



3sCE417P3
Introduction of Regional Energy Concepts

ENERGY DEMAND IN THE CONCEPT REGION SAVINJSKA



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Contents

1	Description of the concept region	4
1.1	General information on the concept region	5
1.2	Geographic situation.....	8
1.3	Economic data	11
1.4	Environment and Climate	14
1.5	Social infrastructure	18
2	Methodology of the survey.....	20
2.1	Desk research definition	20
2.2	Sources of information.....	21
3	Understanding energy demand.....	23
3.1	Households' energy demand	23
4	Analysis of the risks and obstacles	25
5	Recommendation and dissemination	26
6	References.....	28

Pictures

Figure 1: Demographic development of Savinjska since 2008 (Source: SORS, 2013).....	6
Figure 2: Location of Savinjska region.....	9
Figure 3: Statistical regions of Slovenia	9
Figure 4: Geographical position of Savinjska region.....	9
Figure 5: Map of Savinjska region showing municipalities and sub-regions	10
Figure 6: Map of Savinjska region showing main roads and settlements	10
Figure 7: Employment in Savinjska in the recent years (Source: SORS, 2013).....	14
Figure 8: Degree Days of Slovenia	15
Figure 9: River basins in Slovenia.....	17
Figure 10: Climate in Slovenia.....	18
Figure 11: Students in tertiary education per 1,000 population, statistical regions, Slovenia, 2009.....	19
Figure 12: Energy carrier for heating in households	24

Tables

Table 1: Development of population in the period 2008 – 2014.....	6
Table 2: Overview of the municipalities in the Savinjska region	7
Table 3: Persons in employment in the Savinjska region	14

1 Description of the concept region

At the start of the project the concept region was Osrednjeslovenska (Central Slovenian region). However, after first months of contacts and data/information gathering it slowly become clear that this would not be an easy task.

Here is important to note that Slovenia hasn't got regions as such, they are only statistical regions. Therefore there are no regional political entities and hence (energy) data are not gathered on this level.

As the region is only of statistical nature, only national legislation applies. On paper Slovenia is well in line with the EU directives and goals. Renewables and sustainability at its best, in practice things are not that perfect, though. Šoštanj, with the new coal power plant is certainly not a success story. Nevertheless renewables are gaining terrain and are propelled through a support system, combined by feed-in system for electricity and Eco fund subventions and soft loans for heat and energy efficiency. Savinjska region is one of the most successful in this regard according to the Eco fund reports.

In the meantime we learned about Savinjska region and its municipalities and their signing of the sustainable development declaration in summer 2012. Because of some good established contacts and projects realised in the past, here is especially to point out the town Vransko and its renewable energy research center, we decided to change and take them aboard. The two main organisations involved are the regional energy agency KSENA from Velenje and the regional development agency from Celje.

We therefore needed to go on municipalities' level. The problem is not every municipality was involved so the picture was not completely rounded.

1.1 General information on the concept region

Savinjska Region comprises 2,384 km² and is named after Savinja River and stretches along the valley that lies to the east of central Slovenia and borders to Austria on the north and Croatia on the east. The neighbouring regions are Koroška in the north, Podravska in the east, Spodnjeposavska in the south, Zasavska and Osrednjeslovenska in the west. The region is very diverse in terms of natural geography; it comprises mainly the wooded alpine world attractive for tourists (the Upper Savinja valley and a part of the Kamnik-Savinja Alps), the fertile Lower Savinja valley with good conditions for growing hops, the Kozjansko hills and the Velenje basin with lignite deposits for the production of electricity.

<i>Description of the Concept Region</i>	Savinjska region, Slovenia
<i>Position within the European Union division per NUTS</i>	NUTS 3, SI014
<i>Area</i>	2,384 km ²
<i>Share of Slovenia</i>	11.4%
<i>Population profile – number of inhabitants</i>	254,400
<i>Share of population in Slovenia</i>	12.4%
<i>Statistics about active labour population</i>	104,200

Population

In 2013 the region had 260.217 inhabitants, which was 12.4% of all Slovenian inhabitants. The number of inhabitants is growing already since 1995. The Savinjska region is the fourth Slovenian most densely populated region. 109.1 inhabitants per km², with Slovenian average at 101.2. The majority of people live in towns and settlements and a smaller part in country side in rural areas. Roughly 65/35% is the ratio.

In the table and figure below development of population in the period 2008 – 2014 is shown. From 2008 to 2014 the number of inhabitants decreased for 0.53% and it's relatively stable.

Table 1: Development of population in the period 2008 – 2014

	2008	2009	2010	2011	2012	2013	2014
Total	261.243	258.845	260.025	259.726	260.253	260.217	259.853
Men	130.199	129.118	129.967	129.441	129.791	129.929	130.054
Women	131.044	129.727	130.058	130.285	130.462	130.288	129.799

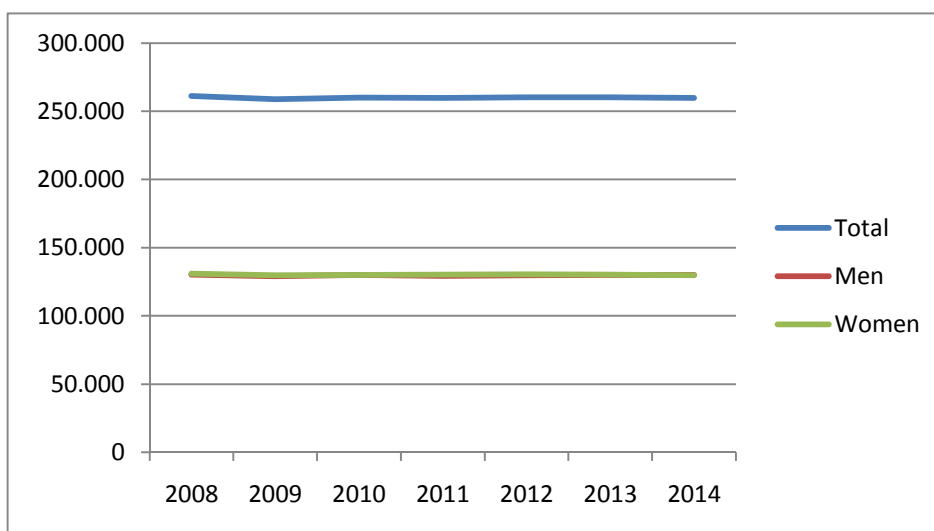


Figure 1: Demographic development of Savinjska since 2008 (Source: SORS, 2013)

The regional centre is Celje (48,000), which is the third largest city of Slovenia, with three institutions of higher education: the Faculty of Logistics (member of the University of Maribor), a polytechnic for mechanical engineering and civil engineering, and a business-commercial college where more than 1,000 students study every year. Other principal towns include: Velenje (34,000) with its college for electrotechnics, informatics, miners and geotechnology, Žalec (20,900), Šentjur pri Celju (18,500), Slovenske Konjice (13,900) and Laško (13,900).

Table 2: Overview of the municipalities in the Savinjska region

Municipality	Total area (ha)	Population
Občina Bistrica ob Sotli	1.192	3.110
Občina Braslovče	4.575	5.500
Mestna občina Celje	42.055	9.490
Občina Dobje	825	1.750
Občina Dobrna	1.882	3.170
Občina Gornji Grad	2.292	9.010
Občina Kozje	2.753	8.970
Občina Laško	11.605	19.750
Občina Ljubno	2.265	7.890
Občina Luče	1.305	10.950
Občina Mozirje	3.433	5.350
Občina Nazarje	2.243	4.340
Občina Podčetrtek	2.819	6.060
Občina Polzela	5.033	3.400
Občina Prebold	4.295	4.060
Občina Radeče*	3.871	5.200
Občina Rečica ob Savinji	1.970	3.010
Občina Rogaška Slatina	9.330	7.150
Občina Rogatec	2.663	3.960
Občina Slovenske Konjice	12.190	9.780
Občina Solčava	442	10.280
Občina Šentjur	16.037	22.230
Občina Šmarje pri Jelšah	8.571	10.770
Občina Šmartno ob Paki	2.725	1.820
Občina Šoštanj	7.464	9.560
Občina Štore	3.728	2.810
Občina Tabor	1.378	3.480
Mestna občina Velenje	28.266	8.350
Občina Vitanje	1.921	5.940
Občina Vojnik	7.124	7.530
Občina Vransko	2.184	5.330

Občina Zreče	5.397	6.700
Občina Žalec	18.379	11.710
Total	222.212	238.410
Average	6.734	7.225

* Municipality Radeče changed and is no longer part of Savinjska region.

1.2 Geographic situation

<i>Name of the Concept Region:</i>	Savinjska region
<i>Position of the region and its bordering regions including inland and neighbouring countries if applicable.</i>	Savinjska Region named after Savinja river stretches along the valley that lies to the east of central Slovenia and borders to Austria on the north-west and Croatia to the south-east. The neighboring regions are Koroška on the north, Podravska on the east, Spodnjeposavska on the south, Zasavska and Osrednjeslovenska on the west.
<i>Neighbouring countries EU distance</i>	Hungary – 100km, Italy - 200 km
<i>Neighbouring countries distance non-EU</i>	Croatia
<i>Network connections (pipeline, transmission networks, grid networks)</i>	The region is well equipped with electricity and gas network. In the region (Šoštanj) is located one of the most important electricity producers in Slovenia – Coal Powerplant TEŠ, using domestic lignite. About one third of the municipalities of the region are supplied with natural gas and the network is spreading.



Figure 2: Location of Savinjska region



Figure 3: Statistical regions of Slovenia



Figure 4: Geographical position of Savinjska region

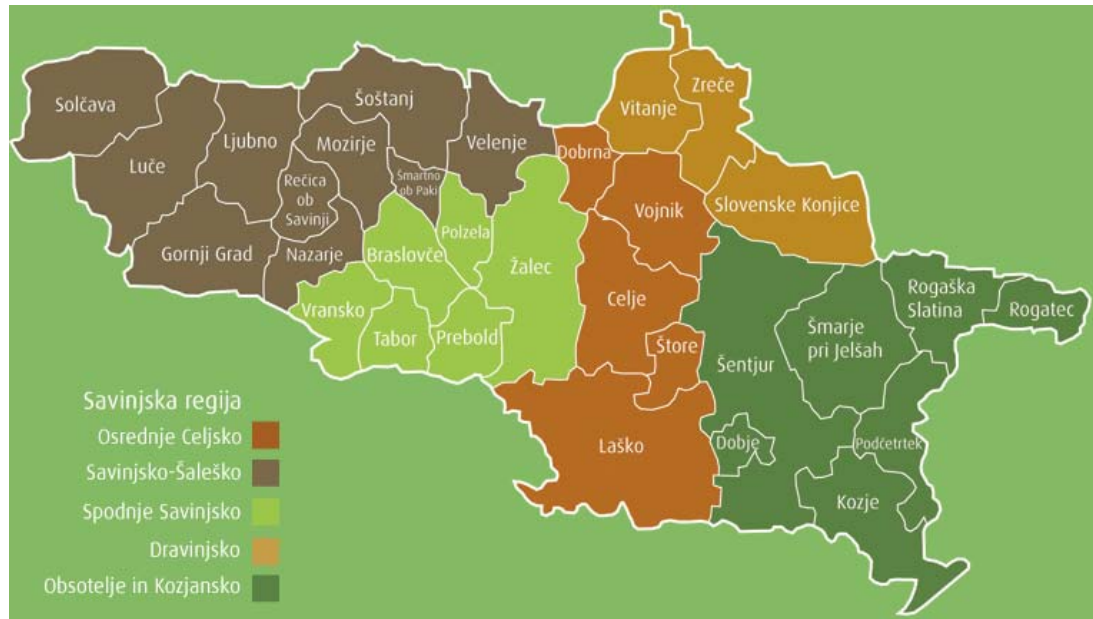


Figure 5: Map of Savinjska region showing municipalities and sub-regions

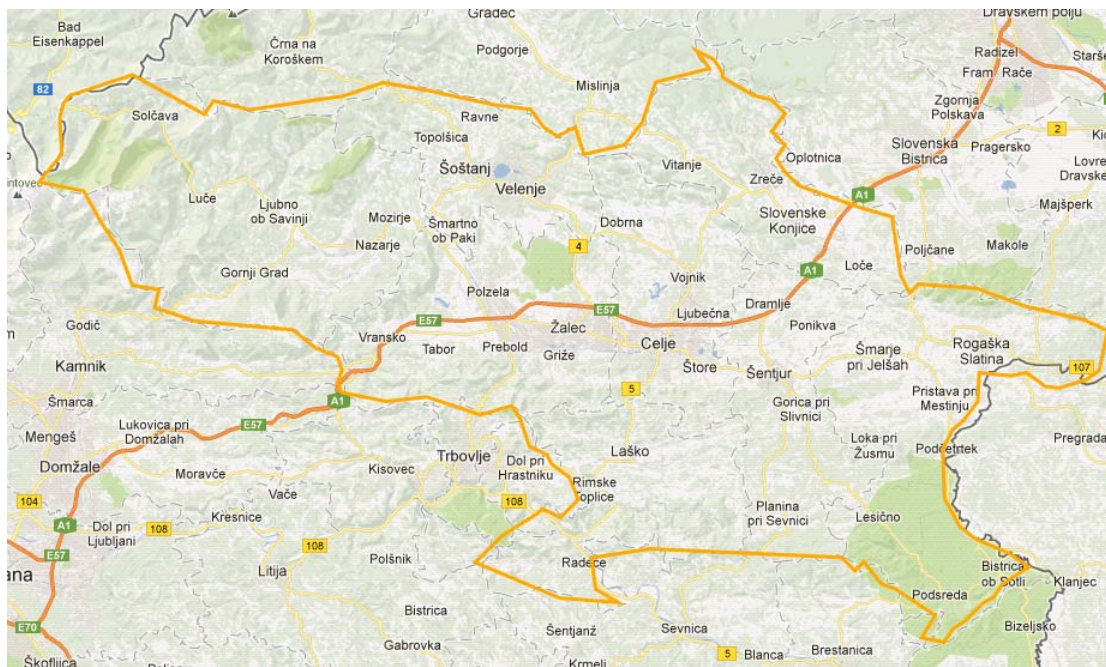


Figure 6: Map of Savinjska region showing main roads and settlements

1.3 Economic data

<i>Name of the Concept Region:</i>	Savinjska
<i>Statistics on the scale of economy GDP per capita</i>	15,708 (2010)
<i>Statistics on the scale of economy GDP as per cent of the country GDP</i>	90%
<i>Agriculture business share of the regional economy</i>	3.1% (Slovenia: 3.9%)
<i>Commercial share of the regional economy</i>	
<i>Public services (schools, health, social) share of the regional economy</i>	
<i>Industries share of the regional economy</i>	
<i>Number of persons in employment, 2011</i>	102,430
<i>Number of persons in paid employment, 2011</i>	89,371
<i>Number of self-employed persons, 2011</i>	13,060
<i>Number of registered unemployed persons, 2011</i>	15,358
<i>Average monthly gross earning by statistical region of residence, total, EUR, 2013</i>	1,466
<i>Number of enterprises, 2011</i>	18,696
<i>Turnover of enterprises, mio. EUR, 2011</i>	9,552
<i>Regional gross domestic product, mio. EUR, 2010</i>	4,084
<i>Number of agricultural holdings, 2010</i>	11,434
<i>Utilised agricultural area, ha, 2010</i>	67,297
<i>Number of bed places, 2011</i>	13,652
<i>Number of tourist arrivals, 2011</i>	359,051
<i>Number of overnight stays, 2011</i>	1,383,818

<i>Number of passenger cars, 31. 12. 2011</i>	133,539
<i>Number of dwellings, estimation of Dwelling stock, 31.12. 2011</i>	104,160
<i>Municipal waste collected, t, 2011</i>	87,377
<i>Municipal waste collected, kg per capita, 2011</i>	343
<i>Current expenditure for environmental protection, 1,000 EUR, 2010</i>	59,568
<i>Current investment in environmental protection 1.000 EUR, 2010</i>	97,823

Savinjska region is among the best Slovenian regions when number of companies is concerned. The region has a long industrial tradition, a high concentration of businesses and is very export oriented. 75% of employees have found a job in the industry. In terms of revenue and headcount, manufacturing activities prevail. The backbone of the regional economy is formed by a number of large companies that provide around 36% of all employment in the region, creating 40% of added value.

The most significant sector of industry in the Savinjska Region is the production of machines and appliances – Gorenje, one of Slovenia’s largest companies, operates in the region employing one fifth of its workers and creating one quarter of its revenue. Other industrial sectors include: wood-processing, energy, textile & apparel, metal processing, ore extraction, chemicals, food, and coal-mining (to be closed down).

The region experienced a severe economy crisis in beginning of the 1990s, from which has still not fully recovered. Typically there were big industry companies that need to restructure and some finished in bankruptcy. There are also quite a few companies dealing with mining and energy in the region (Lignite mine, Thermal powerplant Šoštanj).

Enterprises in the Savinjska statistical region represent around a tenth of all enterprises in the country and create a tenth of national turnover of all enterprises. Enterprises in the region are in terms of the average number of persons working in enterprises among the largest in the country

(5.4 persons in 2010). According to the labour migration index, the number of persons in employment working in the region does not lag far behind the number of persons in employment living in it (98 in 2010).

In the Savinjska statistical region 2% of regional gross domestic product is annually invested in environmental protection. In 2010, 17.5% of total gross fixed capital formation was intended for environmental protection.

Enterprises in Savinjska are in terms of the average number of persons working in enterprises among the largest in the country. In 2010, 11% of enterprise births and 8% of enterprise deaths were recorded. Employment share of enterprise births was 2.2% of all active enterprises.

Savinjska region has good conditions for agriculture (especially for ecofarming), which is the basis for the strategic development of the countryside. The main agricultural activities are cattle raising, milk production, viticulture, fruit growing, and forestry. In the recent years more and more of the various supplementary activities on the farms are taking place and tourism on farms. The particularity of the region is the tradition of growing hops, which is unique in Slovenia and typical for the Lower Savinja valley. Agricultural land covers about 30% of the regional territory. In the region there were 8,721 farms in 2012, from which 360 organic, which is far less than in 2010, when Savinjska region was second in the country with a bit more than 11,400 farm holdings. The region's main agricultural area is in the Lower Savinja Valley where hops for export are the most important crop (accounting for approximately 3% of world production). In the central part of the valley, arable fields, which were at one time merged into large agricultural complexes, are today state owned, though hops is also produced by numerous individual farmers. Dairy and beef cattle, pig and poultry farming are also important in lowland areas as well as in the mountainous Upper Savinja Valley where forests are an important source of income, too. Fruit is grown along the edges of the Lower Savinja Valley and in the eastern part of the region.

The region is also a popular tourist destination, especially for mountain type of tourism and in 2010 it recorded almost 11% of tourist arrivals in Slovenia; on average tourists stayed for four nights.

In the period from 2009 to 2013 the total persons in employment is decreasing in the period 2009-2012 while it is slightly increasing from 2012 to 2013. The number of persons in paid employment is

decreasing from 2009 to 2013. The number of self employed persons is increasing in the same period. Overall a significant decrease in employment is apparent as it can be seen in figure below.

Table 3: Persons in employment in the Savinjska region

	2009	2010	2011	2012	2013
Persons in employment - total	106,507	101,403	100,906	98,136	98,451
Persons in paid employment	93,761	89,213	88,059	85,080	84,799
Self employed persons	12,746	12,190	12,847	13,056	13,652

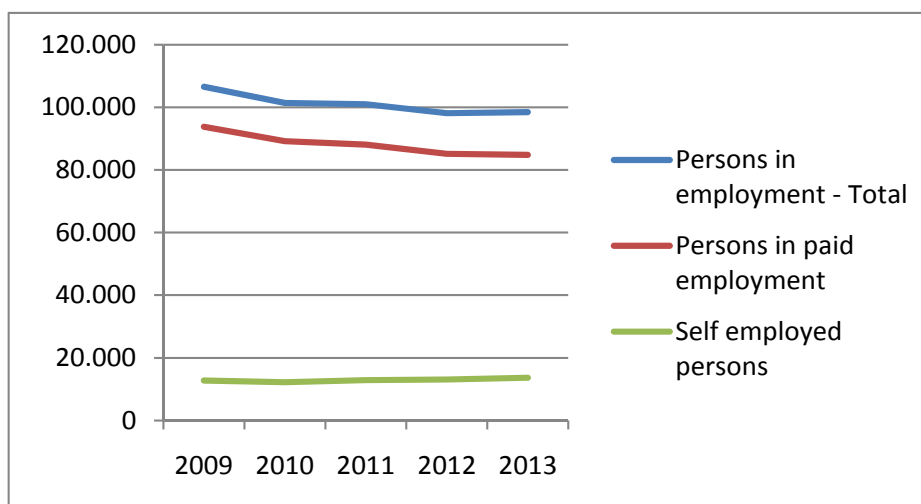


Figure 7: Employment in Savinjska in the recent years (Source: SORS, 2013)

1.4 Environment and Climate

Name of the Concept Region:

Savinjska

Describe natural environment

The natural environment is rather various, and ranges from Alpine to Subpanonian landscape and climate.

Describe climate conditions

Prevalent mild continental climate and partly Alpine climate

Describe seasonal difference that impact the energy consumption

(mild/sever winter, number of cold days and etc.)

Existing water sources in m³

The figure 8 shows the yearly needed heating in Slovenia expressed in degree-days. For the Savinjska region typical values are around 3,300 Kdays, but can reach above 3,800 in the Alpine part.

Slovenia is a small country, but of great diversity in geology, relief, hydrological systems, and vegetation. This is very much the case also in the region Savinjska. Because of Slovenia's exceptional diversity and distinct variation over short distances, the bedrock is the most important pedogenetic factor in Slovenia. A special stamp is given to Slovenia by the carbonate rock and the corresponding karst surfaces.

A major characteristic of the Slovenian territory is also a very heterogeneous climate and exceptional diversity in terms of morphology, geology, pedology and vegetation. These diversities are reflected in specific hydrological characteristics and highly variable river discharge. The average annual precipitation is 1,570 mm (ranging from 750 mm in the north-east to more than 3,000 mm in the west of the country). Complex topography, both for Slovenia and its surroundings, has a strong influence on meteorological phenomena in the region. The most frequent are flash floods caused by heavy rain, especially in mountainous parts of Slovenia. The Savinja basin is the most flood threatened region in Slovenia and the Savinja River is the biggest tributary to the Sava River, with a drainage area of 1,848 km². The altitude of the plain area in the middle reach of the Savinja, is between 200 and 400 m. Due to its runoff characteristics, it has an important influence both on flood wave formation and on the forecast of the lower Sava River in Slovenia. Its drainage area can contribute up to 40% of the lower Sava River discharge following extreme meteorological events. The floods, usually flash floods, are caused by heavy rainfall in mountain areas, especially in the autumn.

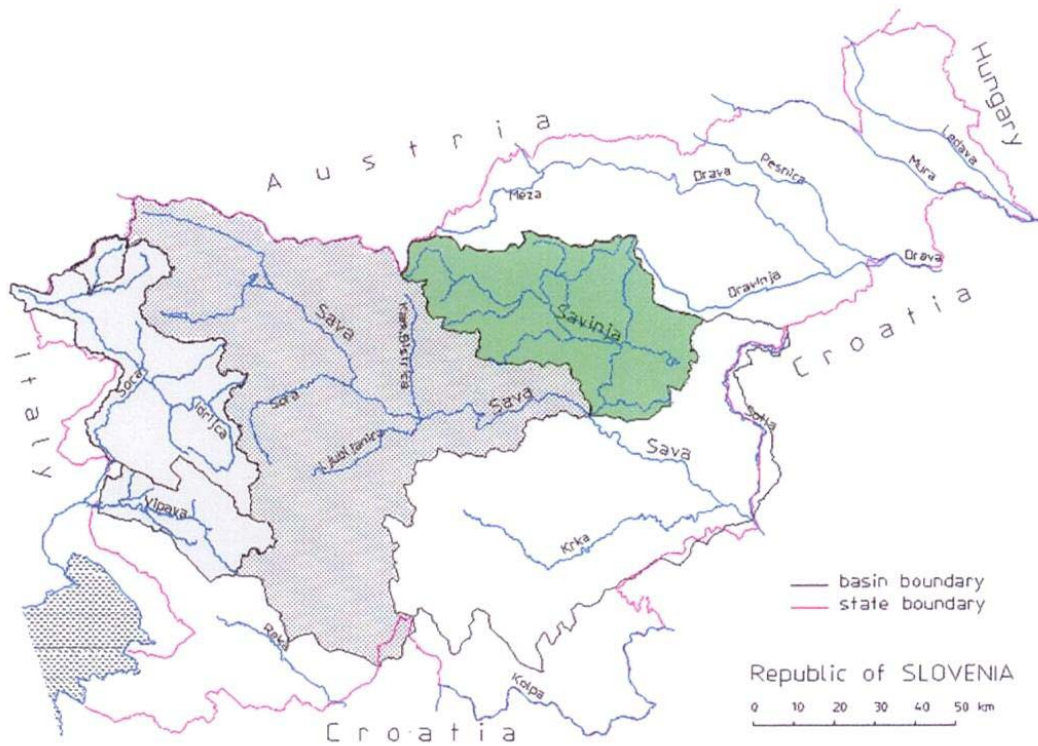


Figure 9: River basins in Slovenia

Most of the Savinja region (as well as of the whole country) has temperate continental climate. Average temperatures of the coldest month are lower than 0 °C. In the eastern part of this climate occurs in several summer peak of rainfall, which is typical for the climate of continental Europe. The winters are quite cold and the summers pretty hot. The average temperature of the coldest month does not fall below to -3 °C. At least one month has an average temperature above 10 °C.

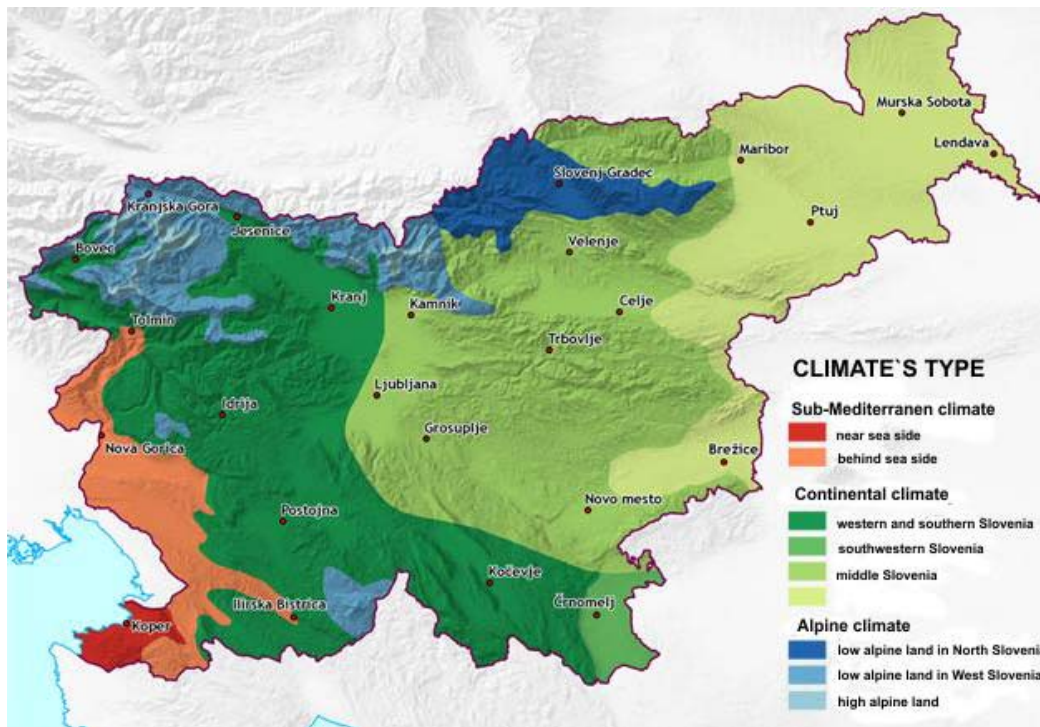


Figure 10: Climate in Slovenia

1.5 Social infrastructure

In the beginning of 2011, nearly a fifth of the population had the highest level of education. The above-average number of students per 1,000 population and the high share of students among the population aged 19-26 are significant educational potentials for the region. The figure 11 shows the number of students in tertiary education per 1,000 population per statistical regions in Slovenia in 2009. It can be seen that Savinjska region performs above average and ranks among the best. The highest number of students per 1,000 population in 2009 was recorded in the Goriška region, followed by Jugovzhodna Slovenija and the Savinjska region; the lowest number was recorded in the Pomurska region.

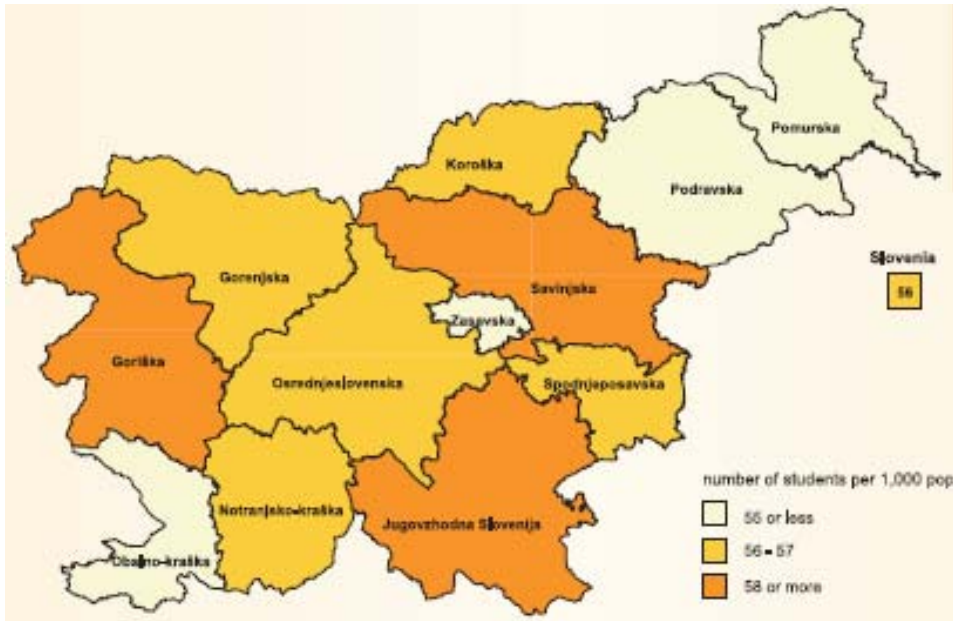


Figure 11: Students in tertiary education per 1,000 population, statistical regions, Slovenia, 2009

<i>Name of the Concept Region:</i>	Savinjska
<i>Public sector infrastructure</i>	number of grammar schools: 121 number of secondary schools: 26 number of higher education schools: 6 + 5 total schools: 158 number of kindergartens: 118/ 136 (kindergartens in schools are not included) number of students (grammar schools): 21,214 number of students (secondary schools): 10,694 number of students (tertiary schools): 13,358 total students: 45,266
<i>Administrative division of the region</i>	number of municipalities: 33
<i>Physical transport infrastructure in the region</i>	length of roads: 5,831 km
<i>Public lightning system in the region</i>	<i>estimated number of public lights:</i> <i>the data is not available, it needs to be summarised from the municipalities</i>

2 Methodology of the survey

Definition of the methodological mix of the survey

2.1 Desk research definition

<i>Name of the Concept Region:</i>	<i>Tick</i>	Savinjska regija
	<i>out</i>	
<i>Collected data from public bodies</i>	<i>y</i>	Only some minor amount was attained directly from the public bodies. They mostly referred to the local energy concepts instead.
<i>Collected data from municipalities</i>	<i>y</i>	Data from the municipalities were in most cases packed within the local energy concepts that municipalities shared with us.
<i>Collected data from statistic offices</i>	<i>y</i>	There are some data gathered by the statistic office for the statistical regions of Slovenia.
<i>Collected data from energy suppliers</i>	<i>y</i>	Electricity supplier Elektro Celje and natural gas supplier web-site was consulted and data gathered for the purpose of LEKs were used.
<i>Collected data from national or regional grid</i>	<i>y</i>	We were able to get some data from SODO (from its published documents), which is the national electricity distribution operator.
<i>Collected data from regional heating system</i>	<i>y</i>	We were able to get some data directly from the regional district heating systems, e.g. In Vranksko and some from publicly available business reports, for example for the TEŠ heat production.
<i>Used existing sources from energy agencies</i>	<i>y</i>	From the beginning of the project we cooperated well with the local energy agency Kssena. They've done a considerable work, especially in the energy efficiency of the buildings area.
<i>Used existing sources from chamber of commerce</i>	<i>y</i>	There was some minor contribution from the Savinjsko Šaleška chamber of economy, which representatives took part also in the participation forum in Vranksko.

<p><i>Used data from Association of consumers</i></p> <p><i>Any non-documented demand</i></p>	<p>No data on energy from the association of consumers for the region were available. From the private units data were generally available at the EnGIS, national geographical informational system (private photovoltaic units, geothermal waters, other homemade technologies for energy production) .</p>
<p><i>Use smart-metering data, if available</i></p>	<p>Smart metering is only in the begging phase in the region hence no data were available yet.</p>
<p><i>Used data of monitoring and collecting data</i></p>	<p>Property management companies, supply measuring companies producing metres for monitoring and measuring energy consumption.</p>
<p><i>Other sources</i></p>	<p>In some cases valued data were gathered from other types of sources such as diploma thesis, presentations of various experts from various events, research studies, other projects reports etc.</p>

2.2 Sources of information

Information and data on energy were gathered by use of mixed approach, bottom up (from municipalities and other local sources) and top down (mainly national statistics, recalculated to the region's estimation based on BDP share).

The actual sources for the general data on the region and regional energy are numerous; only a short list below:

- National Statistical Office, SORS, www.stat.si
- Slovene Regions in Figures, SORS, http://www.stat.si/publikacije/pub_regije.asp
- Municipalities' Local Energy Concepts
- Regionalna zasnova prostorskega razvoja Savinjske regije, Urbanistični inštitut Republike Slovenije (Regional space development plan)
- Regionalni razvojni program RRP Savinjske regije za 2007-2013, RASR (regional development plan)

- Osnutek Regionalnega razvojnega programa RRP Savinjske razvojne regije za 2014-2020, RASR in ORA (Regional development plan draft)
- Razvojni program podeželja za občine Velenje, Šoštanj, Šmartno ob Paki, Savinjsko-šaleška območna razvojna agencija
- Development Strategy of the Electrical Power System of the Republic of Slovenia 2011-2020, ELES
- WISDOM Slovenia, Annex 6, Final Report, Ministry of Agriculture, Forestry and Food
- Razvojni načrt prenosnega plinovodnega omrežja za obdobje 2011 – 2020, Geoplin plinovodi, (Natural gas grid development plan)
- Razvojni program podeželja občin Dobje, Dobrna, Slovenske Konjice, ..., Občina Šentjur, (Countryside development program of municipalities Dobje, Dobrna, ...)
- Daljinsko ogrevanje Saleške doline, Nik Naveršnik, (District heating of Saleška valley)
- Distribucija zemeljskega plina, Kristian Robar, (Natural gas distribution)
- Resolution on the National Environmental Action Programme 2005–2012 (NEAP)
- National Strategic Reference Framework 2007-2013, Government Office for Local Self-Government and Regional Policy
- Energetska bilanca republike Slovenije za leto 2012, 2013, Ministrstvo za infrastrukturo in prostor, (Energy Balance of RS).

Energy information have been collected with a mixed top-down/bottom-up approach (from local and national utilities), e.g. Elektro Celje, Komunala Velenje.

3 Understanding energy demand

¹ Type of energy Final Demand – data for the latest available 3 years, so we could have a chance to have at least min 2 years to compare in the whole consortium	2010 MWh
Electric power consumption	1,372,297
Heat consumption	2,085,340
Gasoline (LPG, fuel) consumption	1,805,230
Natural gas for heating and hot water, co-generation	932,202
Technical waste (vapour, steam, wood/technical dust, other) if possible	n.a.
Annual expenses ² for heat	n.a.
Annual expenses for the electric power	n.a.
Total energy costs a year	

3.1 Households' energy demand

Type of households – average data for the last 3 years ³	Annual expenses per energies	Number of inhabitants	GDP per capita (€)
MWh/a, Y1	n.a.	257,890	15,708

Households demand in the Concept Region: Savinjska	MWh/a Y1
Total consumption on heating	1,150,760
Gas consumption	62,171
Electric power consumption	

¹ This table shall be elaborated within each of the following Demand Survey Units

² Expenses on regional level are not known, because they are not gathered and not for all municipalities were obtained.

³ Data to be filled based on the second table break down per years

Consumption of the self-production of heat (natural gas, wood, coal, other)...if relevant	wood 406,972 coal 16,859
Self-production of electricity (solar panel, thermal solar units, wood, briquettes, other)...if relevant	

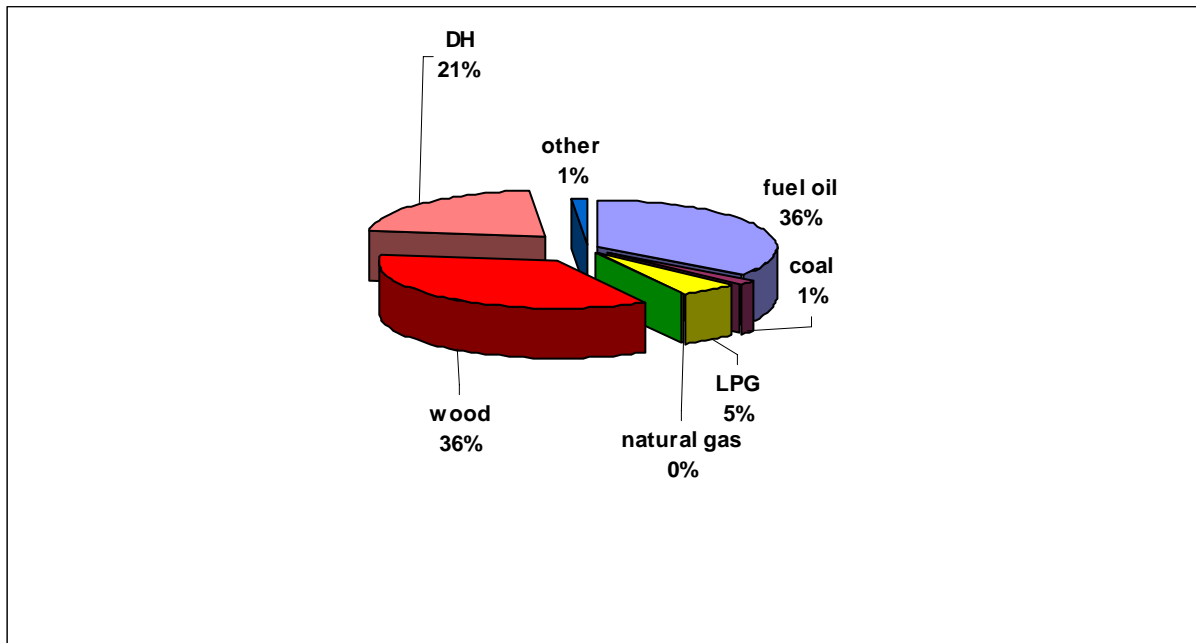


Figure 12: Energy carrier for heating in households

Figure 12 shows the share of various heating sources for households in Savinjska region. With 36% each the predominant energy carriers are fuel oil and wood; the latter mainly of local production. Quite significant with 21% is also the heat from district heating. The main district heating systems are the system in Velenje and Šoštanj, that is also the second biggest district heating system in Slovenia and which uses waste heat from thermal power plant Šoštanj (TEŠ) that runs on domestic coal (lignite); the Celje heating plant for the Municipality of Celje which presents the final stage of the municipal waste treatment and a biomass district heating system in Vranksko. In the region there are also some minor biomass district heating systems, so called micro grids. Then LPG follows with about 5% and other sources, still also some coal.

4 Analysis of the risks and obstacles

As it can be seen below all the listed barriers apply in Savinjska region (as well in whole Slovenia). The main problem is of the relatively young municipalities born after Slovenia. It means in many municipalities all the necessary municipal support needed to be established from zero. Energy was not among the top priorities also because of the lack of staff and financial means. Recently because of the national regulation demanding mandatory local energy concepts and RES and EE targets following the national ones and because other basic things were settled already the topic is becoming more and more important. Another big problem is also lack of national energy statics strategy, resulting in the fact that data are simply not gathered yet.

<i>Type of obstacles</i>	
<i>Unsolicited data</i>	Y
<i>Lack of willingness for data collection</i>	y
<i>Lack of sufficient data</i>	y
<i>Lack of responsiveness</i>	y
<i>Use of different reference years or combined methodologies/ results accrued into harmonised data/values</i>	y
<i>The regional/local data necessary to convert National data to Local level was not always available</i>	y
<i>Accurate local data from energy suppliers was not available due to confidentiality issues</i>	y
<i>Statistics are not always reliable and the method of collecting national statistics changed, so it is difficult to compare energy balances over the years.</i>	y
<i>In some cases, data was not up to date to obtain an accurate evaluation</i>	y

5 Recommendation and dissemination

For Slovenia we could tick of all the recommendations. More specifically is the situation presented below.

Type of recommendations

Lack of willingness for data collection

This is already a long known problem, we (ApE and In Slovenia in general) are facing in the last decade or so – ever since the (energy) data are not public anymore, as they used to be. Public institutions and authorities usually are not aware of the problem and have neither means nor the will to do it. Therefore the massive struggle to gather the data needed for feasibility studies (RES projects) and lately for the local energy concepts. The usual way to do it is by means of questionnaires. Furthermore there are now quite some (international and domestic) projects around and these questionnaires are multiplying. Hence they are many times seen as unnecessary additional burden rather than an opportunity to potentially reduce energy costs and improve environmental footprint.

Increase energy monitoring tools/means in respondents

Energy monitoring is gaining terrain more and more, however it is still not a widely spread praxis. The need is however recognised and with the new Energy act EZ-1 government put that in the national regulation for public sector. Therefore in the future these data should be much more readily available than it is the case at the moment.

Increase responsiveness of respondents

The question is how, especially for households? For the bigger consumers/producers there is now an obligation put in the new Energy act EZ-1, that they need to provide the necessary data for the purposes of local/national energy planning. In practise, however, this is still very much not the case. The perception of the data importance and awareness of the companies is still rather low; the most common reason stated not to provide the data on energy is the confidentiality of data of business reason. In some cases this is true but usually is just pretend not to work on that.

Develop a matrix/set for recording data

There are more options that are to some extent not coordinated. E.g. national statistic office is preparing some changes to incorporate more local energy data in their system. In households there are data gathered from chimney sweepers service, they are however not processed and used, then there are data from the energy providers, there was and geographical energy system developed EnGIS for RES potential and realised energy projects developed, that with some modifications could serve as a common basis etc. All these systems, however are developed rather in uncoordinated manner, many times one not aware of the other. This problem was exposed and confirmed also at the workshop organised by the local energy agency KSENA in Velenje, where also CEP-REC was presented.

Introduce smart metering

This would pretty much mean the solution of the above problems and it's an option that most probably will become a standard in the future. For the time being however it is not a much used solution, yet.

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