCOs.

The only option left for municipalities, if they decide to continue with investments, is to apply for funds available for comprehensive energy renovation of buildings through a casual partnership contract.

Reduction of co-financing share in public funding schemes

In the previous EU programming period, municipalities could apply for up to 80% of grant financing in case of public calls for co-financing comprehensive energy renovation of buildings public buildings, in which municipalities participate with their own budget only.

Within the 2014 – 2020 programming period, co-financing share in public funding schemes reduced to only 40% of the eligible energy renovation costs are covered with non-reimbursable cohesion grants. Due to ineligible costs such as VAT, unplanned or additional works, notarial and attorney fees, etc., co-financing share is in reality closer to 30%. Total cost of consulting and engineering services (e.g. construction works and equipment purchase) must not exceed 12% of a total investment cost of the operation (excluding VAT). Furthermore, only 3% of staff costs are eligible. This could potentially led to a reduction in the number of renovated buildings also in the next period.

Public sector investment capacity

Similar as in other MED countries focus in Slovenia is on public buildings (governmental and municipal buildings, schools, kindergartens, elderly care homes, etc.) and street lighting, mainly due to public clients lack of own capital for energy efficient investments and public buildings energy renovation programme deploying innovative business models to attract private finance.

Clients from health-related sector are rare because a comprehensive energy renovation programme for that sector closed in 2015. This programme provided significant grant financing from Cohesion fund resulting in deep energy renovation of huge number of hospitals.

In the years when subsidies were higher, many municipalities renovated their most energy inefficient public buildings, and now they no longer have the resources for partial renovations of major facilities or complete renovations of smaller facilities through a casual partnership contract. Since the potential of substantial energy savings is in this case low, ESCOs are not interested and application for funds through EPC. One more thing that is not

[12] Note: According to the NEEAP highest economical energy saving potential till the year 2020 exists within the residential sector (2 TWh) and industry (2.5 TWh). Saving potential for public buildings seems to be low (0.8 TWh) compared to these two sectors.

endorsing to municipalities, even though crucial in general, is the Act on Balancing Public Finances[13], which prevents them from expanding their debt.

On the other hand, there are municipalities, which missed the period of abundant public co-financing shares and have buildings that urgently need energy retrofitting, but they cannot afford to cover 60% of the investment costs or they would need more buildings to enter the EPC scheme.

The investment capacity of municipalities is affected also by a 30% increase in the prices of energy recovery services and works in the last few years.

Mostly due to budgetary constraints public sector is facing also delays in promoting investments, even in energy efficient renovation of its own buildings. This action plan tackles this barrier, triggering new investments.

Pooling up smaller buildings energy renovation projects

The current EPC market development in the public sector is underpinned by the OP ECP support scheme throughout the period 2016-2020 and the Public Buildings Energy Renovation Projects Implementation Unit, operating within the Ministry of Infrastructure, assists public clients. In order to reach higher energy cost baseline as a prerequisite to improve feasibility of EPC projects subject to high transactional cost, the OP EPC support scheme stimulates pooling of smaller buildings energy renovation projects. The minimum investment range of EPC project(s) in the framework of that scheme is set to EUR 750,000.

Nevertheless, as showed by STEPPING pilot project (section 2.6), pooling solely happens, if buildings are in the ownership of a single municipality. With the exception of the Municipality of Kranj, which owns sufficient number of public buildings for renovation, this means that smaller municipalities face difficulties reaching an energy cost baseline target. Despite mediation offered by the local energy agency, municipalities are avoiding joint investments due to complex legal issues, book-keeping rules, administrative procedures and model for sharing savings, arising from different buildings´ ownership. The risk of municipalities stepping out from a joint operation is therefore high.

Competences of EPC project facilitators

Facilitation is considered a crucial condition to further develop national EPC and ESC market, especially in the public sector. Facilitators support is particularly needed by smaller municipalities and other public administrations. There are only five EPC project facilitators in Slovenia, only one of them being highly experienced.

[13] https://www.uradni-list.si/_pdf/2012/Ur/u2012040.pdf

Association of EPC providers

Due to the small number of EPC providers, association representing Energy Performance Contracting providers and facilitators in Slovenia is missing and there are no initiatives to convene supply side stakeholders aiming to bring a focus to the sector and co-ordinate communication with policymakers.

Quality of EPC services

The EU Code of Conduct for Energy Performance Contracting encompasses EPC core values and related principles as basic EPC quality label and professional statement (Staničić D., Bevk P., 2014). Transparency and completeness of contractual stipulations are well defined by the public sector thus considered less important as project quality determinants. Overall, there is a higher need for improvement of preliminary technical-economic analysis (energy audit) along with measurement and verification (M&V) of EPC project related energy savings, where automated monitoring and targeting M&T software is the main tool used. Consistently with barriers in obtaining viable finances, Slovene EPC providers perceive financing as third most needed area for quality improvement.

Political challenges

Changing political priorities are very low because to not support energy efficiency and climate change would be politically unpopular.

However, the financial risk is there because the longer the delivery programme the costs increase and therefore the risk to reduce number of EPC projects is high – mitigation is to procure efficiently and work in partnership with the private sector.

2.4 General Information about Gorenjska Region

Gorenjska is the fourth largest Slovenian region by the number of residents and the sixth by the area. The area is 2,137 km². Gorenjska lies in the north-western part of Slovenia and borders with Austria (Carinthia) to the north, Italy (the Friuli-Venezia Giulia region) to the west, Goriška region on the south-west and in the south to south-east it opens towards the Central Slovenia region. Gorenjska is an Alpine region. The geomorphological dynamic surface is characterized by 70% of the mountain world, only 30% of the surface lies in the valley and flat part of central Slovenia.

In 2015 10% of Slovenia's population resided in the Gorenjska region:

1. Highest share of people aged 0–14 (15.8%)
2. Was among the highest growth (1.9 per 1,000 population), with net migration was negative (–2 per 1,000 population)
3. The unemployment rate (6.9%)

4. Average monthly net earnings of persons employed in the region were below the national average (EUR 1,011)
5. The share of people living below the at-risk-of-poverty threshold was lower in comparison with the other regions (13.3%)
6. The region had almost 19,000 enterprises with almost 69,000 persons employed. There were 57 high-growth enterprises
7. GDP per capita was EUR 16,437 and thus lower than the average in the country
8. The number of dwellings per 1,000 population (388) was lower than the national average (410), while the number of dwellings reserved for seasonal or secondary use in this region was the largest (3,367).

2.5 Key Regional EE & RES Initiatives for Public Buildings

Table 1: Table summarising some of the key related regional programmes, plans and projects

Title	***Stakeholders***	***Information***
PEACE_Alps **link**	BSC Kranj Implementation period: 16. 12. 2015 – 15. 12. 2018 Co-financing sources: Interreg Alpine Space (85%)	Pooling Energy ACtion plans and Enhancing their implementation in the Alps (PEACE_Alps) tackled the problems related to the implementation of Sustainable Energy Action Plans (SEAPs) or any other Energy concepts already endorsed by Local Authorities (LAs) in Alpine Space Area by supporting LAs in developing concrete actions with an inter-municipal approach. The objectives will be reached by addressing the following topics: • energy management, • energy refurbishment of buildings and public light, • local adaptation to climate change.
REFURB **link**	BSC Kranj Implementation period: 01. 04. 2015 – 31. 03. 2018 Co-financing sources: Horizon 2020 (76%)	Project aims to inspire homeowners to move a step further with their energy renovations and achieve zero energy renovation. Easy, economical and efficient. REFURB gives an overview in a one-stop-shop model and establishes local partnerships and energy solutions close to consumers.

EnSURE link	BSC Kranj Implementation period: 01. 01. 2010 – 31. 12. 2013 Co-financing sources: INTERREG IVC (76%) Ministry of Economic Development and Technology (10%)	Energy Savings in Urban Quarters through Rehabilitation and New Ways of Energy Supply – it developed innovative approaches to raise energy efficiency through integrated urban development and the rehabilitation of the building stock. The Sustainable Urban Development Concepts lead in action plans appointing the most important activities to be realised in order to enhance energy efficiency in the city or district.
LoCaRe link	BSC Kranj Implementation period: 01. 01. 2010 – 31. 12. 2013 Co-financing sources: INTERREG IVC (76%) Ministry of Economic Development and Technology (10%)	The ambition of the project Low Carbon Economy Regions (LoCaRe) has been to develop and implement low carbon solutions at the local and regional level and at the same time to contribute to economic development.
REAAL link	BSC Kranj Slovenian Government Office for Local Self-Government and Regional Policy Implementation period: 25. 10. 2010 – 30. 09. 2015 Co-financing sources: Swiss Budget of 5.293.801 CHF	Renewable Energy Across the Alpine Land – Project refers to application of renewable energy sources in six public buildings in Gorenjska, e.g. in 5 primary schools (Kranjska Gora, Bled, Poljane, Žiri, Gorje) and in public swimming pool (Kranj) with the aim to replace current energy sources for heating. The Regional Development Agency of Gorenjska Region improved the energy efficiency in 12 public buildings and introduced renewable energy systems as a source of electricity and heating. The goal to minimize the consumption of energy in public buildings where the energy consumption costs are high could be achieved. The public buildings are used by many inhabitants of the region. Therefore the change of energy or heating source in these buildings is also useful for the promotion of renewable energy.

AlpEnergy **link**	BSC Kranj Implementation period: 01. 07. 2008 – 31. 12. 2011 Co-financing sources: Alpine Space Programme 2007–2013 (76%) Ministry of Economic Development and Technology (10%)	Virtual Power Systems as an instrument to promote transnational cooperation and sustainable energy supply in the Alpine Space. AlpEnergy developed and tested tools in 6 Alpine areas with the aim of balancing power generation and consumption in subsets of the entire system. To that end, the partnership developed the concept of Virtual Power Systems. Based on it, long-term scenarios for energy supply have been developed in each partner regions. Key results: • Virtual Power Systems White Book • Strategic plans to improve the adaptation of consumption to generation • Guidelines for Regional Decision Makers and Practitioners
Regional Guarantee Scheme of Gorenjska	BSC Kranj Implementation period: Since 1998 Co-financing sources: Slovenian Regional Development Fund	The Regional Development Agency of Gorenjska BSC Kranj is experienced in managing, implementing and monitoring the Regional Guarantee Scheme in collaboration with banks. In the past 20 years several open public calls were issued for loans and guarantees for micro and small and medium-sized enterprises. One of its aims, which coincides with the EPC scheme challenges, is to facilitate access to credit of micro, small and medium-sized enterprises by reducing the bank requirements for credit insurance, thus increasing the investment activities of the Gorenjska region private sector.

2.6 STEPPING Pilot Activities for Gorenjska

Business Support Center Kranj (Regional Development Agency) has been working with the Local Energy Agency of Gorenjska (LEAG) to test and promote Energy Performance Contracting, as a tool for enhancing investments in energy efficiency of public buildings.

Based on utility records and several meetings with municipal officials, three public buildings with the highest priority for energy renovation were selected to test the EPC. These were municipal building and health center in the municipality of Bohinj and nursery school in the municipality of Tržič.

Priority for energy renovation, however, was not the only **criteria for selecting buildings**. The core aim was also to find and bundle as many municipal buildings as possible to reach the investment threshold of 750.000 EUR needed to obtain public funding for EPC (concession), with the need for energy renovation measures that would fit the scheme. Unfortunately, in this period of STEPPING project, Municipality of Kranj had already completed the list of public buildings for energy renovation. Other municipalities of Gorenjska were either reluctant to a joint investment plan or were not planning any major interventions in the energy renovation of their facilities at that time, which would amplify the effect to the whole operation.

According to the situation BSC Kranj, LEAG and municipalities made an agreement that in case the EPC model won´t be possible, municipalities would still have the opportunity to bid for funds in a Public tender for co-financing the comprehensive energy renovation of buildings owned and used by municipalities (JOB-2018)[14], published by the Ministry of infrastructure. Investment threshold for the operation to obtain public funding in this case is 500.000 EUR (public procurement relationship).

For each one of the buildings **Energy Audits** were conducted. In this scope, physical inspection of construction and evaluation of energy systems was performed, along with estimation of energy consumption and power demand of equipment, analysis of energy consumption patterns and obtaining data on past energy prices. Proposal for energy renovation measures included energy renovation scenarios, structured by energy renovation packages, such as installation of extra wall and roof insulation, new windows and lightning, upgrade of the heating and cooling system, replacement of energy inefficient appliances, equipment, etc. Cost assessment of measures was done too, as well as evaluation of energy and costs savings. Proposal was made through a computer simulation tool that helps to demonstrate and compare different investment scenarios and to evaluate energy efficiency of different measures.

[14] https://www.energetika-portal.si/javne-objave/arhiv-energetika/javni-razpisi/r/javni-razpis-za-sofinanciranje-energetske-prenove-stavb-v-lasti-in-rabi-obcin-v-1172/

Initial projection of investment costs was prepared based on Energy Audits and Investment Grade Audit (IGA). As seen from the figure 3, the operation exceeded 750.000 EUR of investment costs, which is a threshold to obtain public funding for EPC.

	Costs [€]	%
Buildings	**872.386,73**	**81,97%**
Health centre Bohinj	**324.980,57**	**30,53%**
Municipal building Bohinj	**192.682,76**	**18,10%**
Kindergarten Deteljica Tržič	**354.723,40**	**33,33%**
VAT	**191.925,08**	**18,03%**
Costs of the operation with VAT	**1.064.311,81**	**100,00%**

Figure 5: Investment costs after Energy Audits and Investment Grade Audit (IGA)

In accordance with the Decree on the uniform methodology for the preparation and treatment of investment documentation in the field of public finance (Official Gazette RS, no. 60/06, 54/10 in 27/16) municipalities needed the **Investment Project Identification Document** for each building. As well as the **Joint EPC Investment Plan** containing financial, technical and energy feasibility study with the evaluation of possibilities for the public-private partnership. Process was carried out also in compliance with the:

- Law on PPP (Official Gazette RS, no. 127/2006);
- Eligibility rules on implementing projects by the PPP model (Official Gazette RS, no. 32/2007).

Before taking a decision about which form of contractual relationship to operate, concession with EPC or public procurement relationship, public partners published a **Call for Promotor** (ESCO) with information about the planned energy renovation measures. This was a market assessment to check ESCOs interest in implementing the project with EPC. Due to the absence of applications, BSC Kranj decided to directly approach to Petrol d.d., an ECSO with the largest share for EPC projects in Slovenian market.

Even though total value of the operation was suitable for EPC (more than 750.000 EUR), Petrol´s conclusion was that potential energy savings compared to cost savings had to be higher and more buildings would have to be bundled to achieve the required return on investment rate. Not only data on past, but also on current energy prices should be obtained, and where it is not possible to define the existing and future operating hours of the equipment, normalized values have to be considered. Methodology for calculating energy savings has to be adapted accordingly. Specific measures, such as roof insulation and roof covering replacement, should be eliminated from the operation, if it wanted to be tailored to EPC model. Economic plan for EPC was affected also by cheap energy prices

compared to construction work prices. These are the main reasons for the payback period being longer than 30 years.

Despite the situation, municipalities decided to continue with investments through the **public procurement relationship**, by using their own budget and applying to a Public tender JOB-2018 to obtain non-reimbursable cohesion grants for co-financing 40% of the eligible energy renovation costs. Abovementioned specific measures or relevant interventions in the construction of the building are eligible in this case of PPP. Though one of the tender conditions is that total cost of consulting and engineering services (e.g. construction works and equipment purchase) may not exceed 12% of a total investment cost of the operation (excluding VAT). Works on all three buildings are planned to be completed by the end of 2019.

LEAG put together **project documentation** needed to apply for public tender, including retrofit plan, permanent plans for optimization of operating energy systems, O&M plan, and specification of procedures for mechanical and electrical installations, as well as for construction works and materials. Current energy prices were obtained again as proposed by the ESCO during the call for promotor. At this stage, investments costs of were defined even more in detail.

	Municipal building Bohinj	**Health center Bohinj**	**Nursery school Deteljica Tržič**
Useful area (m2)	740	1756	894
Energy consumption (kWh)	157.700	288.200	229.000
Energy costs (€)	10.805,09	18.341,41	11.805,37
Planned investments	✓ Insulation of facade ✓ Replacement of windows and doors ✓ Roof insulation ✓ Lighting upgrade ✓ Energy consumption regulation and monitoring ✓ Energy management	✓ Insulation of facade ✓ Replacement of windows and doors ✓ Roof insulation ✓ Energy consumption regulation and monitoring ✓ Energy management	✓ Insulation of facade ✓ Replacement windows ✓ Roof insulation ✓ Lighting upgrade ✓ Modernization of heating system ✓ Energy management
Planned cost of investment	185.297,13	318.648,67	345.912,66
Actual cost of investment	172.255,58	238.240,73	376.352,08

Energy savings (kWh)	86.400,00	126.300,00	97.700,00
Cost savings (€)	5.556,75	7.010,76	4.353,94
Payback periods (years)	31,0	34,0	86,5

Figure 6: Indicators for each building

Signing of **cooperation agreement** turned out to be a very challenging task. Contracts were signed between municipalities and in case of the health center in Bohinj also with residents living in the premises above the center. Share of energy savings was defined based on extended energy audits. By the public procurement relationship, the public client – municipality – is the only one responsible for energy savings, while the contractor guarantees for the quality of construction materials and works. In case of the concerned public buildings, the contractor takes over the responsibility for the solidity of the facility, which means there should be no errors in construction materials for a period of 10 years minimum and no defects arising from the construction works for a period of 5 years from the date buildings were put in use. Manufacturer's warranty for the installed equipment is valid for at least 1 year and for the installed roof cover 5 years from the completion of works, elimination of possible errors and quality inspection. Each construction or equipment part replaced in the future, as well as additional repairment works, fell under a new warranty.

Measurement and verification plans (M&V) were prepared for each building, in accordance with the International Performance Measurement and Verification Protocol (IPMVP), containing standard values for temperature deficit, number of users and indoor physical parameters.

Results of pilot activities will be used in the future, if other Gorenjska municipalities are willing to collaborate in the EPC scheme implementation.

Thanks to STEPPING project, we found feasible solutions to encourage the already existing application of the Energy performance contract model to the Gorenjska region.

2.7 STEPPING Training Activities for Gorenjska

To ensure that municipalities get everything they need to STEP the EPC model UP in energy refurbishment of public buildings, BSC Kranj performed training activity and provided detailed guidelines on EPC.

On the 27th of June 2019, BSC Kranj in cooperation with the Local Energy Agency of Gorenjska (LEAG) carried out a training for municipalities and professionals with the aim to increase the use of energy performance contracting for energy refurbishment of public buildings.

Figure 7: EPC Training for municipalities and professionals, 27. 6. 2019, BSC Kranj and LEAG

First part was focused on the energy renovation of buildings that are owned by municipalities and could be refurbished in the form of EPC (Energy Performance Contracting) or public order. Mr. Staš Kos M.Sc. from the Local energy agency of Gorenjska (LEAG) put attention to following topics: Selection of suitable buildings and decision on the implementation of partial measures or complete renovation; Extended Energy Audits; Actual versus calculated use of energy maintenance and; Calculated versus actual energy savings.

Afterwards pros and cons when municipalities are applying together for the EPC or public order were discussed:

- Additional coordination

- Potential failure of one of the municipalities to prepare all of the needed documentation

- Inadequately calculated energy savings

+ Documentation cost savings - part of the documentation is implemented at the level of the operation

+ Comparison of projects, transfer of knowledge between project solutions

+ Savings must be achieved at the level of the operation

+ Sharing savings and costs

+ The amount of eligible costs relates to an operation rather than to an individual building

+ Transfer of knowledge and experience

Mr. Marko Ahčin M.Sc. presented the role of the supervisor in the building refurbishment projects in the case of EPC (Energy Performance Contracting) or public order. Tasks of supervisors discussed:

1. Taking care of that the construction is in accordance with project documentation, regulations and best practices, foreseen deadlines for construction;
2. Pointing out changes in the implementation and additional works that may be necessary during the construction;
3. Reassuring that the quality of products, materials, installations, technological devices, equipment and the procedures used is better or equivalent as planned in the project documentation.

The ESCO company hires the supervisor. Even though it is not obligatory for the investor to have an additional supervisor, it is highly recommended.

Mr. Žiga Lesar B.Sc. presented the basics for selecting a private partner in case of EPC. The process is divided in 2 phases:

Phase 1: Competences of the contractor: Determining the needed qualification of the candidates (financial, technical, personnel).

Phase 2: Competitive dialogue:

- Selection of measures;
- Determining the working conditions (reliability of supply, safety and above all living comfort);
- Preparation of projects;
- Plan for measuring and controlling energy savings;
- Consumption and costs of energy, as well as the costs and scope of management and maintenance;

- Adjustments related to the increase in living comfort;
- Plan for carrying out measurements by determining the measuring points;
- Implementation of the first round of competitive dialogue - an intermediate solution;
- Execution of the second round - final solutions.

At the end, participants had the opportunity to test the EPC Simulation Tool developed by the STEPPING project, which demonstrates and enables to compare different investment scenarios, in order to reach balance between public and private investment in the energy refurbishment of public buildings.

As already mentioned, training session gathered local public authorities from municipalities involved in the joint investment plan pilot activity and professionals (mainly engineers and project managers) from the Local energy agency of Gorenjska, Local development agency Sora, Regional development agency of Gorenjska and SMEs. Feedback from participants was very positive, because the event was an opportunity to open and discuss the most burning issue on implementation of the EPC scheme in Gorenjska and Slovenia – Needs, limitations and risks in bundling municipalities for energy refurbishment of public buildings with EPC. Role of the supervisor was examined and the process of selecting the private partner in EPC scheme.

There is a need to bundle a larger number of municipalities, but the whole process can be jeopardized, if one or more municipalities steps out during the preparation of investment documentation. This can happen because each municipality in the bundle usually performs a public contract by itself so there is increased risk for the performance of the bundle operation. Process may be at risk also if one municipality fails to prepare an adequate documentation, badly performs the procurement (each municipalities publishes its own procurement) or inadequately calculates energy savings. In any on these two cases, whole documentation needs to be revised in relation to other municipalities' decision and quality of documentation. Participants agreed that bundling approach has many advantages, e.g. cutting costs for investment documentation preparation, because part of it is elaborated for the whole operation; achieving energy savings faster; as well as sharing savings and costs btw municipalities; but the overall coordination and supervision is crucial. In this context, there is a need to form a support scheme for EPC project facilitators to upgrade their competences.

The second issue exposed was a tender rule, which delegates that a total cost of consulting and engineering services eligible in frames the refurbishment projects must not exceed 12%

of the total eligible costs of the operation (excluding VAT). Investment programmes like EIB European Local ENergy Assistance (ELENA) are the right way to overcome this issue.

As regards the ESCO market situation, lecturers and participants agreed that Slovenia needs more additional players in the field. The Government should put even more effort to open up the EPC market to new (SMEs) EPC providers in the future, with a guarantee programme through guarantor banks for (SMEs) providers offering EPC. The National Energy Efficiency Action Plan 2014-2020, plans this activity.

In addition, to create an attractive business environment public tender procedures and definition of EPC have to be simplified.

3. Policy Context

3.1 National Strategy

The National Energy Efficient Action Plan - NEEAP 2017-2020 (Action Plan)[15] adopted in December 2017 (second version) transposes Article 18 (Energy services) and Article 19 (Other measures to promote energy efficiency) of the European Energy Efficiency Directive (EED) 2012/27/EU into Slovenian legislation. It sets key measures to achieve energy efficient goals by 2020 including those enhancing EPC projects implementation:

Direct		NEEAP 2017-2020 Key Measures	Indirect	
H.1	Energy performance contracting		Information, awareness-raising and training schemes for targeted public	H.3
G.2 G.3	Financial incentives for implementation of EE and renewable energy sources (RES) measures in residential buildings		Education and training	H.4
G.7	Instruments for financing renovation in buildings with multiple owners		Support scheme for the renovation of built cultural heritage and other special building groups	J.6
G.8	Distribution of incentives among owners and tenants in multi-apartment buildings		Preparation of sustainability criteria for public buildings renovation	J.7
G.9	Establishment of a guarantee scheme			
J.2	Financial incentives for the deep renovation of buildings in the public sector			
J.3	Introducing an energy management system in the public sector			
J.5	Public buildings energy renovation projects implementation unit			

Figure 8: NEEAP 2017-2020 Key Measures

Building sector in Slovenia represents 40% of total energy consumption and has greatest potential to achieve energy savings target that is to reduce 80–95% of greenhouse gas emissions by 2050 compared to 1995. Potential arises from the fact that 70% of the total floor area of residential buildings and 60% of the non-residential buildings was constructed prior to 1985.[16]

Even though only 10% of total buildings stock is public, the Long-term Strategy for Mobilizing Investments in the Energy Renovation of Building Stock – LSERB (Strategy) adopted in October 2015 predicts that public institutions take the lead in improving energy

[15] https://www.energetika-portal.si/dokumenti/strateski-razvojni-dokumenti/akcijski-nacrt-za-energetsko-ucinkovitost/
[16] https://www.energetika-portal.si/podrocja/energetika/energetska-prenova-javnih-stavb/

performance and increasing the use of renewable energy sources in buildings. Annually 3% of public buildings floor has to be renovated.[17]

Key targets set in LSERB:

- Reduce end-use energy consumption in buildings by 15% by 2020 and 30% by 2030 compared to 2005;
- Have at least two-thirds of energy in buildings produced from renewable energy sources;
- Reduce greenhouse gas emissions in buildings by 60% by 2020 and at least 70% by 2030 compared to 2005;
- Carry out energy renovation on at least 26 million m2 of building floor area, or 1.3–1.7 million m2 annually, with just over one third of this total renovated to nearly zero-energy building standard.

Key operational targets set in LSERB:

- Renovation of 3% of public buildings owned or occupied by central government each year (between 15,000 and 25,000 m2);
- Renovation of 1.8 million m2 of the floor area of buildings in the wider public sector between 2014 and 2023 (the target set in the Operational Programme for the Implementation of the EU Cohesion Policy 2014-2020 – OP ECP);
- Improvement in the ratio between public funds invested and investment incentives in the public sector to 1:3 (Operational Programme for Reducing GHG – OP GHG);
- Implementation of five energy renovation demonstration projects for different building types (OP ECP).

To achieve these targets until 2030 investment of approximately 6.7 billion EUR in building renovation is needed: three-quarters in the housing sector, 10% in the public sector and 15% in the private service sector. This means annual investments of 350 to 450 million EUR: approx. 300 million EUR in the housing sector and 100 million EUR in the service sector (40 million EUR in the public and EUR 60 million in the private sector).

Energy renovation of public sector buildings will primarily use EPC model, including private capital of ESCOs. Meeting obligations to receive cohesion funds available for the renovation of 1.8 million m2 by 2023, public sector will also have to provide a portion of funds to finance investments, on top of the grants.

The public bodies involved in the preparation of NEEAP and LSERB are:

[17] https://www.energetika-portal.si/dokumenti/strateski-razvojni-dokumenti/dolgorocna-strategija-za-spodbujanje-nalozb-energetske-prenove-stavb/

- Ministry of Infrastructure with its Energy Directorate,
- Slovenian national building and civil engineering institute (ZAG Ljubljana),
- Energy Efficiency Centre (EEC) at the Jožef Stefan Institute (JSI),
- Faculty of Economics.

Ministry of Infrastructure prepares and implements national energy policy, designs legislative acts, manages database information system and performs economic analysis for the energy sector. Its Public Buildings Energy Renovation Projects Implementation Unit (PBER PIU)[18] has prepared EPC model documents and project implementation guidelines:

- Instructions and technical guidelines for energy renovation of public buildings
- Instructions for operation of intermediary bodies and beneficiaries implementing public buildings energy renovation programme
- Detailed guidelines for the public partners implementing public buildings energy renovation
  - ✓ Annex 1: Call to public-private partnership promoters
  - ✓ Annex 2: Decision on public-private partnership
  - ✓ Annex 3: Concession act
  - ✓ Annex 4: Call for tenders
  - ✓ Annex 5: Model contract
  - ✓ Annex 6: Model agreement
- Reference book of eligible costs of public buildings energy renovation
- Guidelines for energy renovation of built cultural heritage

PBER PIU is also responsible for developing national EPC quality assurance schemes and providing information on EPC best practices. In cooperation with the electricity market operator Borsen Ltd, local energy agencies, ESCOs and JSI, a web platform www.trajnostnaenergija.si was set up to disseminate information about energy efficient services to various target groups. Section on EPC contains model documents, relevant legislation, project templates and best practices.[19]

[18] https://www.energetika-portal.si/podrocja/energetika/energetska-prenova-javnih-stavb/projektna-pisarna/
[19] http://www.trajnostnaenergija.si/Trajnostna-energija/Energetsko-pogodbeni%C5%A1tvo/Modeli-energetskega-pogodbeni%C5%A1tva/Pogodbeno-zagotavljanje-energije

3.2 Public Support Schemes

During the period 2016 – 2023, the public sector has to undertake energy renovation of 1.8 million m2 of its buildings floor area. Ministry of infrastructure estimates that total volume of investments in the energy renovation of public sector buildings will be 414,8 million EUR, which means 51 to 53 million EUR of investment is needed per year to achieve that.

In Slovenia, there is a range of public financial incentives to encourage the take up of EPC:

European Structural and Investment Funds (ESIF) – Cohesion Fund

Energy efficiency investments in deep renovation of public buildings are financed from the European Structural and Investment Funds (ESIF) – Cohesion Fund, using financial instruments and EPC which enables adequate leverage factor to EU funds and public funding from the Republic of Slovenia.

To enhance EPC as a key mechanism for energy renovation of public buildings, Operational Programme for the Implementation of the EU Cohesion Policy 2014-2020 (OP ECP) plans to provide 135,3 million EUR of non-reimbursable cohesion grants (of which 20,3 million EUR is government participation). ESCOs equity financing is supposed to provide 124.4 million EUR (30% of total investment including VAT). The Long-Term Strategy for Mobilizing Investments in the Renovation of Buildings also predicts that 30.1 million EUR will be provided by the state budget.

Six OP ECP calls for tenders were announced since 2016 and on top of that, four pilot EPC projects were implemented.

European Funds for Strategic Investments (EFSI)

In addition, Ministry of Infrastructure successfully applied to European Funds for Strategic Investments (EFSI) with the project “Building Energy Renovation” to provide a financial instrument with programmatic approach to finance public sector investments in energy renovation of public buildings through EPC. Project launched a revolving fund managed by the Slovenian Investment Bank - SID bank financial engineering, based on combination of 50 million EUR of repayable cohesion funds (Ministry of Infrastructure) and 75 million EUR of leverage funds (SID Bank). This way in total 125 million EUR of affordable long-term loans are available to the public sector and ESCOs for the complete energy renovation of public buildings.

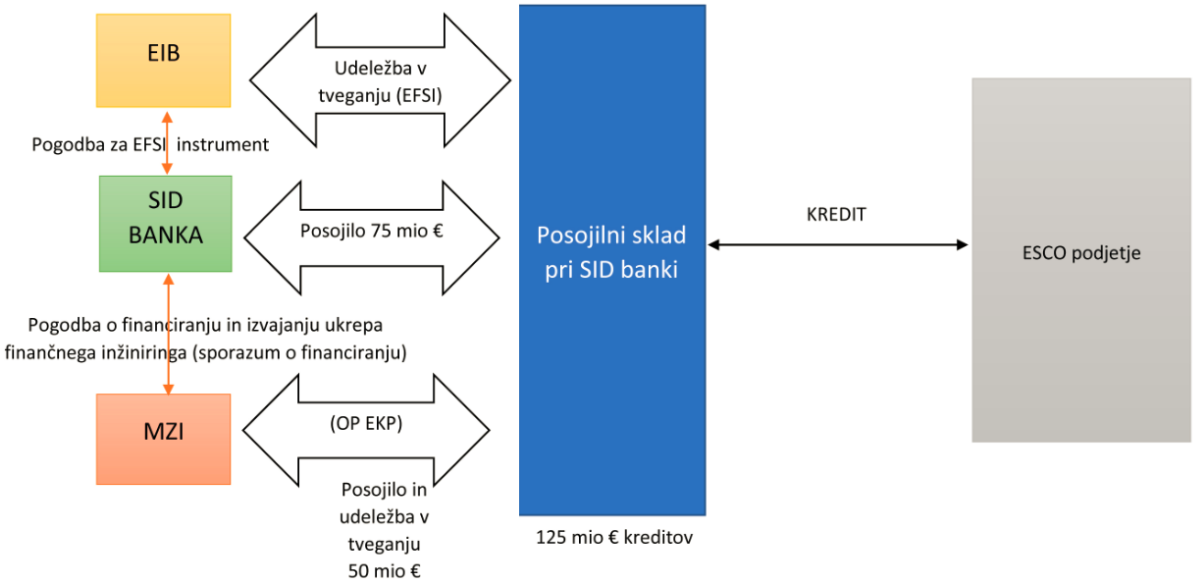

Figure 9: Structure of the financial instrument (source: Ministry of Infrastructure. 2016. Detailed guidelines for the public partners implementing public buildings energy renovation.)

In May 2019, SID Bank in cooperation with the Ministry of Infrastructure published a first loan programme for the comprehensive energy renovation of public buildings.[20] Conditions of the public call are favorable. ESCOs can apply for loan in a range between 100.000 and 15 million EUR, even if the project has partially already obtained public grants. Loans can be obtained to cover up to 100% of eligible costs, including VAT. Nevertheless, VAT is not eligible in case of external experts' support and dissemination activities. The volume of funds is estimated at 38,5 million EUR, of which 62,5% are cohesion funds and 37,5% SID bank assets. Contractual interest rate is the sum of the 6-month EURIBOR reference interest rates, which is accounted from SID bank assets, and a fixed margin, which is the weighted value of cohesion funds margin (0%) and SID bank assets margin. Call will remain opened until the end of 2023 or until the funds are used up.

This means that in total, EUR 185,3 million of financial support is available for energy renovation in the public sector, providing 40% grant financing for eligible projects. 60% is to be provided by ESCOs, half of it with the support of financial mechanism.

Eco Fund Soft Loans & Grants

Within the framework of the Slovenian Environmental Fund (Eco Fund)[21], there is a public financial fund to aid energy efficient investments and services, even though not directly to those performed with EPC:

[20] https://www.energetika-portal.si/javne-objave/arhiv-energetika/javni-razpisi/r/posojila-za-financiranje-projektov-celovite-energetske-prenove-javnih-stavb-ee-1213/
[21] https://www.ekosklad.si/javni-sektor

- Soft loans for investments in environmental infrastructure, environmentally sound technologies and products, energy efficiency, energy saving investments, and use of renewable energy sources (municipalities, providers of public utility services, enterprises and other legal entities);
- Grants for investments in public buildings (schools, kindergartens, libraries etc.), newly constructed as low energy and passive buildings or renovated in passive standard (municipalities).

European Local ENergy Assistance (ELENA)

The European Local ENergy Assistance (ELENA)[22], a joint initiative by the European Investment Bank (EIB), the European Bank for Reconstruction and Development (EBRD) and the European Commission under the Horizon 2020 programme, provided 4 grants to clients for technical assistance focused on the implementation of energy efficiency, distributed renewable energy and urban transport projects, amounting in total EUR 6.5 million. The following ELENA projects were supported; three of them are still ongoing:

- Energy retrofit programme of public buildings in Ljubljana (Energetska obnova Ljubljane – EOL), 2012;
- Energy renovation of public buildings - City of Novo mesto, City of Celje and City of Kranj, 2015;
- Preparation and Mobilisation of Financing for Sustainable Energy Investments in Primorska Region Municipalities (PM4PM), 2016;
- GOVernment Deep Energy Renovation (GovDer), 2018.

3.3 European Code of Conduct for EPC

The European Code of Conduct for EPC[23], launched in 2014, defines basic values and principles for successful preparation and implementation of EPC projects. ESCOs as signatories have to implement EPC project in compliance with the quality standards defined by the code - even though they are not legally binded to because it's as a voluntary commitment. This way it constitutes basic quality guarantee for EPC projects and sends out the message that EPC is a fair energy business model.

For these reasons, it is a starting point for developing an energy service quality assurance schemes and supports EPC market development.

It was developed within Intelligent Energy Europe project Transparense in cooperation with the European Association of energy Service Companies (eu.ESCO) and the European

[22] https://www.eib.org/en/products/advising/elena/index.htm
[23] http://www.transparense.eu/eu/epc-code-of-conduct

Federation of Intelligent Energy Efficiency Services (EFIEES). These associations have been administering the code on the EU level since September 2015, ensuring its sustainability. Until the end of October 2017, it had 233 signatories across Europe, involving 148 EPC providers, 13 national associations with 160 members, 2 mentioned European associations of ESCOs and 70 facilitators and other signatories.

Since there is no EPC Association in Slovenia, JSI EEC is the national code administrator. There are six code signatories, among which three key providers and two facilitators.

3.4 Gorenjska Region

To meet the challenges of Gorenjska region, BSC, Ltd, Kranj, Regional development agency of Gorenjska, has produced a joint Sustainable Energy and Climate Action Plan (SECAP) 2019 – 2030 under the Covenant of Mayors for Climate Change and Energy. It commits municipalities to collectively reduce CO2 (and possibly other greenhouse gas) emissions on joint territories by at least 40% by 2030 compared to 2005, namely through the improved energy efficiency and greater use of renewable energy sources. SECAP was elaborated in frames of the PEACE_Alps (Interreg Alpine Space) project.

In order to translate commitments into action local authorities have to undertake also the following steps besides the adoption of SECAP:

- Jointly carry out a Baseline Emissions Inventory and a Climate Change Risk and Vulnerability Assessment;
- Report progress at least every second year following the submission of the Sustainable Energy and Climate Action Plan for evaluation, monitoring and verification purposes.

It should also be noted that this is the first regional plan for the promotion and the funding of sustainable energy and climate actions in Slovenia.

Based on the State-of-the-Art analysis, the following actions were identified to improve energy efficiency and greater use of renewable energy sources in Gorenjska:

B-A.1. Assignment of organizational and coordinative body by the regional council to implement the Covenant of mayors' initiative

- Definition of structure, statute and financing of the body;
- Active involvement, coordination and informing about the implementation of energy climate measures planned;

- Properly targeting, addressing and integrating new contents (e.g. industry, agriculture);
- Monitoring implementation and outputs; informing target groups; reporting to municipal councils and to the Covenant of mayors;
- Responsible body: Regional council;
- Implementation period: 2019-2030;
- Estimation of costs: 30.000 EUR/year (100% to be financed by municipalities in combination with public calls for EU funds)

B-A.2. Establishment of the integrated regional energy and climate information system CIEPs (sl. Celostni informacijsko energetsko podnebni sistem)

- Aim is to inform and motivate residents, companies in energetics and climate change, educational-research organizations and potential investors to contribute to the implementation of SECAP measures;
- By utilizing CIEPs region becomes responsible planner, consumer, investor and motivator with a vision to become producer and supplier of sustainable energy;
- CIEPs is a digitalized energy and climate planning system, interactively displaying space and climate context of an area, potential for local energy production, renewable energy sources potential per area or facility;
- It enables monitoring the effects of energy efficient measures, social inclusion and networking;
- It provides comprehensive, transparent, up-to-date data, comparable indicators, automation of reports, etc.
- Properly targeting, addressing and integrating new contents (e.g. industry, agriculture);
- Responsible body: BSC Kranj;
- Implementation period: 2020-2030;
- Estimation of costs: 100.000 EUR (to be financed through public calls for regional and national funds or in frames of the INTERREG ETC – Alpine Space programme is a suggestion)

B-A.3. Establishment of the Center for renewable energy, energy efficiency and climate change (national level)

- Aim is to design educational programme in renewable energy sources, climate change and efficient use of energy to build knowledge capacities and raise competences of key stakeholders in construction, architecture, mechanical engineering, electrical engineering, environmental protection, project management for energy and climate sector, etc., as well as of teachers, students and public. Such

programmes are currently available only within specialized programs of individual faculties, which benefits only to a small number of people;

- Aim is also to establish links between companies, research and development institutions and ministries, and to provide equipment for the practical part of curriculum performed by educational institutions;
- Responsible authority: Regional council, Organizational-coordinative body for implementation of the Covenant of mayors' initiative;
- Implementation period: 2020-2022;
- Estimation of costs: 500.000 EUR (15-25% to be financed by municipalities and faculties, the rest through public calls for regional, national or EU funds)

B-A.4. Regional forum on innovation in energetics and climate change

- Organization of workshops and trainings for faculties and schools from Slovenia and EU to establish links with potential investors, industry and local authorities. Agenda would address regional challenges in energetics and climate change in connection with residential buildings, public buildings, traffic and public lightning);
- Hands-on presentation of innovations with rewarding ceremony;
- Forum would urge investors and businesses to connect with innovators and municipalities to facilitate innovations launch in one or more local communities;
- Aim is also to establish links between industry, research and development institutions and ministries, and to provide equipment for the practical part of curriculum performed by educational institutions;
- Responsible authority: Regional council, BSC Kranj, LEAG;
- Implementation period: 2019-2030;
- Estimation of costs: 5.000 EUR/event (85-100% to be financed by municipalities and faculties, the rest through public calls for regional, national or EU funds and private sponsorship).

According to SECAP, public buildings are one of the four intervention areas. Analysis of 219 public buildings has been conducted, comprising the frequency of use, specific energy consumption and the state of insulation. Priority for renovation will been given to the facilities with the energy number above 100 kWh/m2 and to those using fossil fuels for heating.

In the programming period 2007-2013, 36 buildings undergo deep energy renovation, while 22 buildings in the Municipality of Kranj, 2 buildings in the Municipality of Bohinj and one building in municipalities Tržič, Jesenice and Gorenja vas-Poljane will be renovated in this programming period (2014-2020). EPC is going to be used only in case of Kranj.

There are 66 buildings left with potential for renovation, still using extra light heating oil, having energy number above 100 kWh/m2 and surface above 300m2.

As we can conclude, Gorenjska Region has defined a two-step vision, according to the SECAP time line:

- By 2022 Gorenjska region will have knowledge empowered and connected key stakeholders in regard to energy efficiency and climate change through the Center for renewable energy, energy efficiency and climate change established at national level, supported by public administration financial incentives and policies, using the available resources;

- By 2030 Gorenjska region will have an extensive energy efficient infrastructure and services according to the European standards, enabling a complete transition to low or zero CO2 emission public and residential buildings, public lightning and traffic.

The PEACE_Alps project enhances the pooling and implementation of energy concepts already endorsed by Local Authorities (Las) in Alpine Space area by supporting LAs in developing concrete actions with an inter-municipal approach. Objectives are reached by addressing energy management, energy refurbishment of buildings and public light and local adaptation to climate change. In 2016, the Council of Gorenjska region adopted a decision to prepare SECAP, which obtained support from the Covenant of Mayors and consent of 18 Gorenjska municipal councils. On the 10th of April 2019, BSC Kranj and Local energy agency of Gorenjska (LEAG) organized a public conference to present the document and plan for a collaborative deployment of its actions in frames of the regional council. As a prerequisite for the further development of energy management, energy refurbishment of buildings and public light and local adaptation to climate change.

The Gorenjska Regional Development Plan (RDP) 2014 – 2020 plans to achieve energy savings and reach up 25% share of energy from renewable energy sources with execution of two main projects. The first one is Go SMARTe project – Gorenjska system for measurement and analysis of the regional sustainable energy that underpins the use of innovative system integrated into the public lightning infrastructure to monitor and manage the available energy sources, awarded “Smart Grids PARIS 2013” event. The second one is a commitment to implement applicable legislation of the Republic of Slovenia in the field of energy efficiency, renewable energy and air quality.

This STEPPING action plan has been developed to take into account that although energy efficiency of public buildings is one of the priorities for the pilot area municipalities and recognized in their respective Local Energy Concepts, as well as in the RDP of Gorenjska and SECAP, Energy Performance Contract is considered only as a complementary solution. Joint

EPC measures and actions are subordinate or not defined at all, especially when smaller municipalities are considered. Therefore, the action plan purpose is to co-ordinate the delivery of energy efficiency of public buildings with EPC and to ensure that EPC is given the appropriate priority.

4. On-going EPC projects in Pilot Site Gorenjska

This chapter presents past and current set of actions to boost the EPC market in Gorenjska and to maintain the high quality of EPC projects. It identifies the where (buildings), the who (the target groups involved), the what (a summary of the energy renovation measures implemented) and the how (engagement, incentives, marketing and promotion).

There is only one major EPC project being implemented in the Pilot Site of Gorenjska. Kranj city council has renovated 22 buildings in collaboration with a consortium of companies: Petrol, Domplan Kranj and Gorenjske elektrarne Kranj. Ten of these buildings have been fully renovated, six have been partly renovated, and energy management systems have been installed in the other six. The energy renovations were carried out in 2018 and 2019 and have a contractual period of 15 years. The project involved the renovation of 13,300 m2 of façade, the replacement of 5,200 m2 of windows and doors, the renovation of 12,300 m2 of roofs and attic spaces, the refurbishment of four gas boilers, the installation of heat pumps in eight buildings and the refurbishment of three heating sub-stations, the installation of two high-efficiency air-conditioning units for building ventilation, the installation of approx. 2,770 LED lights, the replacement of 6,000 fluorescent lightbulbs with LED lamps, and the installation of 620 thermostat valves. Energy-management systems that enable energy systems to be optimised have been installed in all 22 buildings.[24]

Renovated buildings:

- **Public administration building MO** – Energy management, Attic Ceiling Insulation (All Tracks), Replacement of joinery, Tract B, Building cooling system upgrade, Replacement of interior lighting, Electric vehicle charging station.
- **Prešeren Theater Kranj** – Energy management, Thermal insulation of the facade and attic, Repair of inadequate windows and doors, Renovation of the roof of the entire roof, Renovation of the heating system (heat pump with / v), Installation of thermostatic valves and hydraulic balancing, Installation of ventilation system, Lighting renovation.
- **Elementary School France Prešeren POŠ Kokrica** – Energy management, Thermal insulation of facades, ceilings and sloping roof, Changing the roof, Replacement of joinery, blinds, Installation of thermostatic valves and hydraulic balancing, Renovation of the lighting system, Renovation of the heating system.
- **Elementary School Helena Puhar** – Energy management, Facade construction, Replacement of joinery, blinds, Gym renovation, Thermostatic valves, Thermal insulation of the roof, Installation of RES source - heat pump in / out and wells.

[24] https://www.petrol.eu/publications/2019/09/twenty-two-buildings-get-a-new-lease-of-life-through-energy-renovation.html?type=obvestilo-za-medije

- **Elementary school Jakob Aljaž with sports hall** – Energy management, Facade construction (school section and gym), Renovation of the heating system, technique, regulation, Thermal insulation of the roof, Replacement of joinery, blinds, Hall ventilation, Renovation of the lighting system, Thermostatic valves.
- **Elementary school Matija Čop** – Energy management, Thermal insulation of facade, ceiling, roof, Replacement of joinery, blinds, Renovation of the heating system, technique, regulation, Installation of thermostatic valves / balancing, Lighting renovation.
- **Elementary school Simon Jenko (PŠ Trstenik)** – Energy management, Renovation of building envelope, Renovation of the heating system - installation of air / water pipes, Installation of thermostatic valves, regulation, Roof and attic insulation, Renovation of joinery, Renovation of interior lighting.
- **Elementary school Stane Žagar** – Energy management, Facade construction, Replacement of joinery, Exterior blinds, Lighting repair, Installation of air / water pump, Flat roof thermal insulation.
- **Nursery Janina (VVZ Janina)** – Energy management, Renovation of building envelope, Replacement of inadequate building furniture, Roof insulation, Installation of thermal insulation of the panel against the basement, Installation of heat pump (air / water).
- **Nursery Najdihojca** – Energy management, Insulation of building envelope, Renovation of the heating system, secondary part, Thermostatic valves, Lightning system renovation.

Partially renovated buildings: Orehek Primary School, Simon Jenko Elementary School (Primskovo), VVZ Mojca, Higher Education Center Live Zhav, ZZŠK Indoor Olympic Pool, Elementary school Stražišče (PS Žabnica).

Energy management was introduced at the following facilities: Kranj City Library, City of Khislstein, Elementary school Predoslje, Simon Jenko Primary School - Goriče Primary School, OŠ Mavčiče, Primary School Stražišče - Primary School Besnica.

Financial sources

Total investment amounted to EUR 6.38 million (excluding VAT). Private partner invested EUR 3.2 million. Cohesion grant amounted to EUR 2.25 million. The City of Kranj invested EUR 0.9 million.

5. Action Plan

The primary objective of this is to create a **method** to incrementally deliver a comprehensive energy efficient renovation of the remaining Gorenjska public buildings stock through an EPC. To increase investments in EES and to improve trust in EPC providers.

Improving air quality by reducing energy consumption and emissions from building sector is one of the crucial priority in Slovenia. Pollution in the air we breathe has major health implications. Providing an accessible and cost-effective system of ESS is vital to achieve air quality improvements, living and working comfort and to deliver the target for zero-emission public buildings before 2050.

Delivering EPC utilization includes:

- Identifying and choosing suitable buildings;
- Surveying and designing new energy efficient measures for the chosen buildings taking into account their suitability for the EPC;
- Performing solid initial energy audits with estimation of energy saving potential;
- Setting of gross target value of the investment and of the energy consumption and energy costs reduction;
- Seizing opportunities to acquire public funds;
- Designing of investment documentation, tendering documents, EPC contract and M&V protocol;
- Publishing calls for proposals and selecting bidders;
- Monitoring project implementation;
- Measuring and verifying project results;
- Coordination between municipalities and ESCOs;
- General administration.

The next stage will be a public consultation to inform the region of the plan and its benefits.

The method will consist of applying complementary organisational, educational and financing solutions:

1) Reinforce the role of EPC in the new Gorenjska Regional Development Plan (RDP) 2021 – 2027 and in the Sustainable Energy and Climate Action Plan (SECAP) – as a cost-effective tool to reach targets in energy efficiency of the public buildings stock;
2) Conducting training sessions for officials and local authorities;
3) Using STEPPING EPC simulation tool to verify interactions between EPC models, revenue models and financing schemes;
4) Using EPC Plus for cost effective deep energy renovations;

5) Establishment of alternative regional risk-sharing mechanism to supplement EPC Plus financing from Structural and Cohesion Funds, national SID Bank loan programme for deep energy renovation of public buildings and the ones of Eco Fund;
6) Considering development of the secondary market for energy efficiency loans.

As proven by the QualitEE Horizon 2020 project, quality assurance scheme and a well-defined public procurement scheme would significantly help to increase quality of EPC services and to raise trust in EPC providers. Other benefits relate to easier comparability of bids and higher rates of guaranteed savings. Since these two schemes are considered as government and national public bodies' domain, this action plan treats them on the regional level only in the framework of the regional EPC project facilitators' tasks and not as individual actions.

This will deliver comprehensive, accessible and appropriate public private partnership actions for municipalities, ESCOs and local financing institutions (LFIs) to overcome EPC market barriers in Gorenjska. The ultimate aim of this project is to achieve full coverage in two phases by 2030. Timeframe is aligned with the PEACE_Alps Sustainable Energy and Climate Action Plan (SECAP) 2019 – 2030 for Gorenjska. Action plan is to be revised at end of 2023.

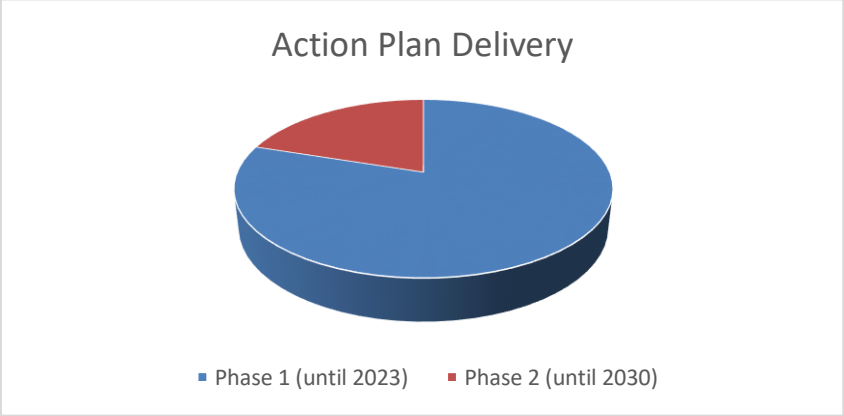

Figure 10: EPC Action plan delivery

Preliminary plan

Task	*Details*		
Prepare start to finish process plan with milestones	Prepare a draft works programme including task list milestones.	Share plan with task stakeholders to agree in principle and identify resource requirements.	**1**
Prepare stakeholder list	Target groups to consider: • Municipality stakeholders • Ministry of infrastructure – PBER PIU • EPC providers • EPC facilitators • Elektro Gorenjska Group • Petrol d.d. • Domplan d.o.o. • Iskraemeco d.d. • Knauf Insulation d.o.o. • EES Certification bodies • SID Bank • Eco Fund • Local financial institutions for EPC financing • Slovenian regional development fund • Local economic stakeholders (e.g. Chamber of Commerce) • Environmental interest groups • Health interest groups • Local residents	A working group should be established using stakeholder representatives to have a watching brief of the life of this action plan (e.g. in frames of the SOTEPA – Advisory board for the sustainable energy and climate action of Gorenjska) A co-ordinator appointed (e.g. EPC manager). Heads of terms drafted including responsibilities, quarterly meetings and locations planned for the duration of the plan.	**2**
Reinforce the role of EPC in regional strategic documents as a cost effective tool to increase energy efficiency of public buildings	Define actions to deploy energy efficient and renewable energy technologies with EPC. Define targets considering: • Energy efficiency and renewable energy objectives already achieved in the 2014 – 2020 period. • National Energy Efficient	Gorenjska Regional Development Plan (RDP) 2021 – 2027 Sustainable Energy and Climate Action Plan (SECAP) Local energy concepts	**3**

	Action Plan (NEEAP) 2017-2020 • National Renewable Energy Action Plan (NREAP) 2010 – 2020 Actions and funding should be justified based on the cost-benefit analysis. Prioritization should be made according to identified barriers. Municipalities should take the leading role to introduce EPC projects – define requirements, responsibilities and penalties.		
Prepare an EPC guidelines portfolio	National definitions of EPC related terms. Description of EPC business models[25] and financing schemes[26] for public sector with cost-benefit analysis. Regulatory and legal requirements governing the use of EPC. EPC toolbox: • Contract models; • Tender models, procedures and template documents; • Energy efficiency, renewable energy and energy savings assessment criteria, incl. live cycle cost evaluation; • Monitoring indicators – energy saving achieved	Public Private Partnership Law. Public Procurement Law. Establish contact with the Public buildings energy renovation projects implementation unit (PBER PIU) at the Ministry of Infrastructure. Consider main STEPPING project outputs: • EPC Best Practices Collection; • EPC Pilot Implementation Handbook; • Evaluation of STEPPING Results and Corrective	**4**

[25] Consider revenue model combining heat, power and renewable electricity feed-in scheme.
[26] For example: Energy efficiency obligation scheme.

	and cost effectiveness of services provided). Listing of training sessions available for municipalities and professionals to raise their knowledge and competence on EPC.	Measures; • MED EPC Guidelines.	
Reassessment of energy management system and energy audits in public buildings	Municipalities should reassess and adjust energy management and energy audits practice to enable fluent preliminary checks if EPC is economically feasible. Energy management in accordance with standards, e.g. EN ISO 50001 (Energy Management Systems). Continuous and reliable energy data collection to evaluate energy savings (ref. to NEEAP). Continuous and reliable energy audits to identify and quantify cost-effective energy efficiency measures and renewable energy technologies.	Local energy agency and/or other institutions responsible for public buildings energy management.	**5**
Consider re-establishing a proven effective Regional Guarantee Scheme, specifically tailored for EPC projects	Reducing the cost of capital by lowering bank interest rates and requirements for credit insurance. Facilitating access of SMEs to loans for investments in research and development of EPC, energy efficient smart infrastructures and renewable energy technologies, co-financed by INTERREG, HORIZON 2020 or similar EU programmes. Facilitating access of	BSC should discuss options and set up the scheme in cooperation with the Slovenian Regional Development Fund and Local Financing Institutions – LFIs (e.g. commercial banks, private investors' funds).	**6**

	municipalities to loans for technical assistance in deep energy renovation of public buildings (as a supplement or alternative to ELENA).		
Consider setting up an EPC facilitation unit as a successor to SOTEPA or an executive body	In frames of: • LEAG • Centre for renewable energy, energy efficiency and climate change (SECAP) • BSC Consult with Public Buildings Energy Renovation Projects Implementation Unit (PBER PIU), within Energy Directorate of the Ministry of Infrastructure. Consult with Energy Efficiency Centre (EEC) at the Jožef Stefan Institute (JSI).	Set up could be financed through INTERREG ETC – Alpine Space, Mediterranean, Danube, etc. (ERDF). Check availability of incentives to finance activities (Cohesion Fund).	**7**
Consider applying the EPC Plus model	This model extends the ESCO service to building envelope renovation (insulation, window replacement) which increases the investment volume, extends the pay-back period, but raises energy savings up to 50%.	Assuming this is a subsidized measure, ESCO is more willing to accept the longer pay-back period.	**8**
Define criteria to select buildings suitable for EPC	Possible criteria: • Availability of utility records (e.g. energy certificates, energy accounting, recent energy audits and documentation of past investments) • Relatively consistent energy-use patterns over several years. • Relatively consistent	Highlight important features: EPC project feasibility is not only a question of the payback time and the type of investment, but also of the project budget size and ESCOs' target and interest. Preliminary assessment	**9**

	facility use. • Building type with good technical (e.g. high-energy consumption, high intensity of systems) or financing (subsidies) potential. • Equipment / systems are at the end of depreciation period. • Buildings conservation needs (level of obsolescence). • Potential for additional investments in renewable energy technology. • Energy renovation is strategic – planned by regional development plan, local energy concepts or SECAP. • Owners' motivation to renovate a pool of buildings. • Influence of climate change on annual basis.	of market potential is needed to adapt buildings choice. Consider EPC as a savings guarantee tool, not only as a financial instrument.	
Identify buildings energy consumption profile and energy needs (pre-audit)	There are 66 buildings left with potential for energy renovation, still using extra light heating oil, having energy number above 100 kWh/m2 and surface above 300m2. Pre-audit site visits to collect and assess energy carriers, energy use and facility use records, equipment data, construction features, conservation needs and architectural restrictions. Assess also thermal comfort, indoor air quality and energy use habits.	Co-operate with buildings energy managers and users.	**10**

	List of recent and planned energy renovation interventions. Overview upon past, current and future energy prices and carbon tax.		
Develop plans which predicts where demand is expected to be highest this is then plotted into the whole region and plotted along with the latest data	Plan 1 will have: • Municipal buildings • Public health care facilities • Public schools • Public libraries • Nursing homes • Public sport facilities	Plan 2 will have: Regional map of buildings with the highest priority for energy renovation. Colour key ranging buildings from poor to good energy efficiency can be used. Consider using or developing a web based application interactively displaying energy efficiency of public buildings. Refer to the Integrated regional energy and climate information system CIEPs (SECAP).	**11**
Develop buildings ownership and permits portfolio	Rank buildings in terms of ownership and permits complexity. Are there any limitations in relation to construction materials, terrain morphology, architectural solutions and energy renovation measures, etc.?	Contact relevant licensing authorities where necessary. Display on regional map (step 11).	**12**
Rank buildings by social-economic and	To what extend public buildings facilitate social inclusion,	Display on regional map (step 11).	**13**

environmental importance	physical activity and new jobs? Do they provide health services? Is the energy renovation significant to the protection of natural and cultural resources and raises their value?		
Identify, evaluate and compare efficiency of energy renovation measures available on market	Initiate desk research of existing feasibility studies and cost-benefit analysis for technical solutions.	Consult with educational and research institutions.	**14**
Identify the EPC market expectations on energy renovation measures and capacities	Local construction companies and ESCOs. Financial institutions: • Credit institutions, • Equity private funds, • Investment platforms, etc. Insurance companies. Plan to organize workshops, trainings or promotional events on EPC to identify expectations, create synergies, as well as to raise capacities.	Can skills and financing capacities of the local EPC market match with the demand? Will smaller companies have to create a consortium for a common offer with shared savings guarantee to apply for tender? Will they be able to compete with large ESCOs? What is the minimum project budget size expected and which energy renovation measures are desirable?[27] This increases chances for their participation in the tender. Use STEPPING outputs as a case:	**15**

[27] In case when measures with short pay-back periods (e.g. energy supply) and high investment needed present major part of EPC contract, only bigger ESCOs will be interested. When deep renovation measures present major part of the EPC contract and energy supply minor part, SMEs will be more interested.

		EPC Training Modules; Reports on EPC Trainings; Mid-term and Final Local Events Reports.	
Prepare information on funding	Energy renovation budget breakdown per owner and shortfall. Investment subsidies (grants) for deep energy renovation of public buildings (energy efficient measures + building envelope renovation) with terms and conditions → EPC Plus projects! Public financial incentives to encourage the uptake of EPC as set out in Chapter 3: • ESIF – Cohesion Fund • EFSI • Public loan programmes • Eco Fund Soft Loans & Grants Private sector involvement.	Table with co-financing sources.	**16**
Prepare marketing and communication plan	Develop options to link to existing energy efficient renovation projects implemented with EPC (e.g. public buildings in the Municipality of Kranj). Refer to the Integrated regional energy and climate information system CIEPs (SECAP). Explore options to integrate regional map (step 11) into the CIEP.	This involves municipalities, ESCOs and LFIs.	**17**
Prepare procurement	Choose and consult tender type	Choose and consult the	**18**

options and bundling plan	according to national and EU legislative framework & volume and type of energy renovation measures: • Public works contract • Public supply contract • Public service contract Choose and consult tender content: • Tender specifications to set baselines for tendering procedure (e.g. length of contract; baseline energy savings, cost savings and investment value)[28] • Management and technical specifications • M&V plan[29] • EPC contract with duties and liabilities • Risk matrix • Financial offer template Define the awarding procedure and criteria for the selection of bidders: • Background in the analysis, design and implementation of energy-savings measures, energy-efficient systems; maintenance and repair of buildings envelope and energy systems; monitoring energy performance. • Type of certificate for environmental, safety and quality management	bundling approach: (A) Bundling of public authorities – several municipalities grouped in one tender (one public authority is the procurer); (B) Bundling of buildings – several buildings grouped in one tender (owner of buildings, public ESCO, energy agency or public body as an EPC facilitator is the procurer). For in-depth guidance on how to prepare to tender check main STEPPING project outputs: • EPC Tenders models, specifications and contract; • EPC Procurement Summary Results.	

[28] Baselines enable bidders to simultaneously increase the minimum energy savings percentage, the cost savings and the investment value.
[29] In accordance with the IPMVP.

	system Define the EPC contract content using templates from successful projects.[30] Develop O&M plan to be included in the EPC contract.[31] Draft Memorandum of Understanding (MoU) to be signed by municipalities to approve the investment plan and tender documentation. Draft procurement brief of requirements for marketing and promotion.		
Develop a programme of complementary measures to make it a success particularly for ESCOs	Energy efficient smart infrastructures Renewable energy technologies	Re-consider and re-define the above steps accordingly.	**19**
Consolidate tasks 3 – 19 the above into report to progress to next stages	Present to working group.	Revise and circulate for sign off.	**20**

[30] Who will guarantee the quality of construction materials, works and equipment – manufacturer or ESCO? Who will guarantee energy savings – municipality or ESCO? Pay attention also to insurance clause to prevent breaking the agreement.
[31] Who will own, operate and maintain the equipment – municipality or ESCO? If ESCO is supposed to hand over the ownership and O&M of the equipment to municipality, it has to define possible trainings of staff on the use of new systems. In other case, municipality keeps the investment off their balance sheet.

Project roll out

Task	*Details*		
Initiate working Group meeting	Central location Refreshments	Invite EPC providers to demonstrate examples to the advisory board.	**21**
Set-up the EPC facilitation unit	In frames of: • LEAG • Centre for renewable energy, energy efficiency and climate change (SECAP) • BSC	Develop or join INTERREG ETC projects to co-finance the set-up – Alpine Space, Mediterranean, Danube, etc. (ERDF). Search for incentives to finance activities (Cohesion Fund).	**22**
Commence selection of buildings suitable for EPC	Using preliminary stage data to identify the most suitable buildings for EPC. Potential buildings characteristics: • Available utility records; • Utility costs are higher than average for this building type; • Energy savings and cost savings can be achieved fast; • Outdated energy systems; • Consistent energy-use and facility-use patterns; • Clear ownership, sorted permissions, low restrictions; • Significant social-economic and environmental impact.	Involve EPC facilitators and energy managers of buildings in the pool. Sign cooperation agreement with public authorities.	**23**
Commence Energy Audit	Site visits to define a detailed energy consumption profile,	Use preliminary stage data as a baseline (steps	**24**

	energy costs and energy renovation needs of the selected buildings (REP). Propose energy renovation measures to meet the needs.	10 – 15) Place monitoring devices where energy consumption data are not reliable or don`t exist. Acquire new permits, if needed.	
Commence Investment Plan	Prepare different energy renovation scenarios (packages) with the investment costs (incl. O&M costs), energy savings and cost savings, payback periods. Match with internal and ESCO funding sources, combined with subsidies and other public financial incentives. This may lead to alternative business cases with different scale of savings, costs, risks and broader benefits. Use STEPPING EPC Simulation tool to evaluate and compare different EPC investment scenarios.[32] Choose the right scenario and type of EPC.	Investment costs projection is based on Energy Audit and Investment Grade Audit (IGA). Table with energy renovation measures per building and municipality, estimated values for their implementation and financing sources. To obtain public funding for the EPC: (a) Total investment value has to exceed 750.000 EUR. (b) Prepare investment documentation in accordance with the Decree[33]: • Investment	**25**

[32] The Stepping EPC Simulation Tool was designed by ENVIPARK to evaluate the financial sustainability of a proposed EPC. It helps the user to understand how the EPC works, how many energy savings is possible to achieve, how long is the Return on Investment period, what is the value of the fee and which economic, financial and technical indicators are key to attract potential investors. Among the many advantages, tool provides the possibility to save 5 different scenarios (result of 5 different EPC parameters combination and input data combination).
[33] Decree on the uniform methodology for the preparation and treatment of investment documentation in the field of public finance (Official Gazette RS, no. 60/06, 54/10 and 27/16).

		Project Identification Document (DIIP); • Pre-Investment Study (PIZ) • Investment Programme (IP) (c) Test the PPP (EPC)[34]: • Publish a call for promotors (ESCOs) to express interest for implementing the project as the PPP (EPC);[35] • Evaluate possibilities for the PPP (EPC). Improve traditional HVAC energy renovation measures with LED lightning and complementary measures (e.g. smart infrastructure and renewable energy tech.) For in-depth guidance on how to prepare an investment plan check main STEPPING project outputs: • EPC Investment Plans Model; • EPC Investment Plans Summary	

[34] Law on PPP (Official Gazette RS, no. 127/2006) and Eligibility rules on implementing projects by the PPP model (Official Gazette RS, no. 32/2007).
[35] This is a market assessment of the planned energy renovation measures: Is the total investment value sufficient? Is the payback period sufficient? Are the potential energy savings compared to cost savings high enough to achieve the required return on investment rate? Does the methodology for calculating energy savings needs to be adapted? Which measures have to be added or eliminated for the EPC model to succeed?

		Results.	
Commence Procurement	• Possible contract for legal and technical support to define the tender documents and to carry out the tendering process. • Sign the MoU and appoint the contracting authority. • Procure EPC contract preferably for EPC Plus model, including O&M plan. • Possible events and marketing contract.	Ask bidders to submit a proposal to increase minimum energy savings percentage, cost savings and investment value. Consider encouraging local companies to form consortiums to participate in the tender.	**26**
Commence wider consultation	• Prepare information leaflet describing project • Establish a central on-line communication hub using existing, new or linked to the Integrated regional energy and climate information system CIEPs (SECAP)	Make hub interactive Quarterly newsletter responding "You said" "We Did" e.g (You said: Question received on the hub "can we have such heating system in our health center?" e.g (We Did Response): "We have spoken to the municipality and they have agreed to consider a solution.	**27**
Commence Marketing and Promotion Plan	This should be to tell people: • When it is coming in their area • What benefits it will offer • Promote the success post introduction to encourage more users Set-up the Integrated regional energy and climate information system CIEPs (SECAP).	Link to the private sector to ensure widespread coverage.	**28**
Commence Performance and	Before approving delivery of measures:	For approving delivery use in-house staff or	**29**

Quality Monitoring	• Check quality of the construction materials, works, equipment; • Pilot test the systems performance. Apply the agreed O&M plan. Apply the agreed M&V plan to quantify energy savings and compare them with guaranteed savings. Design on-line system to monitor and report: • Energy consumption; • Energy savings; • Changes in building use, occupancy, operation or any other changes affecting energy consumption. Create an algorithm to analyse data to produce recommendations for next stage priorities.	sub-contract technical consultant. For M&V engage trained personnel or sub-contract independent entity to avoid conflict of interest between ESCO and PA to mitigate risk. To ensure the interest of the working group is maintained allow then to have some access to the on-line monitoring system to feed suggestions and ask questions.	

6. Key Targets and Performance

The following tables set out the areas to monitor performance of this action plan. It is recommended these are monitored on-line linked to an algorithm to identify under performance and recommend changes to the programme.

Target 1 – Number of public buildings renovated with EPC

Year	*Public buildings and EPC Projects*	*Comments*
Baseline 2019	*Detailed mapping of public buildings vs EPC projects is to be established in the preliminary action stage.	*Information system to inform about and monitor the use of EPC for energy renovation of public buildings. It is recommended to set up an online monitoring system linked to algorithm to monitor on the regional level – all Gorenjska municipalities.
2020		
2022		
2024		
2026		
2028		
2030		

Target 2 – Number of local construction companies and ESCOs involved (not public access)

Year	*Local construction companies and ESCOs*	*Comments*
Baseline 2019	*Detailed mapping of local construction companies and ESCOs is to be established in the preliminary action stage.	*Information system to inform about and monitor the involvement of local construction companies and ESCOs in EPC projects for energy renovation of public buildings. It is recommended to set up an online monitoring system linked to algorithm to monitor on the regional level – all Gorenjska municipalities.
2020		
2022		

2024		
2026		
2028		
2030		

Target 3 – Usage of facilities by citizens, tourists and commercial use

Group	***Baseline***	***2020***	***2022***	***2024***	***2026***	***2028***	***2030***
Citizens	*Monitoring system of public buildings usage by user groups has to be established in preliminary action stage.						
Tourists							
Commercial use							
TOTAL							

Target 4 – Promotion and marketing events

Type	***Baseline***	***2020***	***2022***	***2024***	***2026***	***2028***	***2030***
Leaflets							
On-line							
Public events							
Responses on interactive web							
Third party articles							

published							
TOTAL							

GLOSSARY

Client	Natural or legal person to whom an EPC provider delivers energy service in the form of EPC.
Energy Efficiency Directive (EED)	Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency.
Energy efficiency (EE)	Ratio of output of performance, service, goods or energy, to input of energy (as defined by EED).
Energy efficiency improvement	An increase in energy efficiency as a result of technological, behavioural and/or economic changes (as defined in EN 15900:2010).
Energy management system	Set of interrelated or interacting elements of a plan which sets an energy efficiency objective and a strategy to achieve that objective (as defined by EED).
Energy performance contracting (EPC)	Contractual arrangement between the beneficiary and the provider of an energy efficiency improvement measure, verified and monitored during the whole term of the contract, where investments (work, supply or service) in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criterion, such as financial savings.
Energy savings	Amount of saved energy determined by measuring and/or estimating consumption before and after implementation of an energy efficiency improvement measure, whilst ensuring normalisation for external conditions that affect energy consumption (as defined by EED).
Energy service (ES)	Physical benefit, utility or good derived from a combination of energy with energy-efficient technology or with action, which may include the operations, maintenance and control necessary to deliver the service, which is delivered on the basis of a contract and in normal circumstances has proven to result in verifiable and measurable or estimable energy efficiency improvement or primary energy savings (as defined by EED).
Energy service provider / energy service company (ESCO)	Natural or legal person who delivers energy services or other energy efficiency improvement measures in a final customer's facility or premises (as defined by EED).
EPC provider	Energy service provider who delivers energy services in the form of Energy Performance Contracting (EPC) in a final customer's facility or premises.
Guarantee of energy	Commitment of the service provider to achieve a quantified energy efficiency improvement (as defined in EN 15900:2010).

efficiency improvement	
IPMVP	International performance measurement and verification protocol.
M&V	Measurement and verification.
O&M	Operation and maintenance.
The International Performance Measurement and Verification Protocol (IPMVP)	framework for "measuring" energy or water savings and is available at www.evo-world.org

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