

ACTIVITY 1.2

REVISION OF LOCAL ENERGY PLANS THROUGH INVOLVEMENT OF CITIZENS AND OTHER STAKEHOLDERS (INDUSTRY, NGO)

DELIVERABLE 1.2.4

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Energy Roadmap – Municipality of Koper



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1. INTRODUCTION

With the aim of achieving an efficient and secure energy supply, the Municipality of Koper (hereinafter: MOK) has been discussing energy policy in detail for years. In 2008, the first Local Energy Concept (hereinafter: LEK) was elaborated, and an updated LEK was elaborated in 2013. On a basis of LEK, in 2019 the Basic Emission Inventory for the Sustainable Energy Action Plan (SEAP) was prepared, which includes upgraded measures from the LEC. Subsequently, the Municipality is preparing the Sustainable Energy and Climate Action Plan (SECAP) and a new LEK with the aim of improving the local energy strategies and regional competitive advantages. The new signatories of the Covenant of Mayors commit to reducing CO₂ emissions by at least 40% by 2030 and to adopting an integrated approach to addressing climate change mitigation and adaptation.

The local administration is a key stakeholder in promoting the energy transition and combating climate change at the level of governance, as it is closest to the citizens. It is therefore right that local authorities take the lead in this area and set an example for their citizens and other authorities.

An 8-member steering group for the preparation of the SECAP and LEK was formally appointed by the mayor. The steering group comprises representatives of MOK offices directly involved in planning and implementing measures and activities in the field of promoting sustainable energy and environmental protection (Mayor's Office, Office for Environment and Spatial Planning, Office for Social Activities and Development, Office for Public Utilities and Transport, Investment Service, etc.).

Within the ENES-CE Project (Central Europe Programme), other key stakeholders were also involved in the process of revision of existing energy efficiency plans in the Municipality of Koper and preparation of this Energy Roadmap (promoters and operators of joint projects in the field of renewable energy sources, energy advisory office for citizens, ESCOs implementing Energy Performance Contracting for municipal public buildings and public lighting, Regional development centre, local electricity distributor, energy suppliers, representatives of larger companies, managers of multi-apartment buildings).

In the process of cooperation with stakeholders, both through surveys as well as through telephone conversations and workshops, proposals for various potential pilot projects within the ENES-CE Project were highlighted. Proposals for new measures within the LEK and SECAP were also highlighted. Of all the initiatives presented by stakeholders, the following three are worth highlighting:

1. Business model for an energy cooperative in the City of Koper,
2. Business model for an energy cooperative in the countryside of MOK,
3. Smart lighting - modernisation of public lighting in MOK.

The implementation of the latter pursues the aforementioned common goal of reducing emissions as well as other goals of EU directives, the Covenant of Mayors initiative and, last but not least, national legislation.



2. SECTORS AND STAKEHOLDER GROUPS

SECAP is developed in accordance with the methodology of the Covenant of Mayors initiative, the so-called Guidebook “How to develop a Sustainable Energy and Climate Action Plan (SECAP), Part 1 -The SECAP process, step-by-step towards low carbon and climate resilient cities by 2030, Part 2 - Baseline Emission Inventory (BEI), Part 3 - Policies, key actions, good practices for mitigation and adaptation to climate change and Financing SECAP(s)”, Bertoldi P. (editor), Publications Office of the European Union, Luxembourg, 2018.

In SECAP, the following key sectors are addressed in accordance with the above mentioned methodology:

- municipal public buildings,
- residential buildings,
- tertiary buildings,
- public lighting,
- traffic (municipal vehicle fleet, urban public transport, private transport).

On the other hand, the LEK is prepared in accordance with the Rules on the methodology and mandatory content of the local energy concept (Official Gazette of the Republic of Slovenia, No. 56/2016) and the valid Manual for the development of local energy concepts (MOI, No. 360-236/2013/103, Ljubljana, August 2016). In its preparation, it is necessary to take into account the already prepared spatial acts of the local community. Future spatial acts must also take into account the conclusions of the LEK.

In addition to the listed key sectors, the LEK also discusses in more detail the industry sector, the energy supply itself and, last but not least, the guidelines for future energy supply.

Cooperation with stakeholders in the preparation of local strategic documents is set at several levels. Representatives of the steering group are directly involved in the preparation of the SECAP and LEK through joint meetings. The primary task of the steering group is to give instructions to the elaborators of LEK/SECAP documentation. An 8-member steering group was formally appointed by the Mayor. The steering group comprises representatives of MOK offices that are directly involved in the planning and implementation of measures and activities in the field of promoting sustainable energy use and environmental protection:

- Mayor's Office,
- Office for the Environment and Spatial Planning,
- Office for Social Activities and Development,
- Office for Public Utilities and Transport,
- Investment service,
- etc.

Within the ENES-CE Project (Central Europe Programme), other key stakeholders were also involved in the process of revision of existing energy efficiency plans in the Municipality of Koper and preparation of this Energy Roadmap:

- promoters and joint projects operators in the field of renewable energy sources,



- energy advisory office for citizens,
- ESCOs implementing Energy Performance Contracting for municipal public buildings and public lighting, Regional development centre,
- local electricity distributor,
- energy suppliers,
- representatives of larger companies,
- managers of multi-apartment buildings.

The rest of the general public is involved in the participatory process of planning and implementing activities in the field of energy in various ways (through meetings for the general public, organising workshops for collectives of employees in municipal public institutions, organising clubs and technical days in schools, surveys and other activities for stakeholders animation).

3. AIMS AND GOALS OF THE MUNICIPALITY

An analysis of the current state of implementation of the Sustainable Energy Action Plan of MOK has shown that the vast majority of measures, in particular those that can save significantly on CO2 emissions, have not yet reached the appropriate level of implementation. In the implementation of the measures, it has been identified that the efforts of the city municipal administration are substantial and represent a good example to citizens. It is thus important to further strengthen the awareness and education of stakeholders within other sectors (housing, tertiary sector) and to strengthen assistance in finding financial sources for implementation. That is why citizen participation and building partnerships with stakeholders can be a major impetus for progress.

One of reasonable next step is to identify stakeholders who show an interest in disseminating knowledge and promoting good practices to other sectors (housing, tertiary sector, private transport).

4. TOOLS AND SOURCES USED BY THE MUNICIPALITY TO SUPPORT PARTNERS

The Municipality of Koper has various tools and levers, through which it can support stakeholders and at the same time encourage the implementation of activities in the field of sustainable energy use. At the end of this chapter, databases are listed, which on one hand, represent a starting point for planning, and on the other hand, actually help both the Municipality and stakeholders to monitor the effects of the implemented measures.

One of the levers for animating stakeholders is certainly the occasional reactivation of certain working groups that have already participated in the past. The Locations project (Mediterranean programme) and the working group for preparing the Low Carbon Transport Plan in Koper are worth mentioning here. Representatives:

- City Municipality of Koper,
- Ministry of Infrastructure,
- Port Authority,
- Marjetica Koper d.o.o.,
- Rižanski vodovod Koper d.o.o.,



- Atlas Express d.o.o.,
- Regional Development Centre Koper.

A group of ambassadors was selected as part of the Energy Care project (Italy-Slovenia Programme). It is actually a group of parents of children attending the Škofije Primary School. The level of the so-called "energy efficiency culture" within this group is very high, which is a very good basis for the dissemination of knowledge gained in part through workshops and meetings in the aforementioned project.

The Citizens' Advisory Office - EN SVET is an important partner in the transfer of knowledge to households. ENSVET is a consulting activity in the field of energy efficiency and renewable energy sources at the Ministry of Infrastructure. The implementation of consulting activities is financed by the public ECO FUND. The consulting activity of EE and RES for citizens is performed by the ZRMK Building and Civil Engineering Institute from Ljubljana, in cooperation with energy consultants and local communities. Energy consulting on energy efficiency in households is an aid to all homeowners who intend to invest their money in reducing energy consumption. By improving the thermal insulation of buildings, the use of more modern heating devices and with higher use of renewable energy sources, each individual can contribute to protecting the environment, reducing energy costs and improving living conditions. Energy consulting is professional, independent, and free of charge.

The adopted Integrated Transport Strategy of the Municipality of Koper certainly has a key impact in the field of encouraging the establishment of stationary traffic areas in urban settlements. In accordance with the Integrated Transport Strategy of the Municipality of Koper, it is planned to gradually limit motor traffic in the old town, and by 2025, a complete closure of the city centre for motor traffic is foreseen. Walking and cycling are recognised and promoted as sustainable means of transport that have a positive impact on the health, environment and quality of life in the city. Sustainable improvement of traffic will help reduce traffic congestion and sound pollution and contribute to improving air quality. The measure will facilitate the implementation of policies to redevelop urban space and make the urban environment more friendly. It should be added that the lighting requirements, and thus the power of the lamps and the use of energy for public lighting, are generally lower for areas where traffic is prohibited for motor vehicles, compared to busy roads.

In the field of support schemes and enmarked local tenders, the MOK Public Tender on the award of grants for the implementation of mitigation measures with the aim of reducing the impact of emissions from port activities, should be highlighted. The amount of the grant that can be obtained by the beneficiary is at least 50 percent of the eligible investment costs. The exception is socially vulnerable citizens, who will be entitled to a financial incentive in the amount of 100 percent of eligible investment costs. The funds are earmarked and will be allocated for those investments that largely eliminate or reduce the impact of port activities on the environment, human health, and cultural heritage. These include the replacement of joinery, the implementation of façade, the insulation of roof or attic structures, the installation of air purification and ventilation systems, the installation of air conditioning, and the planting of suitable Mediterranean evergreen shrubs and trees. These are the funds that Luka Koper annually allocates for the implementation of mitigation measures on the basis of



an agreement with the Municipality. After the implementation of certain investments under this tender, the energy consumption in the city itself will be reduced as a result.

Quality data from various databases is of key importance in obtaining data for the preparation of the LEK/SECAP, as well as for monitoring the measures effects. Statistical data of the Municipality is summarised on the websites of the Municipality itself and the Statistical Office of the Republic of Slovenia (SURS). Energy consumption in apartments is analysed on the basis of data from SORS and the Environmental Agency of the Republic of Slovenia (ARSO), and with the help of data from companies authorised to perform chimney sweeping services. Data on the implementation of consulting activities is available through the advisory office En svet, which is dedicated primarily for citizens. Energy consumption in municipal public buildings is analysed on the basis of preliminary energy audits. Energy consumption in state public buildings is analysed on the basis of data collected from questionnaires. The assessment of energy consumption in industry and service companies, trade, and small business is made on the basis of data taken from the questionnaires of major consumers in the Municipality. Energy consumption in transport is analysed on the basis of data from the Ministry of the Interior, SURS, data from the concessionaire for the implementation of urban passenger transport, and data from the Energy Directorate of the Republic of Slovenia for Infrastructure. Energy supply data is obtained from distribution companies. Data on the refurbishment of public lighting, in the framework of a public-private partnership, is obtained by the concessionaire. Data for the analysis of RES potential is obtained with the help of the Ministry of Infrastructure - Energy Directorate, Slovenia Forest Service, ARSO, Geological Survey of Slovenia, SURS, municipal archives, steering groups, etc.

In the case of the new LEK and SECAP, the analysis of the situation will be carried out on the basis of the sources listed in the previous paragraph, which are usually applied and on the basis of the following additional databases:

- Ministry of the Environment and Spatial Planning EVIDIM for small combustion plants,
- Eco Fund for co-financed measures in the field of efficient energy use and renewable energy sources,
- Regional development agencies regarding implemented/planned EU development projects,
- Borzen, regarding the support scheme for the production of electricity from renewable energy sources and highly efficient cogeneration of heat and electricity,
- Facility managers, regarding energy use and implementation of investments in multi-apartment buildings,
- Other local organisations that are indirectly related to the field of sustainable energy use.

5. ACTIONS FOR INVOLVING PARTNERS

The first thematic workshop was held on 23 June 2020 in Koper. At the workshop, stakeholders were informed about the preparation of new plans for energy efficiency in the Municipality of Koper. The views, opinions and previous experiences regarding the development and implementation of LEK/SECAP measures were exchanged between various stakeholders, and additional proposals for potential pilot projects within the ENES-CE project and proposals for



measures within the LEK and SECAP were gathered. Last but not least, we have identified additional stakeholders that should be included in the next two workshops within the ENES-CE project.

Stakeholders highlighted the following wider range of potential pilot projects under the ENES-CE project as well as proposals for measures under the LEK and SECAP:

- Encouraging gradual replacement of electrical appliances with more energy efficient ones,
- Renovation of heritage protected buildings,
- Joint solar power plants on different types of buildings (multi-apartment buildings, public buildings, industrial halls, car parks, etc.),
- Renovation of roofs and facades of multi-apartment buildings,
- Renovation of residential buildings in Koper with support of non-refundable incentives for the implementation of mitigation measures to reduce the impact of emissions from port activities,
- Acceleration of e-mobility,
- A set of measures in the field of sustainable mobility and the promotion of public transport,
- Promotion of use of renewable energy sources,
- Encouragement of stakeholder in the direction of measure implementation,
- Measures connected to information activities and public awareness raising with the aim of establishing "Energy efficiency cultures".

In the process of cooperation with stakeholders, both through surveys as well as through telephone conversations and through a workshop, proposals for various potential pilot projects within the ENES-CE project were highlighted. Of all the initiatives presented by stakeholders, the following three pilot project proposals are worth highlighting:

- Business model for an energy cooperative in the City of Koper,
- Business model for an energy cooperative in the countryside of MOK,
- Smart lighting - modernisation of public lighting in MOK.

The latter are described below in accordance with the instructions and guidelines given within the ENES-CE project:

1. Business model for an energy cooperative in the City of Koper

- According to the Sustainable Energy Climate Action Plan of the Municipality of Koper (Golea, 2019), the implementation of activities within J20 Production of electricity from RES for the needs of public buildings is planned.
- Description of SEAP activities:
The Municipality set a goal that, in addition to 40% of the supplied electricity from RES and/or CHP, in order to reduce emissions and promotion, it will produce the remaining necessary electricity (60%) from RES for the operation of public buildings. The Municipality will achieve this by installing solar power plants on the roofs of municipal public buildings, where technically feasible, and therefore obtains a non-refundable funds from the Ecofund or acquires an investor.
- It makes sense to upgrade previously planned activities in accordance with current legislation. An investment into a solar power plant will be implemented within the frame of cooperative on a municipal building (school, kindergarten, etc.). The first estimates suggest that it makes sense to install a solar power plant with a capacity of



approximately 150 kW or more within the frame of Support Scheme for the production of electricity from RES and CHP. Whereby, the produced electricity will be used for the energy needs of the public facility on which the solar power plant is installed; the surplus would be sold. Citizens who would like to invest in RES but do not have the option of setting up a power plant (for example, residents of apartments in apartment buildings) can also join the cooperative. Investors are entitled to a return on the sold electricity. The measure is interesting not only from the point of view of reducing costs in both the public and private sectors but also because of the fact that higher energy independence is ensured.

- In the first phase, the role of the Municipality is mainly reflected in the identification of the facility or location where the power plant would be located and animating the target stakeholders.
- The role of promoters is to submit proposals for the implementation of the project.

2. Business model for an energy cooperative in the countryside of MOK

- According to the Sustainable Energy Action Plan of the Municipality of Koper (Golea, 2019), the implementation of activities within J20 Production of electricity from RES for the needs of public buildings is planned.
- Description of SEAP activities:
The Municipality set a goal that, in addition to 40% of the supplied electricity from RES and/or CHP, in order to reduce emissions and promotion, it will produce the remaining necessary electricity (60%) from RES for the operation of public buildings. The Municipality will achieve this by installing solar power plants on the roofs of municipal public buildings, where technically feasible, and therefore obtains a non-refundable funds from the Ecofund or acquires an investor.
- It makes sense to upgrade previously planned activities in accordance with current legislation. An investment into a solar power plant will be implemented within the frame of cooperative on a municipal building/land. The first estimates suggest that it makes sense to install a solar power plant of some 10 kW within the frame of Decree on the self-supply of electricity from the renewable energy sources (Official Gazette of the Republic of Slovenia, Nos. 17/14 and 81/15). The produced electricity will be used for the supply of both the public facility on which the power plant is located as well as for the supply of nearby private facilities for which the owners show interest in joining the joint project. The condition that the facilities are connected to the supply from the same transformer station must be fulfilled. The measure is implemented on the basis of the Decree on the self-supply of electricity from the renewable energy sources (Official Gazette of the Republic of Slovenia, Nos. 17/14 and 81/15). The measure is interesting not only from the point of view of reducing energy costs in both the public and private sectors but also because of the fact that greater energy independence is ensured. Note: The business model for establishing an energy cooperative depends more on the installed capacity of the power plant, rather than the location itself (city/countryside), and of course, consequently, the economic indicators.
- In the first phase, the role of the Municipality is mainly reflected in the identification of the facility or location where the power plant should be located and encouragement of the target stakeholders.
- The role of promoters is to submit proposals for the implementation of the project.



3. Smart lighting - modernisation of public lighting in MOK

- According to the Sustainable Energy Action Plan of the Municipality of Koper (Golea, 2019), the implementation of activities within JR1 Energy efficient renovation of public lighting is planned.
- Description of SEAP activities:

The Municipality will carry out the renovation of public lighting along roads and public areas in accordance with the Decree on limit values due to light pollution of environment, with amendments and supplements (Official Gazette of the Republic of Slovenia, no. 81/2007, 109/2007, 62/2010 and 46/2013). The renovation will be carried out in a public-private partnership. The concessionaire will provide 100% of the funds for the renovation. Note: The renovation has already been carried out. Nevertheless, there is a constant need to install additional lighting on sections of roads where it has not yet been installed. Several such sections are mainly in rural areas. The addition of new road and public lighting would sooner or later exceed the energy use targets under the Decree. According to Article 5 of the Decree on limit values due to light pollution of environment (Official Gazette of the Republic of Slovenia, No. 81/07 with amendments), the use of electricity for lights that illuminate roads and public areas is limited to 44.5 kWh per capita per year. As a result, additional measures need to be taken to prevent excessive use of energy for lighting.
- It is planned to install sensors that adjust the power of lighting to the actual needs in real time according to traffic load, pedestrian traffic, time of day and given weather conditions. The lights can be dimmed or switched off accordingly. This type of technical solution is suitable for areas where maximum lighting power is not constantly required - for roads or streets with less traffic. Energy savings and operating costs of such systems, together with LED lighting technology, can also contribute up to 60 percent lower lighting costs, i.e. dimming, on the other hand, prolongs the life of the lamps and further contributes to the reduction of light pollution.
- The role of the Municipality and planners of this type of lighting is to ensure the adequacy of lighting both in terms of legislation and 13201 Road lighting standards:
 - o CEN/TR 13201-1: Guidelines on selection of lighting classes,
 - o SIST EN 13201-2: Performance requirements,
 - o SIST EN 13201-3: Calculation of performance,
 - o SIST EN 13201-4: Methods of measuring lighting performance,
 - o SIST EN 13201-5: Energy performance indicators,
 - o etc.
- The role of the concessionaire is to submit proposals for the implementation of the project.

6. TIMELINE

In the first phase, it is crucial to identify the potential locations for the installation of solar power plants. At the same time, through the remaining two planned workshops of the ENES-CE project by September 2020, stakeholders will be animated and the holder of the cooperative for the implementation of the joint power plant will be identified. After identifying the location or locations, the size of usable roof surfaces for the installation of a solar power plant



is checked. Later, the electricity distributor checks which other facilities are supplied from the same transformer station as well the public facility on which the solar power plant will be installed. This phase is expected to be completed in the first half of 2021. The following phases follow: establishment and management of the cooperative and acquisition of cooperative members, selection of the contractor for the construction of the solar power plant, detailed analysis of the specific location, preparation of the conceptual design, design concept and feasibility study, obtaining financial support for the project realisation, plant construction and connection of the solar power plant to the grid. The course of the phases and the type also depends, among other things, on the project implementation model itself (Support scheme for electricity production from RES or Self-supply of electricity from renewable energy sources). The project will be completed by March 2022 at the latest.

The Smart Lighting project - modernisation of public lighting in MOK - will also be completed by the mentioned deadline at the latest. The implementation of the following tasks is planned: preparation of project tasks for the implementation of the investment, preparation of project and investment documentation and selection of the contractor.