



## **THE REGIONAL CONTEXT**

### **Very short introduction of the region**

The South Bohemian Region lies mostly in the south of the Czech Republic, a part of the region around the town Dačice is already in Moravia. In the south the region borders on Upper Austria, in the south-east on Lower Austria and in the south-west on the federal land of Bavaria.

The region covers an area of 10 056 km<sup>2</sup>, which is 12,8 % of the area of the whole Czech Republic. There are 630 000 inhabitants in the region. South Bohemia with 62 inhabitants per km<sup>2</sup> has the lowest population density in the Czech Republic. There are 623 municipalities in South Bohemia – 53 towns and 570 villages.

The countryside of the region is well-known for its ponds and beautiful villages in the Českobudějovická and Třeboňská basins, that are situated in the middle of the region. On the south-west border the second highest mountains in the Czech Republic - the Bohemian Forest is situated. The highest point of the region is the mountain Plechý (1378 m), the lowest point is the Orlická dam (350 m). The average altitude is 400 – 600 m.

The region does not abound with mineral resources. The mining of gravel-sand, stone, brick clay, and, to a certain extent, ceramic clay, limestone and graphite prevails. The forests, which take up one third of the total area, form an important natural treasure.

The industrial production is concentrated particularly in, and around, the town of České Budějovice and in the districts of Tábor and Strakonice. The processing industry plays a significant role here, especially food and drink processing. Other important industries are production of vehicles, machinery and appliances, and also the textile and clothing industries.

The agricultural sector focuses on plant production, mostly on growing cereals, oil plants and potatoes. In animal husbandry, the breeding of cattle and pigs prevails. Fishpond cultivation has a long tradition in South Bohemia. Fish husbandry in the total area of 25 000 ha, makes up about 50% of the total production in the Czech Republic.

České Budějovice is a corporate town and the administrative and cultural metropolis of South Bohemia. About 96 000 inhabitants live here. It lies at the confluence of the Vltava and Malše Rivers. There are many historical sights and museums. Other places that are often visited by tourists are e.g. Hluboká nad Vltavou, Český Krumlov, Zlatá Koruna, Vyšší Brod etc.

### **Current solar thermal market development**

The most common type of solar collectors, that occur in the Czech Republic, are swimming pool mats (50 thousand m<sup>2</sup> in 2008), flat-plate atmospheric selective collectors (26,5 thous. m<sup>2</sup> in 2008), tubular solar collectors (8,5 thousand m<sup>2</sup> in 2008). Concentrating collectors form on the Czech market only an insignificant share.

Solar collectors for water heating were installed in the former Czechoslovakia from the beginning of the 1970s. The oldest documented solar system was launched at the beginning of 1978 in the agricultural cooperative Čechtín, the oldest system that has been operated up to this day since 1982 is in Herbertov in the Šumava mountains (Bohemian Forest). A lot of solar systems from the second half of the 1980s are still in operation both in the Czech Republic and in Slovakia. At that time mostly collectors produced in District Establishment of services Kroměříž, Plant of Slovak National Uprising Žiár nad Hronom a Elektrosvit Nové Zámky were installed. At the end of 1980s the agricultural cooperative Kroměříž with textile-plastic absorbers came into being.

After 1989 new manufacturing and import firms originated. In the 1st half of the 1990s solar collectors were mostly imported from Slovakia from the company THERMO/SOLAR. Textile-plastic solar absorbers were imported from the firm Ekosolaris. Since the 2nd half of the 1990s a big amount of various types of solar collectors have been produced and imported. During 30 years of the development of solar energy industry roughly 25.000 of solar systems of various size (liquid solar collectors with metal absorber) were installed. Probably even a bigger number of solar systems was installed with plastic and textile-plastic absorbers for family swimming pools with seasonal use.

On the solar market there is a big number of companies – importers, producers, selling and installation companies. The total number of companies that deal with solar thermal energy is about 1.200 in the whole Czech Republic (in South Bohemia there are about 80 companies). Solar collectors are offered by specialised companies, by common heating companies and suppliers of roofing materials. The innovation of 2008 was the offer of self-weighted and classical solar thermal collectors in hypermarkets with the goods for gadgeteers. In 2008 the offer of solar thermal collectors in internet shops increased intensely.

A significant facilitation of orientation on the solar market brought the List of Professional Suppliers (LPS) and the List of products and technologies of the subsidy programme „Green Light for Savings“ (Zelená úsporám), which introduce companies offering installation of solar collectors. On 20<sup>th</sup> November 2009 there were 1.111 companies filed.

Solar thermal systems are largely installed by common heating companies and similar ones. It can be supposed that the number of registered companies will increase.

In the last 3 years the number of import companies has grown significantly. Since the 2nd half of 2007 an increasing number of trade companies importing Chinese vacuum tubular solar collectors occurs. It is both because of participation of Chinese producers on the international exhibitions and above all because of very favourable price of these collectors. On the other hand – a considerable part of „European“ tubular solar collectors come from China, or uses tubes of Chinese origin.

On the basis of statistical enquiry it is possible to specify the total surface of active glazed solar collectors at the end of the year 2008 to 165 thousand m<sup>2</sup>. There were installed approx. 220 thousand m<sup>2</sup> of glazed solar collectors with metal absorber from 1977 - 2008 in total. The supply of glazed solar collectors was in 2008 35 thousand m<sup>2</sup> in total, the between-year growth makes therefore 40 %, which is more than in the previous year, when the market grew between years by 20 %. With regard to the above estimated surface of 165 thousand m<sup>2</sup> of glazed solar collectors their installed heat capacity is 115 MW<sub>t</sub> and their energy contribution was 202 TJ in 2008.

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

### **Important suppliers of solar systems in the South-Bohemian region**

<a href="http://www.envi.cz">Envi s.r.o.</a>	Dukelská 145, 379 82 Třeboň	+420 384 706 111	<a href="http://www.envi.cz">www.envi.cz</a>
<a href="http://www.jhsolar.cz">JH SOLAR s.r.o.</a>	Plavsko 88, 378 02 Plavsko	+420 384 390 967	<a href="http://www.jhsolar.cz">www.jhsolar.cz</a>

### **Important public bodies (not only) in the South Bohemian region:**

South Bohemian Region: Department of regional development – Ing. Luboš Průcha  
South Bohemian Chamber of Commerce: Ing. Jiří Stráský  
Department of Environmental Engineering, Faculty of Mechanical Engineering, Czech  
Technical University in Prague

## **Costs for solar thermal installations (per m<sup>2</sup>, system costs for small-scale and larger-scale installations)**

The costs for the installation of standard solar systems move around 15.000 – 20.000 CZK/m<sup>2</sup> (600 – 800 EUR/m<sup>2</sup>) for installations of smaller extent and 15.000 CZK/m<sup>2</sup> (600 EUR/m<sup>2</sup>) for installations of larger extent.

## **Competing energy sources (incl. prices)**

Energy source:	price CZK (EUR)/ MWh
- electricity (from the grid)	3750 (150) – price for small companies/ 2880 (115,2) – price for bigger companies
- light fuel oil	2100 (84)
- liquid gas	1500 (60)
- centralized supply of heat	1250 (44)
- natural gas	1300 (52) – price for small companies/ 930 (37,2) – price for bigger companies
- pellets	800 (32)
- coal	700 (28)
- wood chips	480 (19)
- lump wood	450 (18)

The energy sources are lined up in the descending order according to the price for energy unit.

As competing energy source can be also seen waste heat.

**(Financial) support programmes which could be used for So-Pro projects (solar thermal subsidies, other support mechanisms, e.g. for pilot projects)**

**1) Operational Programme Enterprise and Innovation 2007–2013 (OPEI)**

This programme is financed from European Union structural funds (85%) as well as from the Czech Republic's national budget (15%) in the form of investment incentives for the manufacturing industry. This is the main programming document for the realisation of the policy for economic and social cohesion in the industry sector and an important tool for the realisation of the strategy for the development of small and medium-sized enterprises for the period 2007-2013 approved by the Government of the Czech Republic under resolution No 392/2006. The Managing Authority of the OPEI is The Ministry of Industry and Trade of the Czech Republic. The intermediate body in the implementation structure of the Operational Programme Enterprise and Innovation is the agency CzechInvest ([www.czechinvest.org](http://www.czechinvest.org)).

Under the OPEI, the priority axis 3 is called „Effective energy“. It aims at stimulating the activity of entrepreneurs in reducing the energy intensiveness of the production processes, reducing the consumption of primary fossil fuels and at supporting new entrepreneurs in activities leading to a higher use of renewable and secondary sources of energy. The support provided is oriented to increasing the effectiveness of the production, transmission and consumption of energy, in addition to the use of renewable and secondary energy sources. For the most part, SMEs are the beneficiaries.

The funding is paid out in the form of non-returnable subsidies, preferential loans and guarantees. Eligible projects are those that are implemented on the territory of the Czech Republic outside the capital city of Prague.

Within „Effective energy“ 2 calls for proposals have been launched. The 2nd call for proposals was closed in June 2009. The next call for proposals is planned for 2010.

The programme does not subsidize food production units. These areas can be subsidized in the framework of the Programme for the Country Development of the State Agricultural Intervention Fund in the Axis 1, sub-measure Adding a value to agricultural and food products, eventually in the Axis 3 Diversification of activities of non-agricultural character.

**2) Operational Programme Environment 2007–2013 (OPE)**

Based on the amount of financial resources, the Operational Programme Environment (OPE) is the second largest Czech operational programme. The Operational Programme's main goal is to protect and improve environmental quality throughout the Czech Republic. The Priority Axis 3 has one area of intervention focusing on renewables, it is the area 3.1: „the construction of new facilities and the modernisation of the existing facilities with the aim to increase the use of renewable energy sources for heat generation, electric energy generation and for combined heat and electric energy generation“. Almost EUR 363 million have been reserved for this area, representing 54% of Priority Axis 3's resources.

Municipalities, towns, regions, contributory organisations, universities, non-profit organisations and business organisations owned by municipalities and towns are encouraged to apply for grants.

### 3) Programme EFFECT

The programme EFFECT operated by the Ministry of Industry and Trade of the Czech Republic supports energy savings and use of renewable energy sources in the Czech Republic and supplements energy programmes supported from the Structural Funds of European Union. It is a part of State programme to support energy savings and the use of renewable energy sources. The budget of the programme for the year 2009 is 30 mill. CZK. The subsidies are provided for further education activities, energy planning, smaller investment actions and pilot projects. In case of pilot projects a So-Pro installation could be financially supported – from support area G. Specific and pilot projects, subarea G.1 Projects in the area of energy savings and renewable energy sources. Here the projects development of investment and non-investment character proclaimed in accordance with the needs and requirements of the Ministry of Industry and Trade is supported. The selection procedure is proclaimed separately. The Ministry of Industry and Trade can proclaim in the given year even a few projects or needn't proclaim any at all.

Except for the above mentioned subsidy programmes the installation of solar systems is also supported from the subsidy programme of State Fund of Environment „Green Light for Savings“. The total expected allocation of the Programme is up to 25 billion CZK. This programme is financed from the international sale of CO<sub>2</sub> emission credits. The subsidy from this programme is unfortunately intended only for objects determined to permanent living.

#### **Existing (if any) solar process heat installations in the region/the country?**

##### **South Bohemia**

1. Utilization of the solar thermal systems in Cooperative Society Studená, Družstevní 181, district of Jindřichův Hradec

Solar thermal systems are used here for preheating of warm water for washing and at the same time for water preheating for prewashing of buttons during the production. Currently 10 m<sup>3</sup> of water per day are heated with this system up to the temperature of 45 – 55 °C. Afterwards the water is heated by gas to the temperature of 60 °C. From the heated amount of water about 6 000 l is used for technological purposes and 4 000 l for washing.

Solar thermal systems have been used here since 1985 , when 85 m<sup>2</sup> of collector surface were installed here. In the following years it came to the reduction of production and to the reduction of number of employees. With these changes the water take-off was reduced and it came to overheating of collectors as a result of lower take-off. That's why the Cooperative Society decided in 1998 for a reconstruction.

On the basis of calculation on existing need it was decided in 1998 to set aside one set of collectors and to modernize the system. The changes were carried out by the firm Jiří Hrádek JH Solar Ltd., Plavsko 88, district of Jindřichův Hradec.

System characteristics:

- there are 66 pieces of solar thermal collectors in operation, each one of the area of 0,7 m<sup>2</sup>,  
in total 46,2 m<sup>2</sup>
- profit of one collector per day is 2,75 kWh on a fully sunny day
- there are 32 % sunny days in the region annually
- profit of one collector per year is 300 kWh
- delivered energy of the whole system per year is 20 000 kWh

The information was gained per telephone from Mr Stránský, who is in charge of the solar systems in the Cooperative Society Styl (tel: 384 350 128, 721 340 913).

## 2. South Bohemian University, Department of Physical Biology, Centre of Biological Technologies in Nové Hradý

The technological hall uses solar thermal collectors with linear Fresnel lenses for heating of technological water for solar bioreactors of sizes 4 x 100, 20 and 300 litres. The lenses are situated at the outdoor wall, a part of them is placed slantingly on the roof level. In the reactors algae are cultivated. They are sold to the firm P.B. Medical and are used as food supplements or for the production of medical tablets, creams and salves. The project was supported from the programme of Ministry of Industry and Trade called „Prosperity“ (Czechinvest).

These pieces of information were gained per telephone from Jitka Koželuhová, the administrator of the Biotechnological hall, tel. 389 033 825.

### Some other installations

#### 1. Hoštětín – cider manufactory

The collector is used firstly for water heating for washing and for the health centre, that is situated next to the object of the cider manufactory. In the cider manufactory warm water is used for washing of bottles.

The collectors' area is about 36 m<sup>2</sup> and the reservoir capacity is 9 m<sup>3</sup>. The collectors were installed with self-help into the wooden frame instead of roof covering (roofing).

Locality: Wallachia

Information source: <http://calla.ecn.cz/atlas>, RNDr Yvonna Gailly, 542 218 353

#### 2. Troubelice – TARGOS

The solar system is situated in the premises of the firm TARGOS, Inc. Troubelice. It serves to heat the water for operating the kitchen in the factory. The system is located on the ground on steel framework, that is anchored to concrete foundation (concrete footings). In 1998 a reconstruction was implemented. The collector area is 48 m<sup>2</sup>, the nominal output/rated power is 29 kW, the annual solar energy production is 28 000 kWh.

Locality: Northern Moravia (Uničov, Mohlenice)

Information source: <http://calla.ecn.cz/atlas>

#### 3. Zápý near Prague

The manufacturing firm Instaplast (installing plastic material) uses solar system as a heat source for absorption cooling. The system comprises 45 pieces of tubular solar collectors CPC 14 of the total area of 99 m<sup>2</sup>.

Information source: <http://animatrans.cz>, tel. 387 315 900

#### 4. Hotel DUO Praha

Although the operation does not belong to the industrial sector, the hotel is interesting for the reason, that the source of absorption cooling is the heat gained in solar collectors again. The collectors are vacuum tubular ones with direct warming-up of circulation glycolic blend and of the total area of 448 m<sup>2</sup>. The source of coldness for air-conditioning of hotel rooms is the absorbing cooling unit Carrier of max. input of approx. 800 kW. In case of the lack of solar energy the heat is used from heating plant Prague (Pražská teplárenská) or from the gas

fired boiler house. In winter, when there is no need to cool, the heat from collectors is used for warm water preparation. Solar energy is accumulated in 8 boilers of the total capacity of 15,2 m<sup>3</sup>.

Other characteristics:

- May to September: operation primarily for cooling – heating up to 80 – 90 °C
- October to April: operation mainly for heating of swimming pool water and water pre-heating up to 40 °C

The total annual profit from collector area is 973 GJ, 592 GJ is for cooling. Specific energy profit is 533 kWh/ m<sup>2</sup>.

The peak output of the system proved in practice is 200 kW. The maximum cooling output for hotel room cooling is about 300 kW.

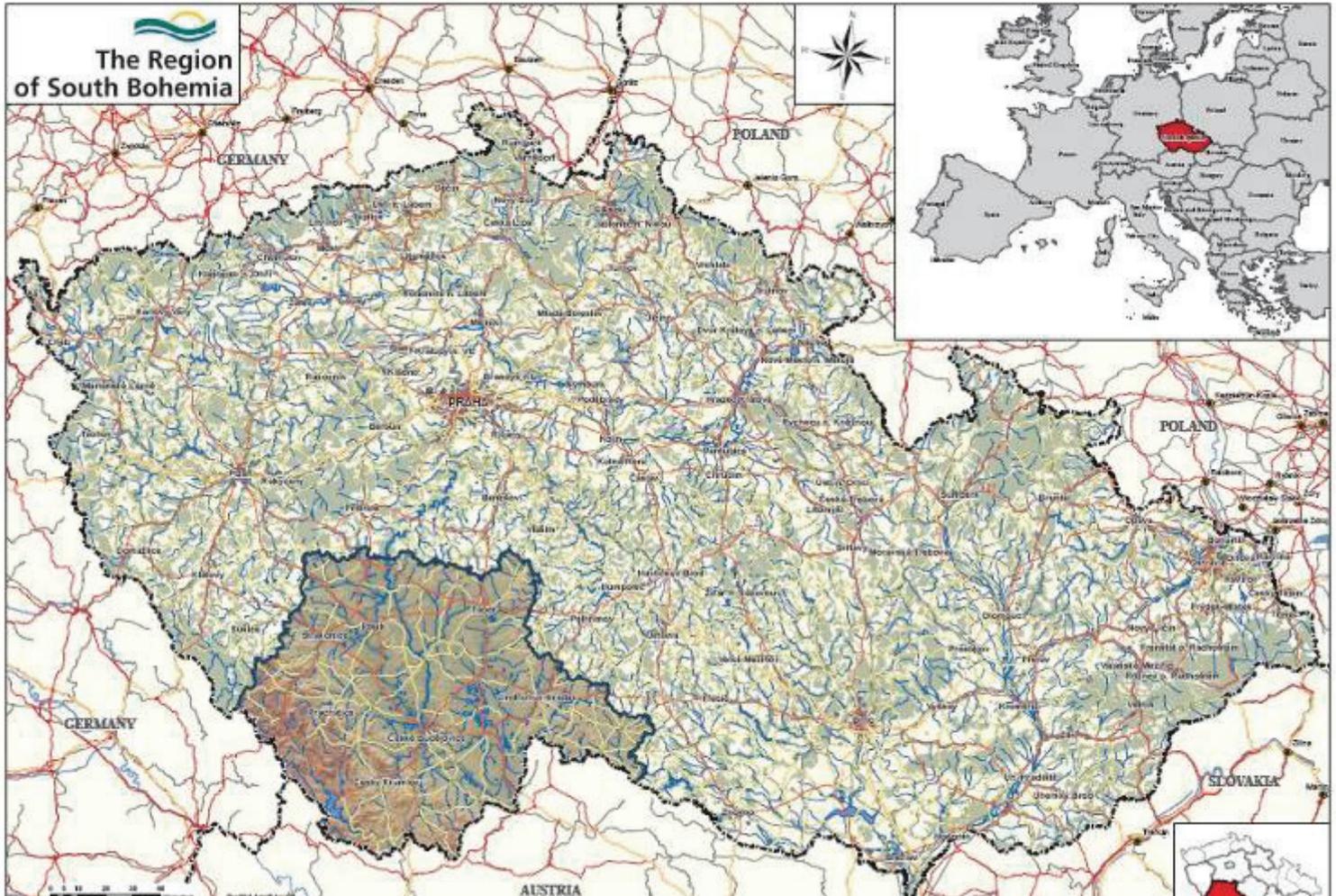
Information source: [www.tscr.cz](http://www.tscr.cz)

There is a lot of installations in operation, e.g. for kitchens, for swimming baths and swimming pools. These operations do not directly belong to the industrial use.

In the industrial operations there is often enough waste heat, that is possible to gain back quite easily and to re-use it (heat recovery etc.). There is a long-term payback period by/for solar installations. With regard to the reached temperatures the water suits only for washing. Higher temperatures (over 100 °C) would be possible to reach with tubular collectors of high quality.

## INDUSTRIAL SECTORS OF SPECIAL INTEREST

### Main relevant sectors (with some statistics)



The South Bohemian economy is largely based on the utilization of local sources of raw materials, which contributed to the development of wood-processing, paper-making, glass-making, ceramic and building materials industries. The textile industry and the production of pencils were also of importance. The food industry processing products of local agriculture established itself markedly (brewery, milk and meat industries). Currently the most important branches according to the added value are manufacturing industry (mostly food and drink production, production of vehicles and traffic facilities), trade; repairing of vehicles and products for personal need – predominantly for household and activities in the area of real estate and lease; business activities.

That's why the main relevant sectors seem: manufacturing industry, textile industry, brewery and milk and meat industries.

*Basic indicators of the industry: Czech Republic/South Bohemia 2008 (enterprises with 100 employees or more with head office in the region)*

	Average number of enterprises	Sales of own goods and services incidental to industry (current prices)			Average registered number of employees (actual persons)	Average monthly gross wages per employee (CZK)
		Total (CZK million)	Sales of direct export (%)	Per employee (CZK thousand)		
<b>Czech Republic</b>	<b>2 585</b>	<b>2 804 780</b>	<b>49,4</b>	<b>3 067</b>	<b>914 564</b>	<b>23 598</b>
<b>South Bohemian region</b>	<b>170</b>	<b>128 973</b>	<b>47,8</b>	<b>2 437</b>	<b>52 918</b>	<b>22 058</b>

	Average number of enterprises: by CZ-NACE (Enterprises with 100 or more employees with head office in the region)
CZ-NACE	2008
<b>Industry, total</b>	<b>170</b>
<b>Manufacturing</b>	<b>161</b>
<i>Manufacture of food products, beverages and tobacco</i>	22
<i>Manufacture of textiles and textile products</i>	9
<i>Manufacture of wood and wood products</i>	7
<i>Manufacture of pulp, paper and paper products, publishing and printing</i>	6
<i>Manufacture of rubber and plastic products</i>	15
<i>Manufacture of other non-metallic mineral products</i>	7
<i>Manufacture of basic metals and fabricated metal products</i>	21
<i>Manufacture of machinery and equipment n.e.c.</i>	24
<i>Manufacture of electrical and optical equipment</i>	24
<i>Manufacture of transport equipment</i>	12
<i>Manufacturing n.e.c.</i>	11
<b>Electricity, gas and water supply</b>	<b>7</b>



by respective companies, unused areas are owned by private entities and by the municipality who offer ca 0.125 km<sup>2</sup> to potential investors.

#### **Chotoviny – 0,37 km<sup>2</sup>**

The areas are situated West of Chotovin and are marked off in the place of the in-progress D3 and road I/3 (II/603). A small part of the IZ is in use. Companies represented in the IZ: Latop, s.r.o. - pellets manufacturer; Leyer Graf, s.r.o. - concrete mixing plant; Pěknice, Čáp - vehicles, caravan centre; DBD Control Systems, s.r.o. - supplier of technical equipment for buildings; Autobaterie Tollinger - car batteries. The land is owned mainly by private entities.

#### **Jindřichův Hradec – 0,22 km<sup>2</sup>**

The site on the Southeastern edge of the city in the locality "Fedrpus" is marked off between roads I/34 and II/128, in the East it is marked off by a water area and a water course. In using the site it is necessary to respect grounds that are utilized by the army. The industrial zone is in the stage of planning, it is proposed in the municipal LP. Amendment No. 10 to the land use plan was approved in 2006, reducing the IZ grounds by environmental protection area. The land is owned mainly by private entities.

#### **Kaplice – 0,21 km<sup>2</sup>**

The areas are marked off primarily along the Western side of road I/3, in the East they are bordered by a built-up area of Kaplice and road I/3, in the East by the proposed R3 and a class III road in the direction of Stradov and in the direction of Horsov. The industrial zone is beginning to be used. Alu.Plast, s.r.o. - manufacturer of plastic and aluminium windows, doors, walls, plastic fences and pergolas operates here. The land is owned by private entities.

#### **Písek – northern industrial part Čížovská – 0,626 km<sup>2</sup>**

The locality is situated on the northwest outskirts of the city Písek in close proximity to the road I/20 (direction Ceske Budejovice - Plzen) and the road I/4 (direction Prague - Strakonice). Greater part of the IZ is already being used. Investors in the IZ: ČMO - České a moravské obalovny, s.r.o. (CZ) - bitumen compounds packaging plant; Schneider Electric, a.s. (F) - electric equipment production; HEYCO WERK ČR, s.r.o. (D) - automotive industry; s.n.o.p. cz, a.s. (F) - automotive industry; BROTEX Z & J, s.r.o. (CZ) - textile industry; AISIN EUROPE MANUFACTURING CZECH, s.r.o. (J) - automotive industry; I.n.p. Písek, s.r.o. (CZ) - under construction; CSS spedition, s.r.o. (CZ) - under construction. Land owners: municipality 39%, state 9%, private owners 52%.

#### **Planá nad Lužnicí - 0,42 km<sup>2</sup>**

The locality is found in the northern part of the municipality Plana nad Luznici along road II/409 and in close proximity to road E55, which connects Prague to Austrian Linz. The IZ is already partially in use. Companies located in the IZ: Alvarak Group, s.r.o. - greeting cards and cardboard production; Stachema Kolín, spol. s.r.o. - building chemistry production; HCS Centrum, s.r.o. - container and platform body production, lifting and stretching equipment assembly and servicing; Wace, s.r.o. - distributor for Wagner, varnishing equipment; COLAS CZ, s.r.o.; Jan Nevšimal-JANEV - road signs. The IZ is owned by private entities.

#### **Protivín – 0,4 km<sup>2</sup>**

The locality is situated on the northern outskirts of Protivin, is bordered by the Strakonice - Protivin - Ceske Budejovice railway from the southwest, and by road I/20 (E49) from the east. A small part of the IZ is already in use. Companies located in the IZ: Bramac s.r.o. Prague - roofing material manufacturer; another 3 smaller enterprises. The land is owned by private entities.

**Sedlice – 0,24 km<sup>2</sup>**

The locality adjoins the built-up area of municipality Sedlice from the northwest and is outlined by existing road I/20 and proposed rerouting of road I/20. "Ovcin" area is located southeast of the built-up area and is outlined by road No. 173 Sedlice - Strakonice and railway track No. 203. The industrial zones are in the stage of planning and preparatory works. The IZs are owned by the municipality Sedlice.

**Soběslav - 0,38 km<sup>2</sup>**

In the Southeast the area ties onto a built-up area of Sobeslav, in the East it is bordered off by the proposed highway D3. The industrial zone adjoins existing manufacturing premises. The IZ is in the preparatory stage, land for road network is being purchased. The land is owned by the municipality Soběslav (minority owner) and private entities.

**Strakonice – U Hajské – 0,67 km<sup>2</sup>**

The locality is found in the Southeast part of the city of Strakonice in close proximity to road I/22 (direction Plzen - Ceske Budejovice). From the North it is partially marked off by the railway track Strakonice - Ceske Budejovice and by a branch of the Otava River. The industrial zone is in preparatory stage; project documentation for roads and distribution systems is being created. The land is owned by the municipality Strakonice and private entities.

**Střítěž – Kaplice – nádraží - 0,55 km<sup>2</sup>**

The areas are marked off along both sides of the existing road I/3 between the settlements Raven and Kaplice Nadrazi, in the East they are bordered off by the proposed R3, in the West by the proposed railway corridor IV. No investments have been made in the industrial zone. So far open spaces without buildings are privately owned.

**Tábor – Čekanice – 0,42 km<sup>2</sup>**

The locality lies on the Northern edge of Tabor, from the South it is marked off by class I road no. 19, from East to West it is intersected by railway track Tabor - Prague. The industrial zone adjoins existing manufacturing premises. So far open unused areas are owned by private entities.

**Tábor – Vožická – 0,45 km<sup>2</sup>**

A locality designated for industrial production, it lies in the Northeastern part of the city Tabor along road II/137 in the direction Tabor - Mlada Vozice, in close proximity to the under-construction highway D3 and tying in to an existing industrial build-up around Vozicka Street. The total developmental possibilities of the locality reach 157 ha, under current preparations the central core area is circa 24 ha. The industrial zone adjoins existing manufacturing premises. So far open unused areas are mostly owned by the municipality Tábor. The IZ is in the stage of preparation.

**Týn nad Vltavou – 0,29 km<sup>2</sup>**

The area ties onto the Southern edge of a built-up area of Týn nad Vltavou, on the Northwest it is bordered off by road II/105, in the Southeast by a local road and in the Southwest it is cut off by forested areas. Smaller part of the industrial zone is in use. Companies located in the IZ: Jihočeská strojírenská, s.r.o. - automotive machinery parts and household appliance parts manufacturer; Fill Interiér, s.r.o. - interior furniture manufacturer; Wendi, spol. s.r.o. - realization, assembly and supply of heat exchanger units and heating systems; Petr Vlk - service centre. The land is owned by private entities.

**Veselí nad Lužnicí – Hybešova čtvrt', Machovka, Rekord – 0,52 km<sup>2</sup>**

The locality is found on the southwest outskirts of the city Veseli nad Luznici (the existing industrial zones are situated on the northern outskirts of the city), along the second category road No. 603. Along the northeast it is bordered by a built-up area, from the west by the

proposed rerouting of I/3 (D3), from the south by the Ceske Budejovice - Veseli N. L. - Sobeslav rail and borders Trebonsko Protected Reserve.

New municipal land use plan is being designed outlining a smaller development area for industrial utilization along the city by-pass. Industrial zones Hybešova čtvrť, Machovka and Rekord are existing zones in use, located along the north and northwest edges of the city and outlined in the effective LP ML Veselí nad Lužnicí.

#### **Vodňany – 0,585 km<sup>2</sup>**

The areas are marked off on the Eastern edge of Vodňany between the border of a built-up area and road I/20, in the Southwest edge of Vodňany the site is partially marked off by a railway. The municipal industrial zone, divided into several sections among the existing manufacturing premises, is beginning to be used. Companies located in the IZ: JAF HOLZ spol. s.r.o. - sale of large surface materials, timber and veneers; A. Pöttinger, spol. s.r.o. - agricultural machinery manufacturer. The IZ is owned mainly by private entities, a small part is owned by the municipality Vodňany and other corporate bodies.

#### **Likely solar process heat applications already identified (to be further defined and finalised based on the results of the screening)**

1. Kovotex, cooperative society of disabled people, České Budějovice
2. Fezko Strakonice
3. Retirement home Dobrá Voda near České Budějovice
4. Würth Elektronik iBE CZ Ltd.
5. JIP – Stationery manufactory Větrní Inc.
6. AGRO-LA Ltd., Jindřichův Hradec

#### **Regional approach to companies or screenings and for pilot projects (based on draft texts already sent on “approach to companies”), including the selection criteria for companies**

First of all industrial companies that made use of energy consultancy of ECCB in the past have been addressed. The first step is addressing a person who is responsible for the energetics of the company per telephone. In case of smaller companies we speak directly to the owner of the company. The European programme So-Pro is shortly introduced per telephone. There is a positive experience from the previous personal contacts with the persons involved and from the previous cooperation.

As the next step, over 500 industrial companies were addressed with a letter where we offered them a free energy screening. Approx. 10 companies have reacted to this letter and were interested in the energy screening. Nevertheless the interest was not so big, that is why we had to contact some companies also by telephone.

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

The informedness of supply companies about the So-Pro project can be of importance – both for gaining information about companies interested in an application of solar process heat and companies suitable for being addressed.

## **MARKET DEVELOPMENT**

### **Some thoughts on the market potential for solar process heat and expected market developments**

The attitude of the addressed companies to the So-Pro project can be assessed as overall positive. The companies are interested in solving their energy situation. Nevertheless some companies have temporary problems with ensuring the functioning of the company which are caused by persistent economic crisis. It results from the questions of addressed companies, that it would be good to consider the creation of new subsidy programme in EU as a support of realization of solar thermal systems in industry.

If the small and medium sized enterprises in South Bohemia are motivated with some subsidy programmes for So-Pro installation, we can assume, that there will be approx. 10 installations realized in the region within 5 years.

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

Industrial plants often have a big amount of waste heat, which is the reason why the installation of solar thermal systems is not a good alternative. It can be various industrial processes – pressure casting, cutting operation etc. or heating processes with pressure-vapour, where the waste heat is the energy from aftercooling of the condensate. Compressor stations are also an important source of waste heat, particularly with water cooled compressors.