



REGIONAL REPORT MARIBOR – PODRAVJE REGION in SLOVENIA

Geography

Slovenia covers an area of 20,273 square kilometers and has a population of about 2 million. Around 40% of Slovenia's land mass is elevated land - mostly in the form of mountains and plateaus - which is located in the interior regions of the country. Slovenia has governmental system with only two levels: national and local. Local level presents local authorities – municipalities. There are around 210 municipalities and they are independent. Out of it comes also that all the legislative documents are prepared at national level. At local level only minor legislative documents are adopted covering only very local issues. There is no regional level in Slovenia. Geographically we are talking about regions. Podravje region is covering the area close to Drava river and covers around 11% of the area of Slovenia. There live around 322.000 people, 16% of Slovene population. The centre is Maribor, second the biggest town in Slovenia with 120.000 inhabitants. Municipality of Maribor is second the biggest municipality and city in Slovenia with 147 km².

Economic situation in Slovenia

Economic situation in the region

Before Slovenia's independence, Maribor was one of the major industrial centres in former Yugoslavia and faced numerous environmental problems. There was a lot of production industry in metal, textile, car, weapon sector. After the independency many big companies had bankrupted and many people were unemployed. Now the region is becoming more and more service sector oriented area. Today there is 129.743 working people which is about 14,7 % of all workers in Slovenia. The most of them are employed in service sector, following by real estate service, education, health and social care and traffic. The sector of production is only presented with some metal production sector. Only few systems are in food and electronic equipment production. In January 2009 were unemployed 15.282 persons and it presents 20,7 % of all unemployed persons in Slovenia. The regional GDP in 2006 was 13.052 EUR per capita which is about 84% of the national average.

State of the art in energy field in Slovenia

The first legal act about energy matters was adopted in 1999. Before an old Yugoslav law from 1981 called Energy management law was used. The main objectives were permanent energy supply, decreasing the amount of imported energy, more efficient use of our own energy sources, rational production and use of energy. It covered coal, nuclear, oil-gas, electricity and district heating activity. It stated that these activities should be economically reasonable and safe and the use of energy sources should be optimal. The law mentioned unconventional energy sources: solar, wind, geothermal, waste. The new Slovene energy law was adopted in 1999 and upgraded in 2004. It has determined the energy policy, roles for energy market, energy supply and reliability

and efficient use. It assured competition on energy market. The efficient use of energy and the use of renewable energy sources were a part of an energy policy. Efficient use and saving the energy were set in the first row. The state has set the obligation to educate and inform the people about rational use of energy (RUE) and use of renewable energy sources (RES), to introduce energy advices, audits, local energy concepts, to set funds for investments in RUE and RES. Slovenia has only few experiences with ESCOs.

RES in Slovenia

The main source of RES is water for electricity production (ca 30%). The RES presents only 8% in the whole primary production in Slovenia and main source is water. The use of solar systems presents less than 1% and out of it the main share is production of electricity.

Current solar thermal market development

Climate data

Average yearly temperature is 9.4°C. The lowest average temperature in January is -1.3°C, the highest average temperature in July is 19,7°C. Winters are quite cold, springs are coming early, summers are hot and autumns are warm and dry. The average in yearly fall is 1050 mm. In Maribor region there is also a lot of sunny days, yearly average is 266 days. There is not a lot of fog, it appears sometimes in November and December. As a weather consequence the heating season in Maribor is in average 227 days for period 1990-2007.

Solar thermal market

The solar thermal market in Slovenia is developed only in the field of domestic use. About 3% of households have solar thermal installations with an average surface of 5,9 m². Industrial process heat applications are virtually unknown and non-existent.

Important market players and stakeholders for solar process heat in the region

Slovenia has no big solar equipment production companies. There are only services that buy the systems from abroad and sell them after. They usually offer consultancy in preparation of documentation and they offer the installation services. There are only few solar thermal heat producers with very small production capacity. There is no knowledge about the use of solar heat in processes. The main market players are all listed in the solar companies listing. The costs for solar thermal installations for households in the region are in the range of 600 to 800 EUR per m² (final price). There is no large scale installation in Slovenia.

Financial supports:

The different subsidies for energy related projects are only at national level. The local level does not have any fund for financing the energy systems. And also by law the municipalities are not allowed to finance the industrial sectors. There are possibilities to get money through some EU structural fund's projects. The limitations are 200.000 EUR in three years period. The industry in Slovenia they are in very bad energy efficient field. Usually they do not even have the energy audits done. So they ask firstly for subsidies to cover the cost for making the processes more energy efficient. There is no special programme for financing the solar thermal installation in processes. There are programmes to finance the photovoltaic systems. The subsidies are for

private sector – households. There are government supported crediting programs that enable investors to get beneficial crediting for renewable energy investments, hence also solar process heat in industry. But the credits in such systems are also included in State aid system.

Industrial sectors of special interest

There are not many of industrial sectors in the region. They all are in bad energy use conditions. Some of them they have done the energy audits of their processes. And the results are that they are very non - efficient and have to deal firstly with energy efficiency, they usually have a lot of waste process heat. To search for RES is not their priority.

Each municipality is putting a lot of efforts to get or to have a business economic development area where different services and processes could be placed. But mainly in these areas are services: shops, logistic centres,... In the region of Podravje there is development zone Tezno. Zone Tezno is developing industrial, business and services zone in Maribor and the biggest area of its kind in Slovenia (108 ha). It includes 180 companies with more than 3000 employees. As the energy performance in all sectors is not good there is no sector with special interest. After the first check there are two companies dealing with the preparation of food for animals and wool production that are interested in cooperating in the project SO PRO.

Solar process heat applications already identified

Two processes were already identified to be a potential pilot project: sheep wool washing and drying and livestock food substrate heating for further applications.

Regional approach to companies or screenings and for pilot projects

The first list of potential companies was prepared according to national databases and in cooperation with the experts in the field of industrial processes energy auditing. Final list for the region will be prepared in April with the help of Regional Chamber of Commerce. The processes for screenings were selected on the basis of temperature range of their processes and only for the companies that already have an energy audit done and we know that there is not enough process heat in the process.

Regional approach to other relevant stakeholders (e.g. companies which could become active as ESCOs in the field of solar process heat)

In Slovenia the system of ESCOs is not developed yet. There are only very few companies working in the field. The actively involved is company Weishaupt and they could become an ESCO but they do not have such experience yet.

Market development - outlook

The market potential for solar process heat is not very big in Slovenia since the industrial processes are in bad condition regarding the energy efficiency. Also due to financial crises the companies have difficulties to make some new projects. The energy strategies at national level are also not prepared yet and companies do not have a framework programmes where to go. There is not special financial scheme for energy efficiency in industry and also not for solar heat. The national directives are focused mainly on photovoltaic systems and cogeneration units for electricity production.

Factors for success for the positive market development of solar process heat in the region

In the first phase the main impact might be made with the national or local energy development strategies to give the headways for industries to work in the field of energy efficiency first and also in RES field. Also the governmental subsidies, regulations (minimum percentage of renewable energy requirements) and promotion programs would make a move. In the future only a price rise of fossil and other energy carriers will produce a breakthrough in the market. Very important are also the educational programs for companies and the experts. At the high school's level in Slovenia the solar heat in the processes is not a subject to be presented to students.

Industrial sectors of special interest in the region

There is not a lot of industrial sectors in the region. They all are in bad energy use conditions. Some of them they have done the energy audits of their processes. And the results are that they are very inefficient and have to deal firstly with energy efficiency, they usually have a lot of waste process heat. To search for RES is not their priority. Each municipality is putting a lot of efforts to get or to have a business economic development area where different services and processes could be placed. But mainly in these areas are services: shops, logistic centres,... In the region of Podravje there is development zone Tezno. Zone Tezno is developing industrial, business and services zone in Maribor and the biggest area of its kind in Slovenia (108 ha). It includes 180 companies with more than 3000 employees. As the energy performance in all sectors is not good there is no sector with special interest. After the first check there are two companies dealing with the preparation of food for animals and wool production that are interested in cooperating in the project SO PRO.

Main relevant sectors (and reasons why they are relevant)

The economy of the Podravska Region is dominated by the service industry, which represents about 60% of the overall structure. Most companies are in the processing industries such as:

- Metal processing
- Chemicals
- Food & beverages

The main relevant industrial sectors for our project are the food & beverage and chemical industry sectors. The textile industry in our region is economically on the brink of extinction therefore even if there is interest of implementation, the implementation itself is almost impossible to realize in this sector. Therefore the finding of general processes such as preheating hot water and food pasteurisation or similar projects is the target. As seen from the preliminary screenings not many processes in the selected companies are suitable for solar process-heat, so we had to narrow down on the most promising ones.

Main stakeholders

The main stakeholders are divided on the solar producer side and the industry side. Energap of course acts as the promoter in this round-up of stakeholders.

Industry

The first are PC krmila and Tovarna močnostnih krmil Draženci that are both operated by the company Perutnina Ptuj. Therefore we will address this stakeholder as Perutnina Ptuj from now on. It is an international group of companies. Their basic purpose is to prepare natural, healthy and tasty food. As responsible individuals and the Company as a whole, they established for the highest standards regarding quality, traceability, safety and ecology. During the last decade, Perutnina Ptuj Group doubled its volume of food preparation and sales, extending and strengthening successfully its position on the EU markets, markets of former Yugoslavia and other markets, which represents an enviable growth and a solid social security for over 3,600 employees and 500 co-operatives. Today, the Perutnina Ptuj Group comprises of 18 companies in six countries (Slovenia, Croatia, Bosnia and Herzegovina, Serbia, Romania and Austria), which is a reliable basis for attainment of the Company's mission, vision and goal. This is the connection to their internet site <http://www.perutnina.com/> and this is their logo



They are the most promising candidates for further development in this area. In 2009 they also won a national price for the best sustainable energy related project in industry.

The next producing stakeholder is the company Soven which is a small company in a weary specialised area of production. They are a manufacturing company processing natural sheep's wool of Slovene origin. Their line of business includes raw material for processing, hackle* and spinning of wool, bedding product line, unique knitted articles made of Slovene natural wool, as well as wholesale and retail trade of our own products. It is a complete wool-processing production from taking over the wool immediately after sheep shearing to producing final products for the market. They are the only one of its kind in Slovenia. Annually, they process from 50 to 60 percent of the entire wool produced in Slovenia. They co-operate with approximately 70% of Slovene sheep breeders who are their single and permanent suppliers of raw wool. Their process is based on the natural and ecological friendly production. This is the connection to their internet site <http://www.soven.si/> and this is their logo



Solar systems producers:

Weishaupt company is well known German manufacturer in the field of heating equipment. Weishaupt is amongst the world's market leaders in burners, heating and condensing systems, solar technology, heat pumps and building management systems.

Here are a few figures:

- The Weishaupt group employs approx. 3.000 employees around the world.
- Almost 1,000 are employed at Weishaupt's main factory in Schwendi.
- The Research and Development Centre in Schwendi extends over 30,000 sq ft (2,800 m²). The test rigs cover an enormous range from 30,000 to over 85,000,000 BTU/h.
- Along side the main factory, Weishaupt has a network of:
- 31 branch offices in Germany
- Subsidiary companies in 20 countries
- Agencies in a further 39 countries
- More than 1000 Weishaupt vehicles are deployed worldwide.
- With its reliable products, Weishaupt achieves an annual turnover of around €460 million.

The second company is a large specialist in the field of climatisation called Klima Petek.

The Klima Petek Company developed into the largest and the best organised air conditioning appliance service in Slovenia and upgraded its basic activities. They made the first steps in the field of the implementation of complete mechanical installations and set up technical support department for designers who established the basis for performance upgrade and company development. The transformation of the company and its offer extension contributed to a notably increased business success.

With the strategic document Vision and development strategy: Klima Petek 2007–2010, they established short-term and long-term policies based on the development of integrated energy solutions with the emphasis on an environment-friendly renewable source technology. This is the connection to their internet site <http://www.klimapetek.si/> and this is their logo



Results from the screenings and reasons for the selection of priority applications

The results of the screenings are explained in the sections below but in general we must say that although the initial perception of the companies and employees has been positive it is still weary far from actually implementing

Summary of the screening results

Screening 1

The screening was made at the company “Wieneberger Opekarna Ormož” that is a large brick producer. Three main processes involving heat have been identified. The first one is brick drying, the second one brick firing and the third one is steam production. The first process was suitable from the point of temperature values but the volume of heat required and the constant demand made it unsuitable. The second process had to high temperature levels (940°C) and are very minor possibilities for solar system to be economically efficient. The third process is technically suitable for solar process heat. The preheating of water for steam production but the possibilities of waste heat usage would have to be investigated further. Nevertheless there is an interest from the company side to increase energy efficiency especially if there are economic benefits.

Screening 2

The second screening was made at “Steklarna luminous” which produces glass products. Two processes were identified. The first one is glass heating which and is only partly possible for solar heat due to high temperatures. The second process is cooling which could be operated with solar heat but during the audit we have found out that there is a unused waste heat potential from the first process, so that has priority over any other investments. Economically the waste heat also has priority. The company is interested to increase energy efficiency.

Screening 3

Screening was done at company “BSH hišni aparati” that is a producer of household appliances. There were two possible processes identified for solar process heat. The processes are used for injection moulding polymers for household appliances parts. The temperature ranges are from 90 to 150 °C so solar heat could be used for preheating these polymers. But after longer considerations with the company’s technical staff it has been agreed that the technical implementation of the solar system in to the current production process might be too difficult to accomplish it at the current time. Also disturbance to the highly reliable mass production process is weary problematic. That is why it has been decided the processes to be not suitable for implementation of solar process heat.

Screening 4

Screening was done at “Isokon” company. Isokon is a medium-sized enterprise with more than 30 years of experience in the field of technical plastics production. They are part of the European chemical and rubber processing industry. There were two possible processes identified for solar process heat. The temperature ranges are from 70 to 150 °C so solar heat could be used for preheating these polymers. And as in the similar case before problems were identified. The preheating the polymer substrates has some implementation problems including heat loss. Therefore the implementation and even the economic feasibility were considered. The company is not prepared yet to start the complete sanitation of the process. The conclusion was that polymer production is technically not a favourable process.

Screening 5

The “Vino Brežice” is a beverage producer from the vine sector. The company has one process that is interesting for our project. The process described involves steam production. Steam is used for washing bottles and for pasteurisation. It is produced in a boiler house equipped with two steam boilers, with a feed water treatment plant and with a feed water tank. All the processing is done at temperatures below 100 °C. Technical implementation is possible and economic feasibility is also good. Unfortunately the company went bankrupt quite recently so no further involvement can be expected in the near future.

Screening 6

The screening at the “Orka company” proved to be interesting contender for solar process heat application since their steam production system is quite interesting for such applications. Steam is used for production processes (cooking, pasteurization, sterilization-autoclave, blanching and preparation of the covering liquid). It is produced in a boiler house equipped with two steam boilers, with a feed water treatment plant and with a feed water tank. Technically there are no great problems to install a solar system to preheat the water for steam production. The economy of the investment is expected to be quite good so there are no great restrains here. The companies has an interest in energy efficiency that is not good in the whole system. Therefore they will not have enough money to invest also in solar equipment.

Screening 7

The first site of the company Perutnina Ptuj Pc Krmila has also a steam system that can be used to implement a solar process heat system. Currently they use the oil fired steam production system to heat water from 15 °C to steam at 185 °C. The steam is then used for sterilization. Sterilization is a controlled heating process used to eliminate viable forms and spores of micro-organisms. The technical implementation should not represent any bigger problems so here we do not expect further difficulties. The economic feasibility is also acceptable and if some subsidies the project could be implemented with satisfactory results. The company representatives have also shown great interest in the possibility to implement such a system in their company as a kind of pilot project, because the company already has a good energy efficient reputation in Slovenia.

Screening 8

The company “Agrokombinat” from Maribor is working in the field of animal feed manufacturing. The first process is a process where raw material (oil, feed, vitamins and other additives) is grinded and mixed. Steam is injected into the fees in a process known as conditioning. Here, raw material is sterilized. Sterilization is heating process used to eliminate viable forms and spores of micro-organisms. After that the mixture is pelleted. The pelleted feed is dried and cooled and then either stored in a bulk or packed. The company is interested to develop a solar heating system.

Screening 9

“Tovarna močnih krmil Draženci” is another animal feed manufacturing that uses processes interesting for solar process heat. The first process is a steam production system to heat water from 15 °C to steam at 185 °C. The steam is then used for sterilization at the plant.

The second process involves heating animal fat in the reservoir. Currently the reservoir is heated with electricity. The temperature of the process is ranging from 60 °C to 70 °C, which is perfect for solar heat. The roof surface is also decently large and enables the set-up of solar collectors. The economic impact is not as favourable as a large part of the production takes place in the winter, but it is still acceptable. We are still talking with the management board to go on with the project implementation. Due to the difficult economic situation they are searching for some subsidies.

Screening 10

Screening was made at “Tovarna pripravljenih jedi Ptuj”. This is a production plant for prepared foods. The process that was investigated is a steam production. Steam is used for preservation. It is produced in a boiler house equipped with steam boiler, with a feed water treatment plant and with a feed water tank. Preserved ready-to serve dishes are heat treated, to have a long expiry date. For poultry preparation (cooking), the direct steam is added to the air. The cooking temperature is 90 °C. The water to steam temperature ranges from 15 °C to 155 °C. Solar process heat could be used for preheating water for steam production, but there is a waste heat source that has priority. So the system would have to be re-evaluated after the waste heat potential will be used.

Screening 11

“Sip strojna industrija” is a agricultural machine company. Their [production program](#) consists of three main groups of machines: for grass and maize harvesting and for manure spreading. One process was examined. The air in drier tank is heated with thermal oil from the boiler house. The thermal oil is heated with fuel oil in the boiler house. The powder coating process (before drying) involves three steps: pre-treatment, where the work pieces must be clean from dust, grease, etc. After pre-treatment the work pieces are powder coated. Powder is applied electro statically by charging the powder particles and applying them directly to the work pieces’ surface. The third step is heating and drying. When powder is exposed to the higher temperature (between 60 °C and 80 °C) it begins to melt into uniform film. After that, the workpieces are cooled down to form a hard coating. The company policy is to consider ecologically kind

technologies therefore they are very interested to implement the solar system technologies. They have some sources of untapped waste heat and it is our opinion that it should be used first before. They will make some investment this year and at the end we will be able to decide if implementation of solar system is possible.

Screening 12

The “Soven” company is an installation that is devoted to a specialised task of transforming raw wool into the wool products. It has a whole range of industrial processes for wool processing and one of them is interesting for using the solar system. This process involves washing and colouring of different types of final wool products in a industrial type of washing machines. The system is quite simple and suitable for installing a solar heating system for heating the water. Because the wool is natural product the temperature has to be between 30 and 50°C. The system is generally heated with electricity that is the most expensive form of energy and that gives us a good economic starting point. They have enough roof space. The return rate has been estimated to be favourable especially if some subsidies could be acquired. The owners have also shown a positive attitude for implementation of such system in their company.

Screening 13

The “Perutnina Ptuj” company has an individual plant at the location in Ptuj that has a steam production system that could be used for solar process heat implementation. The process has temperatures of the medium ranging from 12 °C to 177 °C. The heating medium is natural gas and there is no usable waste heat at the plant’s location. So technically the system is possible to implement but due to the relatively cheap heating medium - gas the economic calculations have shown long return rates. The company representatives are nevertheless interested in the possible implementation of such system because they have interest to be a “green” company and cut their CO₂ emissions so we intend to work further.

Screening 14

“TSP Maribor” is a textile company that makes sewing threads for the textile industry. It has a process that is interesting for solar process heat implementation called dyeing which is a method for colouring a textile material. Dyeing involves the use of chemicals and auxiliaries to assist the dyeing process. In the TSP Maribor polyester and cotton fibres are dyed. Polyester and cotton fibres are dyed using batch dyeing techniques and dyeing under high – temperature conditions. Batch dyeing processes require higher water and energy consumption levels than continuous processes. After dyeing the equipment have to be cleaned. Steam (6,5 bar) is used for heating water and water solutions in dyeing and cleaning processes. The solar energy could be used for preheating the water for steam production. The implementation is economically feasible and technically there are no large difficulties. Unfortunately due to the economic situation in the textile industry in Maribor an implementation in the near future is not very possible.

Screening 15

The company "Košaki Maribor" is active in the meat processing industry. As many companies before they have a steam process suitable for the integration of solar energy. Steam production (5,5 bar) for heating production halls and process water. The scalding tanks are filled with water at the beginning of each day. The temperature is approximately 62 °C (process water is heated with steam).

Process water at a drum washing machine for washing rumen is also heated with steam. The system could relatively easy integrate a solar heat source with an acceptable economic return rate. The interest of the company leaders is not very high because of the high investment costs.

Main economic and technical considerations

The main technical considerations are usually the integration of the solar system in to the production process. The technical staffs are very worried that the integration will disturb the process and change the parameters. Usually the processes are regulated and some cost are also related to adjustments of it.

"Stakeholder feedback": what did you learn from the discussions with the industrial and solar experts when developing the screenings

While on site most of the stakeholders were very cooperative and have shown interest in the project and the general idea of using solar power for industrial processes. Nevertheless the comments during the screenings were quite negative as every company representative knew its part of the production process very well and they do not want to disturb it. Company leaders only look at the investments with very short return period. Heating fuel is also quit cheap. Slovenia also has no subsidies for implementation of solar systems for industry. The companies are also a bit afraid because of the difficult global economic situation and the crises that really have shown the consequences in late 2009. Many companies still have some spare waste heat. The potential processes were identified fairly fast but people at the companies have no experience with solar system and they are sceptical. They also do not have much attitude for greening of their processes since national strategies, plans, legislations and incentives are also not fostering the implementation of CO₂ cutting systems.

Solar system producer also have no experience in planning of such systems and they know how important is the good integration and therefore they do not work so much on marketing activities. Most of them are really only seller of the equipment and they do not have in deep knowledge for integration. Only company Weishaupt that work also outside of Slovenia has experts that are able to plan.

Criteria and reasons for selecting the 3 priority applications

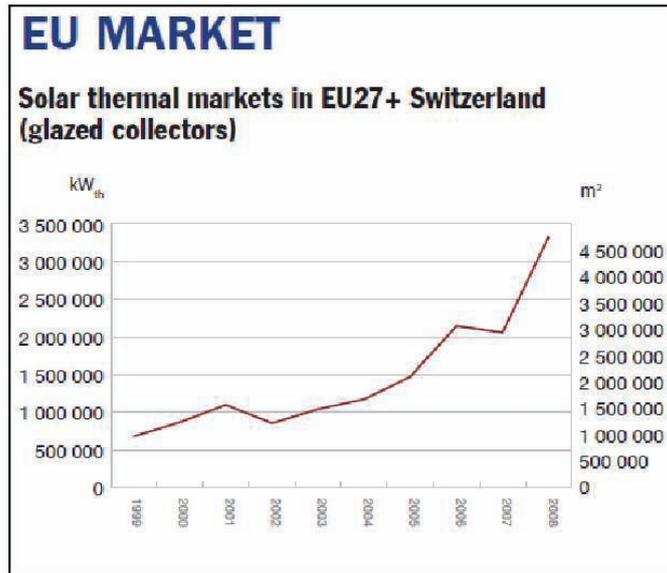
The priority applications were selected mainly due to their technical feasibilities and economically promising outcome. Firstly we looked at the process from the point of strengths and weakness of the integration in purely technical terms. That means we were going by the guidelines given to us from the project leaders. That is why we first selected the most promising ones from the technical criteria like system integration, usable roof area for solar panels, solar boiler placement possibilities and other relevant criteria. The next point was the economic assessment of the investment and what are the expected return rates for it, since this is considered a weary important subject for the stakeholders. And the final step was to feel the

Outlook for the implementation

The market potential for solar process heat is not very big in Slovenia since the industrial processes are in bad condition regarding the energy efficiency. Also due to financial crises the companies have difficulties to make some new projects. The energy strategies at national level are also not prepared yet and companies do not have a framework programmes where to go. There is not special financial scheme for energy efficiency in industry and also not for solar heat. The national directives are focused mainly on photovoltaic systems and cogeneration units for electricity production.

The relevance of the selected applications on the market in the future (outlook taken from regional inventories and from screening results)

The selection has been made so that implementation would be as simple as possible with the most environmental and economic benefit. Therefore any implemented project will be a good starting point for improving user perception for this subject. The screenings have shown a willingness of the stakeholders to participate in this kind of project in the future as they want to make further improvements to their production processes and lower the costs. This is why there will be probably an increasing of activities from the side of solar manufacturers as their expertises will be improved in the field of industrial applications and they will see a growing market potential in this field.



Source: ESTIF <http://www.estif.org>

As seen in the graph of the EU market development there is a progressive trend of market growth in the solar market size and is not applicable for our country. The systems developing slow. Since there is a growth in the general market we are safe to assume that with our proper initiative and some pilot projects we can also make this apply for the new branch of solar process in our region.

Conclusions for the regional campaigns (how will the results and the stakeholder feedback received be reflected in the planning of the regional campaign)

The results of the stakeholder feedback have shown that there is the interest among some companies for solar process heat usage. The interest is for now at a modest level but it will surely improve in the near future due to the market development and the rise of fuel prices. The representatives of the stakeholders have been interested in additional information that could be provided to them regarding solar systems and the benefits that they can expect from implementations of such systems. So information campaign should be a great part of such a regional campaign since there is not enough of high quality information on this subject existing in the market right now. We have made a countrywide and also a regional inventory of companies that are active in sectors that are most likely to have a potential for solar process heat. As we have seen from the information collected in the inventories there are some candidates for solar process heat. We have seen that these come mostly from the food and beverage sectors. Especially the food production and animal feed sectors have shown the greatest potential in our region as they have the largest share of potentially usable processes.

Both process and solar technical staffs need a good guides and other information. They are looking for already implemented system anywhere in EU. They do not want to be the first one.

The time of three years is short to implement the project and a lot of individual work is needed. The first workshop in Maribor was not very successful. The companies do not want to share their data and problems, solar companies in Slovenia are not associated and they also see common work as a competition. In future we will work very much individually in small teams only connecting the company and one solar producer and one or two planners.

Since there is very big problem with finding the money for investing Energap is working also on finding some financial sources on local and national level. We are in connection with Slovene national Eco financial fund that gives subsidies and credits for environmentally friendly investments. The problem is that these financial input count also for staid aid scheme. Company using a lot of public money for investments in developing the new production systems and since there are quotes they have to make priorities. Only in very few companies in Slovenia or in our region the energy issues are priority.

Stakeholders also see the integration of the solar systems into the process as very scientific one. They think that some experts from university are needed. Therefore we will try to involve two Maribor's faculties for process engineering (machinery and chemical technology).