

SEC MODEL
for the Pomurje region

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INDEX

1	INTRODUCTION	3
2	STRATEGIC FRAMEWORK.....	4
3	SEC MODEL.....	5
4	DESK STUDY	6
5	PILLARS OF THE IMPLEMENTATION MEASURES.....	7
5.1	<i>Smart energy efficiency house</i>	7
5.2	<i>Training and qualification</i>	8
5.3	<i>The agreements/relationships with business</i>	9
5.4	<i>Green public procurement</i>	10
5.5	<i>Subsidies to investment in URE and RES</i>	11
5.6	<i>An energy-saving construction and renovation of buildings</i>	13
5.7	<i>Replacing of obsolete combustion installation</i>	14
5.8	<i>Industrial plants and raw materials of agriculture</i>	15
6	PICTORIAL PRESENTATION OF SEC MODEL	17
7	ASSESSMENT OF LOCAL ENERGY RESOURCES	18
7.1	<i>Existing situation</i>	18
	SUMMARY	19
	LITERATURE	20

1 INTRODUCTION

Access to energy is fundamental everyday life each of us. Higher prices, security threat care with electricity and climate change affect us. Sustainable, competitive and safety energy is the one of cornerstone our daily life. We feel directly functioning global energy market.

Municipalities of Pomurje are oriented to increase local population. One of key factors long term orientation development municipalities of Pomurje is certainly energy policy and their planning. These two elements follow to significant energy policy and to environmental aim like as improve air quality, continued development municipalities and finally in terms of global responsibility, effective protect climate.

The challenges of sustainable development, nature conservancy and dramatically reduce climate changes, is power to search also on local energy. We are talking about cornerstone improvement energy efficiency and with that reduce fossil fuel while increasing renewable energy. This are also basic tasks developed world, where we undoubtedly to belong.

Renewable sources of energy can fulfill coexistence relations between people and nature but only on comprehensive basis local planning having regard security of nature and environmental. We should know that renewable sources of energy also mean the changes in land use and technology.

Development energy policy of Pomurje will be long term challenge, so is necessary clear and flexible framework. Pomurje is depends by energy partners in neighbor regions. This is reflected on bilaterally and regionally level in numerous specific discussions about energy. Pomurje is also very important region transit regarding energy products, primarily electrical energy and natural gas in future also oil. The questions are also with regard to energy increasingly present in political discussions of Pomurje with other major energy consumers. These dialogues should be placed in framework general vision, which will be based on strategic vision. Individual small and medium-sized enterprises already have made energy strategy.

2 STRATEGIC FRAMEWORK

Pomurje a region with potential for development of sustainable energy, based on self-supply or supply, to minimize the burden on the environment and take her from the region value added of domestic capital. The analysis shows the increase in energy consumption for both electricity and other energy consumption. The growth of the economy lags behind the growth in energy consumption, which is specific for the entire Slovenia. This trend does not represent step towards to sustainable oriented region but shows the move away from the target.

The vision and strategy deployment exploitation renewable source of energy and efficient energy use is match and in the future must match with EU framework policy. The framework of Economic Development Strategy of Slovenia, on which is based the Single Programming document (SPD), the framework for activities, which all will be supported by Slovenia through different European policies and Structural funds. In SPD was and will be create Slovenia the strategy aim in different programs, measures and projects, which will be indirectly reflected on Pomurje.

At the same time the vision and strategy will be through the implementation of the objectives, contribute to the achievement of the set priorities of the SPD, in particular:

- Sustainable development, which has worked well in the National Program of environmental protection (NEAP). Reach the balance between economic, social and environmental aspects. This will contribute to greater economic prosperity here wild population and social equality without compromising the environment. Will be established ecological criteria for the evaluation of projects, in cooperation with environmental NGOs.
- Encourage the corporate sector and competitiveness (the contribution will certainly increase the competitiveness due to lower energy costs, improve the level of innovation and technological complexity of products and production processes, the greater the flexibility to use diverse forms of energy). Among other things, will increase cooperation between the economy and scientific and educational institutions.
- Investing in knowledge, human resource development and employment (job creation).
- Increasing the competitiveness of the agri-food sector (use of resources in forestry and agriculture to the conservation of nature protection and natural resources). Will provide the conditions for maintaining population in rural areas. Realized the conservation and sustainable development of forests. (Lokalna vizija pomurja 2007 – 2013, str.17-18).

3 SEC MODEL

Model of sustainable local energy is under the name SEC Model (Sustainable Energy Model), which was formed three directional strategies, which would improve the current ration of energy efficiency and using renewable energy sources at the local level. Three directional strategy means that it focuses on three different social sectors, which is considered to be essential: local authorities, including transport, industry with agriculture and the general public. The overall strategy will be one of the measures it will also be presented below. The basis for this strategy is the analysis of energy balances performed in all areas of cooperation. The strategy will include the following:

- ↪ The calendar measures to be taken in the short, medium and long term local,
- ↪ The main objectives to be achieved and indicators of their completion.
- ↪ The definition of sectors where the energy efficiency measures were encouraged.
- ↪ The definition of renewable energy sources on which to focus, but should be taken into account local differences between the various cooperating partners, such as: air conditional and the availability of various renewable energy sources.
- ↪ The decision of the procedures or energy efficiency measures can be exchanged or transferred to another area of partner
- ↪ The concrete market and awareness-raising measures, which will be promoted

The methodology of three directional strategies will be based on a study in the form of a document in each of the participating countries. Results of analysis of energy balances, based on current energy consumption will be explored in each participating country and in this research study will be presented to measures relating to the various state and local situations. Each partner in each country will identify actions to improve the situation in the three sectors of society in order to prepare pilot measures. The results will be grouped in three strategies. On basis of experience gained in the manufacture of such a strategy will be partners in the project made recommendations, which will serve as an example of good practice.

4 DESK STUDY

The so-called “Desk study” which means setting the foundations and frameworks for SEC Model, a kind of professional strategic forum of key players in the energy sector and familiar with the various projections of strategic planning.

Desk study was organized by Razvojne agencije Sinergija, which are key players to examine the important region programs particularly in the energy sector, critical plane in terms of planning, platforms and devices.

Region programs and plans are following:

- ↵ Energetska bilanca Pomurja
- ↵ Energetska vizija Pomurja 2007-2013
- ↵ Local energy concepts municipalities Pomurje
- ↵ Strategy development of municipalities (Energy sector development strategy of municipalities in Pomurje)
- ↵ Major urban plans – in particular the development of logistics centers/hubs in the region:
- ↵ Plans of development the major energy consumers

The horizontal criterion or key element, for which they are started when setting priorities were:

- ↵ Energy law (Official paper RS, no. 79/1999 (8/2000))
- ↵ ReNEP (Resolution about National Energy Program) Official paper, no. (57/2004)
- ↵ Directives of EU (The balance measures for competitiveness, social and environmental protection are foundation of sustainable development strategies and objectives Lisbon’s strategies. Among the EU27 states, because of the different paths of economic and social development, significant differences in attitudes and values and consequently also preserved environment and energy efficiency. EU directives and national regulation effecting on competitiveness of the economy as a different limit and a different burden on businesses).
- ↵ Kyoto protocol (Kyoto protocol is international agreement, which trying reduce the emissions of greenhouse gases).

Participants in the meeting were from different sectors, namely scope RES and URE; energy, environment, sustainable construction, electricity, (wood) biomass,...

The common thread of the meeting was efficient use of energy and only secondary exploitation of renewable energy sources, because the course of a meeting on several occasions pointed to the fact that energy, which is not used the best/cheapest. It is also felt by policy alone design, or SEC policy measures. It can be said to have prepared a platform for sustainable development of municipalities in Pomurje.

Desk study is base for three-pronged strategy, which includes local authorities, together with the transport, industry including agriculture and the general public. On this basis, the SEC Model was prepared, which include defined in following presenting measures.

5 PILLARS OF THE IMPLEMENTATION MEASURES

5.1 Smart energy efficiency house

Conceived the idea of Smart energy efficient homes that will be created as an exhibition space where the energy-efficient appliances available for inspection by the general public, log with the instructions how to use these appliances to improve to energy efficiency.

In case of the Smart Energy Efficiency Houses/Corners, the exhibition in Slovenia is located in the proximity of the regional urban centre and in a highly public so-called "Smart House" building. The building stands for a demonstration and dissemination centre for renewable energy sources and rational use of energy not only in Pomurje region and national wide, and for its location in the border region, also in the cross-border area. In the building, R&D and educational and advisory activities are provided for encouragement and promotion of sustainable energy development. The Bistra hiša, lead partner for setting up the exhibition in Slovenia, will focus on demonstration of energy efficient regulation of heating, cooling, venting and also energy efficient isolation of low-energy houses. We will install a regulation of illumination (lightning) of one room or office for demonstration. We will also install a sensor of movement. The light will go of automatically when there is no movement in the room or office for some period of time. Also total inflow of electric current will be interrupted.

In the "Smart House" we have prepared an exhibition of new EE household appliances together with old high consumption household appliances. We prepared instructions on how to improve energy efficiency by using EE household appliances and general advices about economical use of them.

The pilot activities will be carried out simultaneously in Slovenia will involve the following:

- ↳ 30-40 m² space resembling a real house and equipped with the real household appliances, all with very high efficiency norms and all kinds of sensors and detectors, saving energy.
- ↳ Space will be constructed in such fashion as to permit an easy passage and look around for any interested person.
- ↳ All pilot initiatives will be exhibited in a public space, accompanied with posters, photos and other promotional material from the other pilot initiatives launched within the project

The case of smart energy efficiency house is in Martjanci, where is possible examination over the year. Also is available the professionally trained personnel for further information.

5.2 Training and qualification

The awareness campaign will be with periods of lesser and higher intensity, 8-month long with a punctual support from the other partners. The campaigns will be led by various means including:

- ↵ Producing and broadcasting radio spots, local TV ads,
- ↵ Producing and publishing articles in specialized publications, Web page announcements
- ↵ Jumbo posters along the highly public areas and/or major crossroads within the cities.
- ↵ Oriented at the designated target groups and focused on different contents under the central theme: “encouragement of energy citizenship” such as for instance:
 - Drive less, walk more
 - The concept of Smart EE Houses
 - Agriculture: “Efficient Irrigation”, “Use of alternative fuels”, etc.
 - Industry: Energy efficiency as way of cost reduction”, Energy supply from RE sources.
 - Administration: “Responsible use of energy”

Campaigns will be held on the territory by the partners LEA Pomurje.

RE course with 2 levels, each with a series of different independent sub modules and directed at the university graduates and lower level specialists.

- ↵ Higher level course for those, for example, with a university degree: engineers and similar (students), energy management (6 months theory & practical case studies). The implementation period of the course is 6 months. If necessary, this system can be modified to account for the local differences. If possible to organize, the practical cases which form the part of the course will be carried out under the supervision of the 4 core partners (LEA Pomurje, Karlovo, REDEA, APEC).
- ↵ Lecturer will be during in 6-month duration e-courses available at a given time.
- ↵ The other partners will be responsible for animation and set of potential participants at the national level and their motivation for participation in the international e-course.
- ↵ Condition for participate to course is knowledge english language, because the courses will be implemented and ready in english.
- ↵ University will allow all participants to complete successfully a training granted an official certificate that is internationally recognized and will be valid in all participating countries.

The agreements/relationships with business

- ↪ Commercial contract will be carried out between participant, on one side energy agency as like intermediaries and local authorities, suppliers and local credit's institutions on other side to ensure commercial loans with low interest rate for replacement of obsolete wasteful appliances.
- ↪ Analyze the life of household appliances in order to determine the extent to which there is a need to replace only those.
- ↪ Replace or install energy-efficient equipment, particularly household appliances, where replacement is a financially attractive and feasible for example, pay reduce or even zero interest rate.
- ↪ The scheme how to successfully establish a commercial agreement that will be readable and accessible to other interested users.
- ↪ If in our analysis we find that there is a similar funding scheme we will listen to improve.

The creation of voluntary agreement among the participants such as energy agencies and consumer associations, industry, agriculture and transport areas:

- ↪ **Transport:** An example of a measure taken in the transport sector would be to familiarize municipal but also public transport and individual drivers with current situation about fuel consumption and all the savings possibilities they have in their hands for energy efficient driving. Other alternatives, such as car sharing, bicycles, walk and switching to biodiesel will also be encouraged and fostered within this issue. Project partners would prepared such solutions and disseminate it within the project awareness campaign and /or the seminar.
- ↪ **Public buildings:** with a few simple steps, we will try to obtain local authorities that undertake to implement these measures. These measures include: automatic turn off all lighting in public buildings designated local authorities, the county should have a specific person, which will each afternoon or. evening check if all the lights off and if all the machines and appliances off and not stand-by; the municipality should introduce energy accounting and auditing of the data energy consumption and that each quarter, also will be encouraged employees in local authorities to behave more energy efficient.
- ↪ **Agriculture:** encourage the reuse of agricultural waste for energy production and energy crop cultivation.
- ↪ **Industry:** will be use the same measures like in local authorities.

The signatories of these voluntary agreements to commit to implement the objectives pursued with honest practices in energy efficiency. These signatories will also be invited to various seminars and workshops on this theme.

Time period of agreements beginning in May 2009 and continue to the next year in 2010.

5.3 Green public procurement

SOS was gathering energy balance data from municipalities, since municipalities had decided to proceed with joint common public procurement for electricity supply. Municipalities were asked to submit necessary data on their electricity supply till the end of January 2009 in order to prepare a joint public procurement for electricity supply 2010-2013. The data collected focusing on measuring sites include: energy consumption for 2008, electricity price for 2008, suppliers, and municipal needs for electricity supply and contract periods. 52 municipalities have expressed their interest in a joint public contract and provided their data.

The SEC Model is still being developed together with LEA Pomurje. SOS wants to include the new public procurement system into the model and they are still gathering data for this purpose. The generic SEC model will be sent to the partners.

It should be stressed that SOS promoted the cooperation of a particular municipality at the public procurement including its entire infrastructure, which needs electricity supply for certain activities and not the partial participation of a municipality covering only a municipal building or public lighting. This activity also includes educational institutions, primary schools, culture houses, public utilities and other objects owned by a particular municipality with the electricity costs directly or indirectly charged to the municipal budget. Data collection and organisation at the municipal level certainly requires additional efforts by municipal employees, but the end result is without a doubt, a great added value. Therefore, it remains up to the municipalities to collect and organise, with our help, the necessary data about public institutions and objects for which they pay electricity (flat- rate or entire costs). Municipal administration and public buildings, which are indirect budget consumers in a particular municipality, often have different electricity prices as well as different contracts concluded with electricity operators.

Public procurement, which use environmental criteria, in order to choose more environmentally friendly products and services throughout their life cycle economically more favorable.

Government procurement s a total launched already in 2004, is well they flourish in 2006, operated for the Ministry, government agencies, authorities in the ministries and administrative units. In this way it is possible to purchase goods or services used by the most or all government authorities, especially for those product groups for which the market is already in place (mobile telephones, personal computers, office supplies, fuel, air travel, etc). It is estimated that the implementation of joint procurement save up to 25% of the funds.

The government is decide for those green public procurement, which include 14 measures and with that reduce the negative impact public sector on environment, encourage the development of eco-products and less burdensome, in particular, the government gave a good example of the business sector and consumers.

Cases:

- ↪ Salting roads where the aim is to reduce the amount of salt (cost, environmental impacts), approved and maintained for an even sanding machines; stocks in silos – not in bulk; system of environmental management (ISO 14001/EMAS)- a service!
- ↪ Food in public buildings: use of organic food in schools, kindergartens, hospitals, homes for elderly, organic food, not expensive and who is it that easy to deliver, cereal products, dairy products, fruits, vegetables, protect environment – health!
- ↪ Urban transport: the organization of transport, buses, minibuses, trams;
 - Optimization of urban traffic routes,
 - Buses,
 - Fuel consumption,
 - Air emissions,
 - Maintenance biofuel...

Estimated completion time of green public procurement, the months of May 2009 for local authorities and the general public and in October 2009 for an industry and continue to the next in 2010.

5.4 Subsidies to investment in URE and RES

The system, which would us absolutely supported to increased investment in system for exploitation of renewable energy and energy efficiency in Pomurje. It would be wise to establish a system for granting subsidies for investment in systems for exploitation of renewable and efficient energy use, based on regional criteria. This mean, that national resources would be divided first by given key in all regions and then in the regions for each investment.

Project funding for the use of local energy sources can be divided into two aspects:

↪ Financing on the basis of grant

The essential role in the provision of grants at national level has the Sector for efficient use and renewable energy sources, which operates under the Ministry of the Environmental and Spatial Planning. The use local energy sources to promote over open tender for use almost all forms of locally available energy sources. The possibility of obtaining preliminary financing and investment advisory services are individual households, public institutions and businesses.

↪ Financing through soft loans

The soft loans for investment in project for use of locally energy sources offering by Environmental Fund of the Republic of Slovenia, public fund. In the first instance, oriented and promote environmental protection, avoiding pollution of environment, indirectly enhancing the utilization of energy resources. Credits are awarded on the basis of public tender; to investor allow investment with a lower interest rate.

The public tender for non-refundable finance stimulation to citizen (local society, industry, agriculture) for use renewable sources of energy and higher energy efficiency of residential buildings, such as:

- ↺ Installation of solar heating systems
- ↺ Comprehensive energy renovation of residential buildings
- ↺ Construction of residential buildings in low energy and passive technology
- ↺ Installation of heating appliances for central heating biomass in single, double or multi-occupied buildings.

The candidates may also apply to the call of the publication of calls in official paper RS onwards. Called upon the completion of calls to the publication in the Official paper RS due to the allocation of resources, but not later than 29.1.2010.

All proper and timely application to be opened to the numerical order of receipt.

The main activities of Efficient Use and renewable energy sources division within the Ministry of Environment and Physical Planning (2002-2005 National agency for Energy Efficiency and Renewable Energy – AURE) aimed at promoting energy efficiency in industry, households and transport, encouraging systems for combined heat and power and renewable energy sources (RES). Eco fund (Slovenian environmental public fund) is a public financial institution designed to promote environmental investment in Slovenia. Its primary mission is lending to investment in energy efficiency and other environmental projects. Eco fund subsidizes the feasibility study and preparation of documents for energy efficiency projects, the exploitation of renewable resources and systems for combined heat and power. A “National action plan for energy efficiency for the period 2008-2016” is to improve energy efficiency by 9% and a minimum of 4 261 GWh.

Industry

The implementation of different action plans in energy efficiency since 1991 has been one of priorities AURE: energy examination, study of energy feasibility, energy advisory service for larger companies, information and the pilot projects. Ministry of environment and Spatial-sector (MOP) for operations and efficient use of renewable energy sources (before AURE) organizes the major consumers of energy in various industrial promotion programs, information, energy advice and an annual bonus for the best implemented project on energy efficiency. MOP subsidized energy audits and pre-investment feasibility studies and projects URE and RES. Eco fund supports projects URE favorable loans (loans with lower interest rate). Reduction of energy consumption has become one of the priorities of management in the industry to reduce CO2 tax payment.

Households and service

Implementation of programs URE households and services sector aims to improve the energy consumption in buildings (subsidies, information, education, counseling, energy audits) and construction of municipal energy concepts. Rules on the thermal protection of municipal energy efficiency in buildings, in force since 2002 and regulations (orders, regulations) on the energy labeling of household appliances since 2001. In addition, the two orders in force on efficiency requirements for new hot-water boilers burning liquid or gaseous fuel and energy efficiency of electric household refrigerators and freezers.

Transport

The rapid increase in energy consumption in transport is a major challenge for Slovenia. Most of the measures implemented in conjunction with reducing greenhouse gas emissions (GHG) emissions: a review of the exhaust emissions of vehicles with positive-ignition engine (2003). Rules on consumer information on the rational utilization of fuels and CO₂ emissions of new passenger cars (2003), promotion and exemption consumption taxes and other charges (CO₂ tax) for biofuels. The Country is trying to reduce fossil fuel consumption through a system of excise tax on motor fuel.

5.5 An energy-saving construction and renovation of buildings

Increasing energy efficiency in buildings in Pomurje, both in new buildings and conversions of existing buildings, namely the private and public sectors. Setting up the foundation, which clearly show the relationship and causes energy loss and prepared the model of energy efficiency adaptation and models of energy efficiency construction? Preliminary implementation of a pilot monitoring and treatment of buildings on a sample group of selected buildings. Emphasis is on two pillars, which pursues the reduction of energy consumption in primary and secondary schools. The primary focus in education and training of pupils, teachers and other school workers, secondary to an increase in investment in reducing energy consumption in schools, where the number of E greatly exceeds the average.

Increase energy saving construction and conversion of buildings with the installation of insulation wrapping buildings and replacement of obsolescence building furniture. The study reviewed building in Pomurje shows that above-average high proportion of buildings is not properly insulated. It is necessary to provide subsidies for energy saving construction and energy's renovation buildings, a higher percentage and volume by the state to make this process faster and more efficient.

Construction companies and institutes are investing heavily in only promote the construction of energy saving houses. The more costly fossil fuels and other nonrenewable energy sources, more intense and feverish became a desire of any future owner of the facility to consumption of the building closer to or even reach zero.

To obtain specific information about energy efficient construction and adaptation building is available throughout the year at certain providers.

5.6 Replacing of obsolete combustion installation

Because of existing equipment (obsolete boilers) the heating cost are too high. The new European directive on the Energy Efficiency of Buildings stress old heating systems. One of the main problems is boiler with poor efficiency with losing valuable primary energy. Old boilers are mostly oversized, and their efficiency depends on the proportion of boiler load. It is known that the boilers are working with a maximum capacity only a few days a year. All the rest of the time the boilers are working in much lower strengths. Primary we can save energy with introduction of new boilers. Investment in replacement and optimization of combustion installation are one of the primary approaches to solving the energy problem.

Boilers are operating in very variable conditions. The quality of the boiler depends on annual good use. We should not be concentrating only on efficiency of the device at its rated power, which is usually written in promotional material. The boiler we chose should not be too large.

Depending on the type of fuel burned in the boiler, boilers are separated by solid, liquid and gaseous fuels. The special boilers have greater efficiency and use only one type of combustion fuel. Combined boilers (using two or more fuel) are technologically old and inefficient. You can specify the cost of consumption of each energy product by pro forma invoice.

Energy product	Type of boiler	Nominal yield	Annual yield*
Solid fuel	Elderly implementation boilers	65 do 70 %	60 do 65 %
	Combined boilers	70 do 75 %	65 do 70 %
Fuel oil, gas	Special boilers	86 - 90 %	80 - 85 %
gas	Low-temperature boilers	90 - 95 %	85 - 90 %
gas	Condensing boilers	100 - 109 %	95 - 100 %
biomass	Wood chips boilers	85 - 90 %	75 - 80 %

* Estimated annual yields are for the heating system without the preparation of sanitary hot water.

We can reduce fuel consumption up to 40% by using low-temperature and condensing boilers.

The mistake is usually done in the wrong order of remedial measures in buildings. We need to change the boiler after implementation and improvement of thermal exchange or windows. The required power of boiler is low. If the new boiler would be equally strong as the old one, it would be inefficient. In spite of better insulation the consumption can be equal. This can happen in case we do basic mistakes mentioned before.

A simple analysis shows that financial considerations also support the purchase of modern equipment. The fuel savings and resultant reduction in operating costs combustion installation provide cover higher investment in the early years of operation. The decisions on the installation of the most energy efficient heat generator must be made in time. Installation of less energy-efficient appliances is not economically viable to change until the end of life of the installation. Here it is the payback period on account of higher investment in the replacement of combustion installation built just returned, on average, only after the tenth year of operation.

It should be noted also that the heating appliance is properly selected not only according to the type of fuel used, use of facilities and available energy sources, but also in the same thermal characteristics as well as a house and not least the applicable law. Therefore, a selection of the heating system and appliances left to an expert - the designer. This planning must also take into account the heating system user preferences. Replacing outdated combustion installation coincides with the education and training of expert.

5.7 Industrial plants and raw materials of agriculture

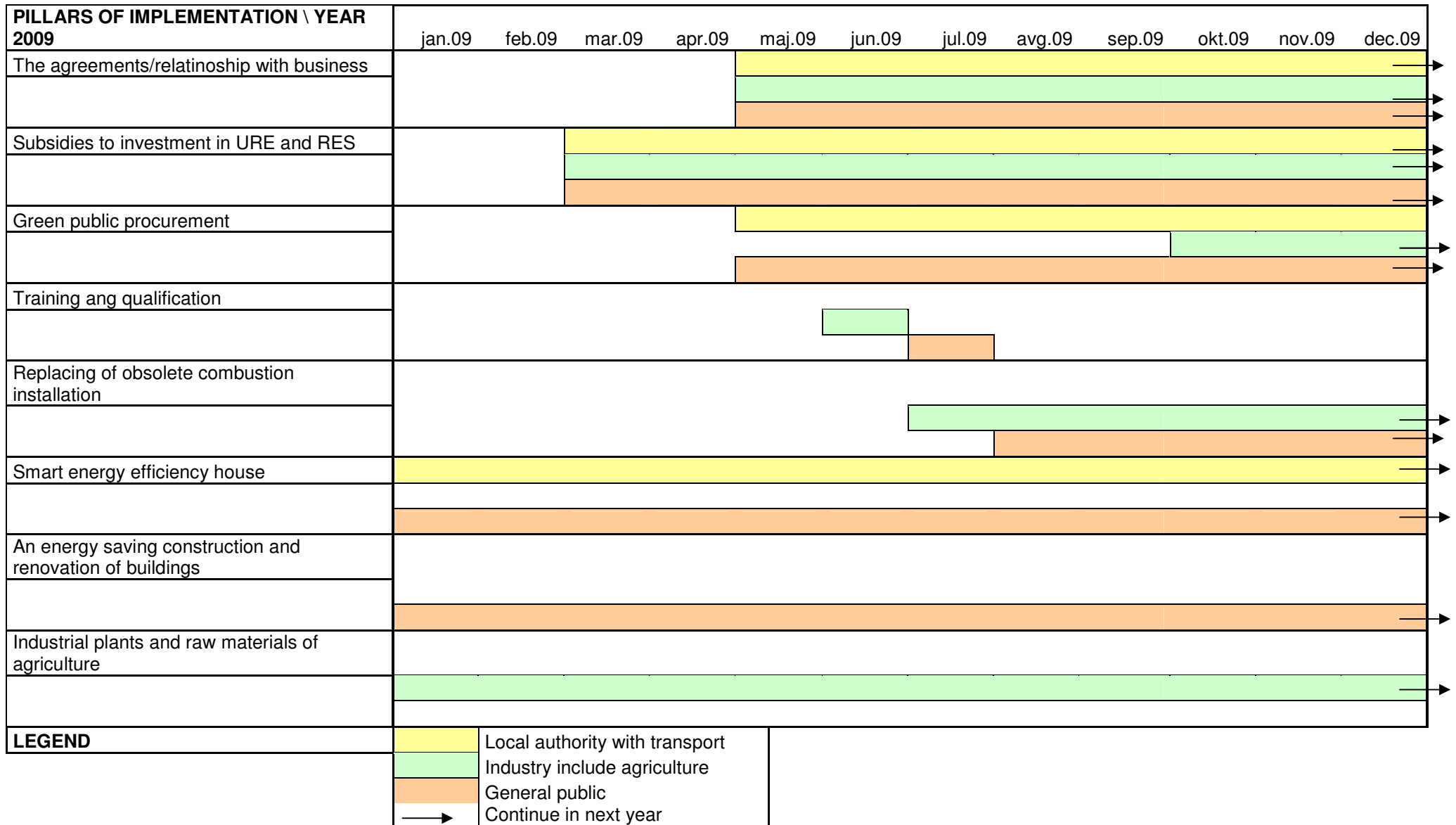
Agriculture and its agriculture are still key industry areas Goričko. In agriculture, the profitability of the "classic" range of crops (cereals, maize, potatoes ...) is declining due to market opening and the consequent reduction of purchase prices. Therefore, a re-introduction of previously well-known, but today the so-called "industrial plant" (flax, hemp,) can be very significant enrichment of crop rotation and crop yield increase agricultural activities on peasant holdings. Even commercialization of so-called "secondary" raw materials of agriculture (such as straw, low quality wood and wood residues) can increase the return on the same crop land and agricultural activities. At the same time all the raw materials (plants) in the past represented a very important ingredient in the popular architecture of rural areas, such as roofing, insulation, binder, together with other materials (clay),

Especially in the modern trends of bio-construction and bio-residence raw materials stay the same all the better, we might say even a very great importance as a raw material or components in applying natural architecture. A major contribution to the diversification of rural activities can be reached by production and processing industrial plants.

Distributors are required under the regulation to ensure that the user at the service station fuel for motor vehicles can be obtained for biodiesel, mixed in a low share of more than 5% mineral diesel fuel or bio fuel, mixed with ethanol as a bio fuel or other mineral in the low share of petrol by up to 5% . They must meet the fuel requirements of the Regulation, which regulates the quality of liquid fuels. They should ensure that the user at the service station fuel for motor vehicles can be obtained for biodiesel in the form of pure bio fuel or bio fuel mixed with ethanol as a bio fuel, and other mineral petrol in the proportion to 10%. They should also ensure that the total annual volume of bio fuels to be placed on the market in the Republic of Slovenia, the equivalent of at least 70% of the total annual volume of bio fuels in the period from 2008 to 2012.

New strategy for the establishment of oilseed rape cultivation, processing rape cultivation into biodiesel and its use in public transport, which will rely on the agricultural potentials, reflect the reality of available capacity and are primarily aimed with the replacement of cultures. A preliminary evaluation of the possibilities of using biodiesel for public transport and exchange general use of fuel with biodiesel is only way to economic - environmental factors. Initiation of ideas, establishment of closed system of production of raw materials for natural insulation, insulation materials in the processing and sale of these materials. The inclusion of the agricultural sector in Goričko, can solve the problem of brain drain and subsequently indirect stabilization of the rural population and the abandonment of rural areas. At the same time new position of employment will be open in the overall system of production, processing, marketing and installation. Preparation, processing and use of biodiesel are possible throughout the full year.

6 PICTURAL PRESENTATION OF SEC MODEL



7 ASSESSMENT OF LOCAL ENERGY RESOURCES

7.1 Existing situation

It was made in the review of the status of Pomurje region that shows the situation of the region vs. average in Slovenia.

The analysis shows that in Pomurje with sudden price increases of oil derivatives the use of energy sources slowed or even decreased at the expense of the use of renewable energy sources, particularly wood biomass. Interestingly, mostly chimney-sweeping service report that individual villages in Pomurje have used a wood biomass already, particularly those where is a high proportion of forest owners in the village.

The big problem is still present with low-efficiency furnaces, obsolete machinery and energy-wasteful buildings. To large energy consumption also contributes the consumers who are still having not introduced energy-saving behaviour in their everyday lives. Step change needs to be done in public institutions (schools, kindergartens, local offices, municipality,...) where the energy-saving behaviour has not yet reached a satisfactory level. Besides it is necessary to introduce energy accounting.

The increase in prices of oil derivatives may also affect the sale of biofuel. In our region biofuel produces Intercorn Trading Jerič Jožef from Gančani. The company promptly sold the entire production and has no problems with stocks. They are even planning a further increase in processing activity of rapeseed. Geothermal energy is primarily exploited for tourism, but recorded use of this renewable energy source also for greenhouses and heating purposes.

After sum up all energy consumers in Pomurje the annual consumption of primary energy without traffic equals to 1.949 GWh per year. Thus, the average consumption of primary energy per capita in the region equals to 16 MWh per year.

Likewise, we note that the annual consumption in Pomurje is 59.000.000 litres of fuel oil, 300.000 cubic metres of wood, 4.000 tons of coal, 2.500.000 litres of liquefied petroleum gas, 25.000.000 Sm³ of natural gas, 57.000 MWh of geothermal energy, 450 MWh of solar energy and 5.800 MWh of energy produced from heat pumps.

Wood as an energy is mainly used for individual furnaces in the region, that is in households. From all over 301.934 m³ of wood consumed for the heated and technology heat the households spend 98%.

Most acquired kWh of primary energy for heated and technology heat is derived from wood, follows fuel oil, natural gas, geothermal energy, coal and liquefied gas. Almost negligible share of total spending represents the solar energy and energy produced from heat pumps.

SUMMARY

Man in 21st century must be prepared to re-learn from nature, to live with nature and that careful use of natural resources. In the long term, the sun is our only risk-free energy source and the nature is our reservoir of energy, that is carefully used in the energy cycle. Renewable energy sources (RES) includes all sources of energy, captured by the permanent natural processes, such as solar radiation, wind, water flow in rivers and streams (hydroelectric), photosynthesis by which plants built biomass, tide and natural thermal flow (geothermal energy).

Municipalities of Pomurje are oriented and tend to invigorate the local economy. One of the key factors of long-term orientation of development of municipalities in Pomurje certainly is their energy policy and planning. These two elements follow an important element of energy policy and environmental aims, such as improving air quality, continuous development of municipalities and effective climate protection in terms of global responsibility.

In the SEC model was introduced measures, namely, a smart energy-efficient house, education and training, green public procurement, subsidies in URE and RES, energy-saving construction and renovation of buildings, replacement of obsolete combustion plants, industrial plants and secondary raw material of agriculture.

The SEC model consists of three strategies, which include three sectors: local authorities including transport, industry and agriculture and the general public. In this model we specify the energy efficiency measures in the aforementioned sectors. Smart energy-efficient houses (Smart House) and energy-saving construction and renovation of buildings give an insight and promote more efficient use of energy. By continuous awareness-raising in public, education, training, workshops and seminars we can help people being more conscious and start to recognize the use of renewable energy source and efficient energy use, such as the replacement of obsolete heating systems. On this basis are designed the subsidies, which are granted through EKO fund. By measures of industrial plants and secondary raw material of agriculture we promote the production of rapeseed, flax, hemp and secondary raw materials such as straw, low quality wood and wood residues.

Pomurje, together with the EU faced a new challenge in the attitude towards energy. If we taking the debate to the higher level, our action should be linked. Region will have to answer if it is prepared to accept the challenges, which are before it set. The objectives of sustainability are to develop a competitive renewable energy sources and other energy sources and supporters of low-carbon content and to lead global efforts to stop the climate changes and improve local air quality. In terms of competitiveness it is necessary to ensure that energy market opening brings benefits to consumers and the economy as a whole, while stimulating investments in clean energy production and energy efficiency.

For more efficient use of energy is required that all three sectors cooperate with each other and adhere to certain measures. All together can help to increase the proportion of energy renewable use in Pomurje, in particular contribute to a better living in our region.

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