

Publishable Report

TRANS-SOLAR

March 2010



TRANSFER OF EXPERIENCE FOR THE DEVELOPMENT OF SOLAR THERMAL PRODUCTS

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1. PROJECT DESCRIPTION

Although a lot of information is available on the internet as well as from other sources, this cannot replace personal interaction and feedback between participants in connection with the transfer of experience between actors (manufacturers and installers) from the mature solar thermal markets to the emerging ones. National workshops organized within the framework of this project have provided information adapted to local conditions and also meeting the requirements of manufacturers, installers and relevant policy makers. The information provided consisted of up-to-date technical, marketing and policy knowledge to help promote the development of national solar thermal markets (i.e. Bulgaria, Romania, Poland, Slovenia, Croatia, Czech Republic and Hungary). In addition, local markets and industry will be strengthened through the dissemination of the new European standards and the Solar Keymark certification scheme; this will also result in a greater integration of the European market.

1.1. SUMMARY

Although the solar thermal sector continues to grow, the target set by the White Paper objectives will be difficult to be met for 2010. While Germany, Austria, Greece and the very active Cyprus, represent 77.3% of the overall solar thermal capacity installed in Europe, these countries represent only 22.5% of the EU-27 population. It is therefore evident that the balanced development of solar thermal market in all EU-27 is highly desirable. Support given primarily to the national manufacturers and installers and secondarily to key policy makers in the new European markets will enhance their capabilities and help them overcome some of the existing barriers.

Today we can find plenty of information in the internet. Though this information is disperse and does not address necessarily the information needs of companies dealing or willing to deal with solar thermal in new member states. Therefore, in order to put together a process to compile and disseminate such focused information the personal communication and feedback between the participants in a project as Trans-solar was essential. From the preparation of country reports to the organization of national workshops, the project contribute to increase the awareness about the local conditions and needs of the local manufacturers, installers and selected policy makers in Bulgaria, Romania, Poland, Slovenia, Croatia, Czech Republic and Hungary. Furthermore, this information included also relevant and up to date technical, marketing and policy knowledge for the development of the national thermal markets, as well as for the new European Standards and the Solar Keymark certification scheme.

1.2. PROJECT OBJECTIVES



picture 1: Unglazed solar collectors at Hotel Žusterna
(Source: Slovenian National Report)

The project objectives are:

To transfer

- to the manufacturers and installers experience from the most developed European solar thermal markets to the least developed ones

To disseminate

- the latest information about European Standards, certification schemes (Solar Keymark) and to promote policies for solar thermal products to selected target groups in these countries

To promote

- networking and create business links between the most and least developed European markets

Capacity building

- of national solar thermal associations of manufacturers/installers in order to strengthen their presence in the national and European markets.



picture 2: Typical DHW system for a single family house
(Source: FME-Diploma work)

The project **worked out the following issues:**

Assessment

- of the least developed markets for solar thermal in Eastern and Central European countries (standards, local conditions, policy, etc)

Communication

- with local manufacturers /installers and recording of their needs and problems

Developing

- of tailored made informational packages regarding European Standards technical and marketing information, references guidelines and national associations' codes and procedures according to local needs

Organization

- of national events targeted primarily to local manufacturers/installers and secondarily to policy actors and others

Networking

- the manufacturers/installers in these countries with their colleagues in the countries with the most developed markets through the creation of lists of contacts (database) and business missions in combination to the workshops.

1.3. TARGET GROUPS AND KEY ACTORS

The project addressed directly the solar thermal communities in Bulgaria, Romania, Poland, Slovenia, Croatia, Czech Republic and Hungary.

The primary target group consisted of:

- installers in each of the project countries including project developers and possible newcomers in the sector organized or not in the form of local/national association
- Local manufacturers of systems or parts and related businesses planning to expand in this sector forming or not a national / local association

- Solar thermal experts in the target countries (engineers, scientists, researchers, marketing experts, consultants)
- Selected policy makers from government /public institutes concerning experts for national standards for the solar thermal sector and authors for national financing/incentives

The secondary target group consisted of business developers of industrialists / manufacturers that they want to expand their business in these countries.

State of the art experts from the solar thermal sector including heads of solar thermal associations, senior experts for innovative solar thermal technologies, solar thermal and European standards and certification experts are among other Key Actors.



1.4. LOCATION

The targeted countries of the project are Bulgaria, Romania, Czech Republic, Croatia, Poland, Hungary and Slovenia. The consortium also includes the core partners from Greece, Austria and ESTIF, the European Solar Thermal Industry Federation, based in Belgium but which has members from all over Europe. So, one could say that the project covered the entire European territory.



2. RESULTS

2.1. SUMMARY OF RESULTS

The project succeeded in 26 months, to:

- Provide local solar thermal communities in the seven targeted countries with up to date information concerning solar thermal with emphasis to market issues, innovative technologies and European standards and Solar Keymark certification
- Enhance the networking between ESTIF and national associations, create business links and provide national and European contacts to interested parties
- Provide other interested countries as well as Commission with up to date information on solar thermal markets in the 7 countries as well as their problems and their needs

2.2. IMPACT IN A LONGER RUN – AFTER THE END OF THE ACTION

In the long run, the project is thought to:

- Remove significant market barriers from Bulgaria, Poland, Slovenia, Croatia, Romania, Hungary and Czech Republic related to product, technology developments and marketing issues. Enhance the market penetration of quality and certified new products
- Enhance the capacity of local associations
- Create business links and collaborations between manufacturers from the most developed markets and the manufacturers/installers of the target countries

3. SPECIFIC RESULTS RELATED TO PROJECT DELIVERABLES:

3.1. NATIONAL REPORTS

One of the first actions during the project was the collection of information for the assessment of local conditions and needs for the solar thermal markets through existing resources and its update through communication with the local actors. This information was collected for each of the targeted countries through national reports, EC resources, associations, etc and includes the size of the market, type and technical characteristic of installations, standards and certification procedures used, and supporting incentives. Besides,

the needs and the problems of the local manufacturers /installers were recorded. The national reports exist in English and the 7 national languages.



1. Czech Republic National Report



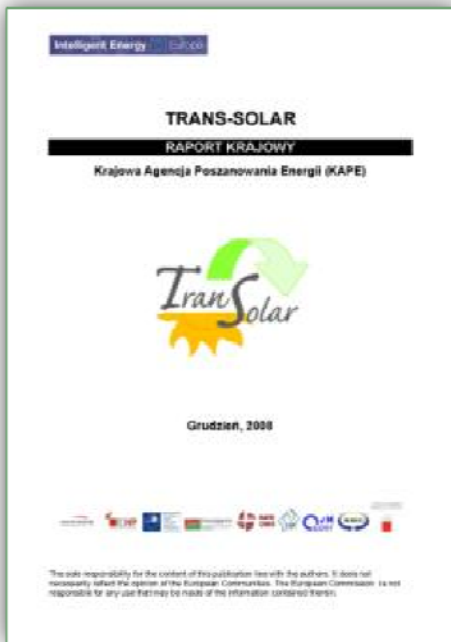
2. Bulgarian National Report



3. Croatian National Report



4. Hungarian National Report



5. Polish National Report



6. Slovenian National Report

3.2. INFORMATION PACKAGES

- Prior to the organisation of the events, the project team elaborated a common and seven specific information packages. These packages include information in the form of presentations on innovative technologies, on product development, on market issues, on policy and incentives, on European Standards and Solar keymark certification procedures. **Specific Information Packages**



Croatia



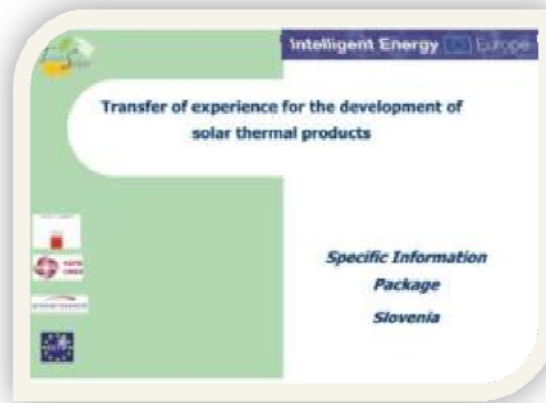
Hungary



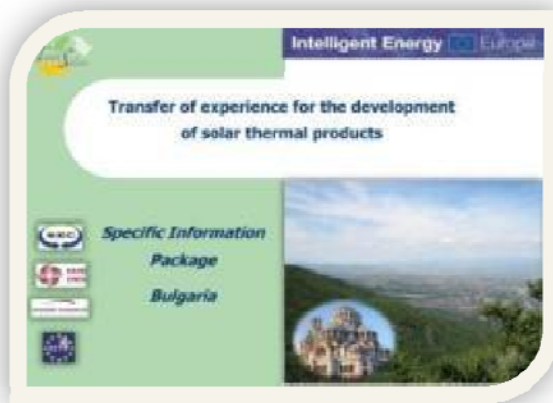
Czech Republic



Poland



Slovenia



Bulgaria



Romania

3.3. NATIONAL EVENTS: WORKSHOPS & BUSINESS MISSIONS

Each partner in the targeted countries organised a two day event: workshop and business mission aiming to the dissemination of the project findings, creation of business links and enhancement of the capacity of the national associations in solar thermal sector. During the whole period, 7 workshops and business missions were realised.



Banner from the event in Czech Republic



Promotional material from the event in Hungary

Promotional material varied from country to country while general leaflet has been prepared by CRES (see following).



Photos from the national event in Bulgaria

The announcement of the Croatian event



3.4. FACT SHEETS-EVENTS CALENDAR-DATA BASE

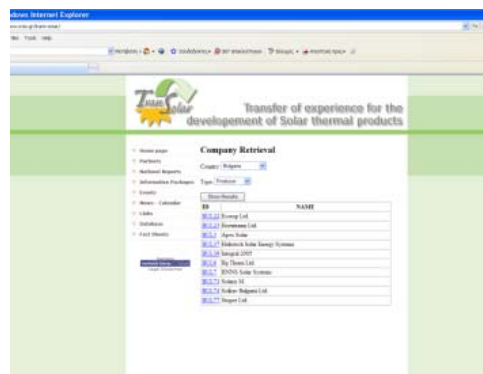
In order to ensure greater impact of the project in terms of dissemination, exchange of experience between national and European market actors, creation of business links and enhancement of the capacity of the national associations, the consortium decided to:

- produce 7 fact sheets with national information based on the national reports;
- to design a database with market actors in the targeted countries;
- to upload a calendar with the most relevant events in the sector, and;
- to distribute questionnaires in order to record the needs of the market sector and evaluate the results of the project events.

* **Fact sheets:** (<http://www.cres.gr/trans-solar/sheets.htm>)



* **Data base:** (<http://www.cres.gr/trans-solar-db>)



* **Events calendar:** (<http://www.cres.gr/trans-solar/news.htm>)



3.5. PROJECT WEBSITE

CRES has the developed the project site (www.cres.gr/trans-solar) where one can find all the above mentioned information



More specifically the menu has as following:

Home page: General project info	Partners: Project partners	National reports: National reports in English and national languages
Information packages: 7 specific and the common information package	Events: Project events along with final programs and presentations	News-Calendar: Calendar of events relative to project aims
Fact sheets: 7 country fact sheets	Database: Database with contacts in each participating country in solar thermal sector	Links: Useful links

3.6. PUBLICATIONS-ARTICLES

The consortium during the event duration has disseminated the project with various means: publication of articles in technical magazines and websites, TV and radio interviews, announcements for the events etc.

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ΕΤΕΧΝΙΚΑ
ΑΥΓΟΥΣΤΟΣ - ΣΕΠΤΕΜΒΡΙΟΣ 2009



**ΚΑΠΕ
CRES** | ΚΕΝΤΡΟ ΑΝΑΝΕΩΣΙΜΩΝ ΠΗΓΩΝ
ΚΑΙ ΕΞΟΙΚΟΝΟΜΗΣΗΣ ΕΝΕΡΓΕΙΑΣ

Σ4Μ

Η ΑΓΟΡΑ ΤΩΝ ΘΕΡΜΙΚΩΝ ΗΛΙΑΚΩΝ ΣΥΣΤΗΜΑΤΩΝ ΣΤΗΝ ΕΥΡΩΠΗ

Αν και η αγορά των θερμικών ηλιακών συστημάτων συνεχίζει να αναπτύσσεται, οι στόχοι που έχουν τεθεί στην Ευρωπαϊκή Ένωση είναι δύσκολο να επιτευχθούν μέχρι το 2010. Η Γερμανία, η Αυστρία, η Ελλάδα και η πολύ ενεργή στον τομέα Κύπρος, αντιπροσωπεύουν το 77,3% της Ευρωπαϊκής δυναμικότητας στα θερμικά ηλιακά που αντιπροσώπευε στο 22,5% του πληθυσμού της Ευρώπης. Είναι φανερό ότι μια πιο ισορροπημένη ανάπτυξη στην Ευρώπη των 25 είναι ο επεμβατικός στόχος. Σε αυτή την κατεύθυνση θα συμβάλει η υποστήριξη των κατασκευαστών και των εγκαταστάσεων σε κάθε χώρα, όπως άλλωστε και των υπεύθυνων για θέματα πολιτικής της αγοράς έτσι ώστε να αυξηθούν οι δυνατότητες και να ξεπεραστούν τα εμπόδια.



Το πρόγραμμα Ευρωπαϊκής Ενέργειας για την Ευρώπη (Intelligent Energy for Europe) συγχρηματοδοτεί το έργο **TRANS-SOLAR**, που αποσκοπεί στην μεταφορά εμπειρίας για την ανάπτυξη της αγοράς θερμικών ηλιακών συστημάτων στις χώρες της Ευρωπαϊκής Ένωσης. Το έργο συντονίζεται το **Κέντρο Ανανεώσιμων Πηγών και Εξοικονόμησης Ενέργειας-ΚΑΠΕ**, ενώ στην βασική ομάδα των εταίρων συμμετέχουν η **Ευρωπαϊκή Ένωση Βιομηχανικών Ηλιακής Ενέργειας - ESTIF** και η εδραζομένη σε θέματα ηλιακών συστημάτων στη Γερμανία εταιρεία **ARSENAL**. Οι χώρες στις οποίες εστιάζει το έργο είναι η Βουλγαρία, η Ρουμανία, η Τσεχία, η Πολωνία, η Σλοβενία, η Κροατία και η Ουγγαρία και η πληροφόρηση που παράγει καλύπτει θέματα τεχνολογίας, Ευρωπαϊκών προτύπων, πιστοποίησης αλλά και θέματα marketing και πολιτικής στις προαναφερθείσες χώρες. Επίσης, η ανάπτυξη συνεργασιών μεταξύ των επιχειρήσεων στην Ευρώπη και η δικτύωσή τους είναι ο στόχος των επιχειρηματικών αποστολών που θα οργανωθούν.

Αναλυτικότερα, προβλέπεται η διοργάνωση 7 6-ημεριών σε κάθε μια από τις συμμετέχουσες στο έργο χώρες. Η πρώτη ημέρα θα περιλαμβάνει παρουσιάσεις σχετικό με κατασκευαστικά ζητήματα, θέματα τεχνολογίας ανάπτυξης προϊόντων, marketing και πολιτικής, Ευρωπαϊκά πρότυπα και τις διαδικασίες πιστοποίησης Solar Key mark. Η δεύτερη ημέρα θα έχει τη μορφή επιχειρηματικής αποστολής όπου θα υπάρξουν παρουσιάσεις επιχειρήσεων, διμερείς επαφές των ενδιαφερομένων κ.λπ.

Η πρώτη εκδήλωση διοργανώθηκε στην Πράγα, στις 26-27 Φεβρουαρίου 2009, η δεύτερη στις 16-17 Απριλίου 2009 στη Βουδαπέστη και ακολούθησε μια στις 23-24 Απριλίου 2009 στο Ζάγκρεμπ. Περισσότερες πληροφορίες για το έργο και τις επόμενες εκδηλώσεις είναι διαθέσιμες στην ιστοσελίδα: www.cres.gr/trans-solar ή στο ΚΑΠΕ.




<p>Συντονιστής: Κέντρο Ανανεώσιμων Πηγών & Εξοικονόμησης Ενέργειας-ΚΑΠΕ κα Κική Παπαδοπούλου E-mail: kpaped@cres.gr Τηλ: +30 210 6603310</p>
<p>Εταίροι: European Solar Thermal Industry Federation asbl (ESTIF) Österreichisches Forschungs- und ProZentrum Arsenal Gesellschaft m.b.H. (ARSENAL) Solar Energy Centre (SEC) Oskar Von Miller - Institut De Conceptie, Cercetare si Proiectare Echipamente Termoenergetica SA (OVM-ICCPET) Krajova Agencija Poszanovanja Energij S.A. (KAPE) Univerza v Ljubljani (UNI-LJ) Energeticki Institut Hrivoje Poljar (EIHP) CITYPLAN spol. s r.o. (CITYPLAN) Innoterm Energetikai és Környezetvédelmi Fejlesztő Kft. (Innoterm Energetics)</p>



An article prepared by CRES to the technical magazine "ΤΕΧΝΙΚΑ"



Sajmovi

kasnjem 22. travnja održano savjetovanje o buci na radnom mjestu.

Savjetovanje je organizirala Udruga za promicanje zaštite ljudi u radnoj i životnoj okolini. Organizacijsko savjetovanje ing. Fran Matević je među ostalim iznio zanimljive podatke da je od tri i pol milijuna stanovnika u Mađarskoj 800 tisuća ljudi izloženo pretjeranoj buci, a da čak 500 tisuća Mađarima ima problema sa sluhom.

Doktorica Ana Bogadi Szek, specijalistkinja medicine rada, iznijela je brojne podatke o oštećenjima sluha bucom. U Sjedinjenim Državama 20 posto radne populacije ima takva oštećenja, a u Europskoj uniji 7 posto, a u Hrvatskoj 5 posto zaposlenih ima profesionalna bolest preslušane bucom. U Sjedinjenim Državama 20 posto radnika izloženo je buci većoj od 90 decibela, a u Europskoj uniji 20 posto radne populacije izloženo je buci otpusnoj po zdravlje. Prekomjerna buka dovodi do povećanja ravnosti, snižava krvni tlak, do porasta krvnog tlaka, smanjuje radnu učinkovitost, uzrokuje tjeskobu i dovodi do oštećenja sluha.

Fran Matević u ovom je izlaganju istaknuo da su svi hrvatski poslovi zaštite na radu iz područja projektiranja uključeni u direktivama i propisima Europske unije.

Zeljka Sutić govoreći o arhitektonskom projektiranju zgrada i prostora u odnosu na buku na radnom mjestu spomenuo je i prvi slučaj osnivanja bucom koji je zabilježen 1378. zbog radionice oružja čija je buka tresla pregradne stube i zgrade. Već 1811. zabilježen je slučaj kad je kovač bio prisiljen ukloniti svoju kovačnicu iz stambene zone. Potomci je objavljen Zakon o zaštiti od buke posebice u vezi s projektiranjem mjesta za postavljanje povoljne akustike prostora i o uključivanju problema u sportskim objektima te u objektima kulture i zdravstva. O takvim aspektima

govorio je i Matej Bilal s posebnim osvrtom na urede i obrazovne institucije.

Alan Šimac je dio ovog izlaganja povestio karumu buke. Karu buke jest pokor postojećeg ili predviđenog stanja buke na određenom prostoru.

Davor Paj govoreći je o osobitim zahtjevima studiranja od buke posebice na različitost. Među ostalim spomenuo je da je zbog oštećenja na radu u Hrvatskoj izgubljeno gotovo 1,5 milijun radnih dana.

Energijska učinkovitosti i IC termografija

Velikoporička je tvrtka Profitec 25. travnja održala stručni skup za gradnje i energijsku učinkovitost i IC termografiju u graditeljstvu. Direktor tvrtke Aleksandar Taver spomenuo je prisutne u paketu proizvoda koje nude na hrvatskom tržištu, a u stručnom dijelu u prostorima i energetskoj učinkovitosti govorio je Zoran Verbić, viši profesor na Arhitektonskom fakultetu Sveučilišta u Zagrebu. O IC termografiji u zgradarstvu predavao je održao Božidar Šerić, izvršni direktor iz tvrtke Fort Interopring iz Varaždina. Na prisutne zgrade Gradnje uprave grada Puleca prikazane su različite vrste gradnje prije i poslije razmjene stolarije, pokazane su i analize IC termografske slike.

Radionica TRANS-SOLAR

Radionica stanovitog projekta *Intelligent energy Europe TRANS-SOLAR* Prijemne energetske tehnologije u razvoju i ispitivanju solarnih kolektora održana je 24. travnja. Organizator te međunarodne konferencije je Energetski institut Hrvatske Profitec u suradnji s grupom agencija CREC. Na početnoj konferenciji govoreći je voditelj projekta Marko Pavonić. O studijama koje je provodio Institut u solarnoj energiji govoreći je dr. sc. Branka Jelenc. Svjetsko-međunarodna izdanja prva je počela sulvanacirati

gradnja solarnih kolektora za gradnje sa 20 posto izvane instalacije. Taj je projekat pokrenut 2008., a nastavlja se i u 2009. O postavljanju solarnih kolektora kod fizičkih osoba u Karlovačkoj županiji govoreći je Ivan Petić. Karlovačka županija počinje taj program 2009., a sulvanacirati će 40 posto vrijednost ugradnje instalacije.

Hrvatska stručna udruženja za solarnu energiju predavao je dr. sc. Ilija Mladinić koji je govoreći o solarnim sustavima krovna u zajedničkom nastupu Španjolske. O stanovitom tržištu solarnih kolektora govoreći je Pedro Dias, a stanje hladnjača solarnih kolektora obradila je ing. Isabela Santolucila iz Grike. Sudionici međunarodne konferencije TRANS-SOLAR sudjelovali su i drugo zanimljiva izlaganja o primjeni solarne energije.

Dvadeseti međunarodni simpozij o grijanju, hladnjači i klimatizaciji te 9. konferencija o termografiji

U sklopu sajma *Inter-Climate*, na međunarodnom simpoziju o grijanju, hladnjači i klimatizaciji te konferenciji o termografiji, raspravljalo se o promjenama u zakonodavstvu i primjeni europskih direktiva u energetskim značajkama zgrada. Prva riječima Nade Mardelke Štanić iz MZUPUG-a, radi se o dopunjenom procesu i stabilnim mjerama u dizajnu tehnoloških. Kako zakonodavstvo u većini je prilagođeno Europi ali podrazumijeva se i prilagodbu svih propisa u cijelosti. Na to su nadovezali i metodologija energetskih značajki zgrada u čitavom govoru Zeljka Her-Borković i Margareta Zalat, dok je Davor Kozopović izvijestio o iskustvima u stvaranju projekta energetske učinkovitosti po ENCO (Energy Service Company) modelu u školskim zgradama.

Slovenija je prvi dostigla propis koji je dosta glasnija od naših projekata

An article prepared by EIHP to the technical magazine "GRADEVINAR"

4. CONCLUSIONS AND RECOMMENDATIONS

The main conclusions of the action are:

1. In most of the countries examined the market is growing – the yearly installed solar collectors are increasing every year
2. There is a lot of interest for best practices, innovative technologies as well as for standardization and certification issues
3. In most of the countries, there are no national market associations and, where it exists, the interest for exchange of experience with other European associations and ESTIF is high

The project identified that in these countries the solar thermal market has been constantly growing and in many cases with significant new installed solar collectors every year. Despite this, the potential for market growth remains very high. Within the barriers identified, it must be highlighted the negative impact of previous bad practices and bad experiences for costumers. These are attributed to poor quality of installations and maintenance, which raises the problem of lack of experienced technical staff. Another barrier commonly identified is the lack of incentives in these countries. In several cases, there is a clear identified interest for solar thermal, but the upfront costs of the investment constitute an impediment particularly in countries with lower than (EU) average income per capita. Therefore the financial incentives would be a major driving force, as it has been observed in other countries and also in these countries with other solutions, such as PV.

One of the challenges the project was not able to address, at least up to the initial expectations, was the establishment of business links between players from the project countries and businesses from other European countries. In spite of the interest for the exchange of experience and creation of business links – confirmed by interviews with market actors during the project - the participation at the business missions was not the expected, both from the national and the European level. One of the main reasons identified for the lower participation of foreign companies was the reduction of costs (namely travel costs) due to the economic crisis. In parallel, companies restricted and plan more in advance their participation in events abroad, in particular when aiming at identifying local partners. On the other hand, the project identified the need to have more information on these markets available, including information on existing players in each countries and relevant events that companies can use for their promotion and to establish contacts.

Concluding, there is a clear potential for the development of solar thermal in the countries examined, namely Bulgaria, Romania, Poland, Czech Republic, Slovenia, Hungary and Poland. The project achieved to map the situation in these countries with the elaboration of the national reports, the preparation of factsheets and the analysis of the questionnaires. It has also collected relevant contacts, included in the national reports and in a database. All these items, in combination with the project website could be a very useful tool to anyone who would like to invest, cooperate, exchange

experience, and learn about the solar thermal market in these countries. The project team believes that these tools will help businesses to have clear and focused information on the solar thermal markets, supporting them in a more effective approach to these markets. And that this information will continue to produce the results the project aimed at well beyond the project duration.

5. CONSORTIUM

PARTNERS



ESTIF-European Solar Thermal Industry Federation

ESTIF counts among its member's 17 national or regional solar thermal associations and over 70 key manufacturers, research institutes and service providers involved in the solar thermal market. The members of ESTIF jointly constitute the large majority of the solar thermal (ST) market in Europe.

ESTIF is one of the key centres of competence and knowledge about ST technologies, markets and policies. ESTIF is widely recognised as the voice of solar thermal sector in Europe. Recommendations of ESTIF are taken very seriously by relevant decision makers and the trade press regularly reports about ESTIF's work and positions.



ARSENAL- the Austrian Centre of Research and Testing

ARSENAL is an independent public research centre owned by majority by the Republic of Austria. With its about 160 employees in 4 specialised departments, Arsenal research takes an interdisciplinary approach to projects on energy and traffic. Its service range extends from applied research and development as well as sophisticated testing and measurement to market oriented realisation.

COORDINATOR



CRES- Centre for Renewable Energy Sources and Saving

CRES is a non profit entity supervised by the Ministry for the Environment, Energy and Climate Change, founded in September 1987 and has financial and administrative independence. CRES is active in the fields of renewable energy sources and energy saving. Its primary aim is to promote technological applications in the above mentioned fields both in national and international level. CRES was appointed by Law No 2244/94 as the national centre for the coordination in the fields of its activity. It acts as an advisor to the Greek State and has established a highly visible profile of a strong and reliable energy centre.

CRES has a scientific staff of more than 75 highly qualified engineers and other scientists (total number more than 130 people) and over the years has participated in more than 500 European and national projects.

The business unit Renewable Energy is focusing on photovoltaics, solar thermal energy and heat pumps as well as optimal integration of RES and RUE technologies in buildings; distributed generation of electricity is a further important topic. Market oriented research activities provide its customers with paramount support for emerging developments. Integration within international networks ensures accessibility to the latest research results.

These activities form an ideal base for our extensive range of services in the fields of education, consulting and certification. Through strategic projects for the effective market introduction of solar energy technologies our profile is complete.

The overall goal of the research centre is to promote the market penetration of renewables and to transfer scientific results and experiences to relevant companies and authorities, dissemination activities are part of the daily work at arsenal research.



SEC-Sofia Energy Centre

SEC was established in 1997 as a successor of European Community Energy Centre Sofia (established in 1992) and has gained a lot of experience in the execution and implementation of different European projects in Bulgaria. During its activity period the company has been involved very successfully in different PHARE, THERMIE, SYNERGY, SAVE ALTENER, FP4, FP5, FP6 and IEE projects and actions.

Currently SEC is being involved in activities to promote solar thermal applications in Bulgaria with guaranteed results, such as inventory of state-of-the-art regarding solar solutions, telemonitoring pilot projects and pre-feasibility studies, networking and training, enhancing promotion and dissemination by various means (websites, project leaflets, workshops, etc)



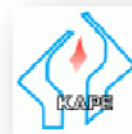
SC OVM-ICCPET SA

OVM-ICCPET, the Romanian Institute Oskar Von Miller – Conception, Research and Design for Thermal Power Equipment (known previously as ICPEP CERCETARE), the oldest and one of the most important in Romania, has its origins in the Energy Institute of the Romanian Academy, established in 1948, to solve the problems in the direction of rapid growth of the Romanian energetic sector. OVM-ICCPET is a private company since 2001.

The most important directions in which the institute is carrying research, design and consulting activities are: New and clean energy generation technologies, new sources of energy-Renewables (solar thermal technologies, biomass combustion technologies, biogas production technologies, wood fuel production chain, geothermal energy utilisation, etc).

OVM-ICCPET has strong relationships with energy sector representatives and other governmental and non governmental organisations and companies acting in the industrial and energy sector in Romania and is

currently involved in several projects with Romanian companies. Since 1994, OVM-ICCPET has an active role in the development and implementation of international projects in the field of energy.



KAPE-Polish National Energy Conservation Agency

KAPE was established following the Parliament resolution in 1994, with the aim to serve as a national sustainable energy agency. KAPE is a stock company working on non profit basis. The majority of its activities are public service obligations. There are KAPE's stakeholders: The treasury of state, the industrial development agency, the national economy bank, the national fund for environmental protection and water management (all public entities).

The mission of KAPE is to develop and implement sustainable energy policies in Poland successfully implementing EU energy policy into national energy sector, playing a leading role in providing a wide range of sustainable energy services, KAPE carries out activities aimed at improving rational use of energy and promotion of renewable energy sources and energy related environmental issues.



UNI-LJ - University of Ljubljana

The study of technical sciences in Slovenia began in 1767 with lectures in mechanics. Now, the Faculty of mechanical engineering is part of the University of Ljubljana. The basic research projects are in the following fields: design of engines and machines, manufacturing cybernetics manufacturing systems and robotics, welding, multiphase systems, system analysis in power engineering: heating, cooling and air conditioning, new technologies in energy conservation and use, energy production and consumption in industry.

Laboratory of heating, sanitary and solar technique (LOS) was established in 1970 and is one of the 31 laboratories on the faculty. The objective of the research activities at LOS is to contribute to basic knowledge in the field of heating, air conditioning, sanitary technique, renewable energy sources, efficient use of energy and environmental protection. The academic and research staff of the LOS consists of 9 members. Currently they are involved in several projects like SOLARGE, ET4EB, RES-e, EAST-GSR and others.



EIHP-Energy Institute "Hrvoje Pozar"

EIHP launched its activities in 1994. Its establishment was an answer to a high priority need for system planning and organized economy in the energy sector during transition changes in Croatia. The institute is a non profit institution owned by the Republic of Croatia.

Special attention is given to international co-operation, the EIHP membership in professional associations and agencies as well as the participation in international programs funded by the European Union.

Department for Renewable Energy Sources and Energy Efficiency is an integral part of the EIHP and its activities include preparation of renewable energy legislation for Croatian government, implementation of research and demonstration projects, conducting market studies, energy audits, related public opinion surveys, participation in international RTD projects as well as in community actions in Croatia.



CITYPLAN LTD

CITYPLAN Ltd is a multidisciplinary professional consulting, engineering, design and planning firm established in 1992, offering experience in a wide range of projects in the field of energy, transportation, civil and environmental engineering, including economic and financial analysis. We have served clients in both the public and private sector, including utilities, municipalities, counties, universities and non governmental organisations.

CITYPLAN Ltd is a privately owned firm with a staff of 55 professionals, providing services to wide range of clients. The range of services covers the issue of energy audits, energy concepts and projects or other development plans for municipalities, cities and regions. It also focuses on the assessment and improvement of the impact of ventures, construction projects and concepts and the processing of feasibility studies and business ventures. CITYPLAN Ltd also performs economic analyses and market value appraisals of enterprises.



INNOTERM- Innoterm Energetics Environmental Protection and Development Ltd

Innoterm is a steadily growing Hungarian engineering office and consultancy founded in 1989 in Budapest. Its main fields of action include the development and the implementation of environmental friendly energy supply systems.

Funded by the PHARE program, Innoterm has made a study on the possibilities of waste energy utilisation and has participated and coordinated successfully several international research consortia under the 4th and 5th FP of the EU.

The company has subsidiaries in Slovakia and Czech Republic and a representative office in Russia with sales reaching from Austria to Belarus.

This report has been prepared by CRES, the consortium leader, with the support of the project partners, as CRES had the overall coordination of the action and the whole information available.

APPENDICES

- FACT SHEETS

Summary

The country has favourable conditions for solar thermal: the average annual period of sunshine is about 2100 hours, in some regions it may reach 2500 hours. The overall market is still rather small, though it is growing at a steady pace.

Despite the fact that there are many companies, there were not any special marketing strategies in place and there are not any visible attempts to make the general public aware of the many varieties and possibilities. There is no Solar Thermal Association in the country though interest has been expressed on behalf of market actors participating in a survey. There is a testing centre at Bulgarian Academy of Science for solar collectors testing but it is not entitled to issue certificates.

Country Overview

Population: 7.6 million inhabitants
 Size: 111 000 km²
 GDP pc (€): 8 350 (PPP)
 Climate: Temperate continental with clearly marked four seasons. Considering its small area, Bulgaria has an unusually variable and complex climate. The country lies between the strongly contrasting continental and Mediterranean climatic zones located in the country's southern regions. Bulgarian mountains and valleys act as barriers or channels for air masses, causing sharp contrasts in weather over relatively short distances.

Temperature Data

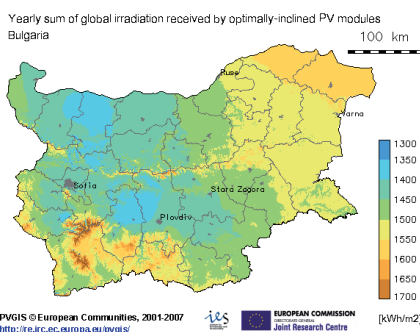
Indicator	Year 2007
Average annual temperature (°C)	10.5
The highest monthly average temperature (°C) for July and August	27
The lowest monthly average temperature (°C) for January	-5
Total precipitation per year (mm)	630

Market potential: solar radiation and heat demand

Global Radiation

The main data of solar radiation in Bulgaria is as follows :

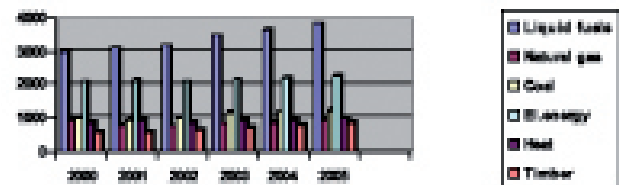
- The average solar radiation is 1517 kWh/m² (1410-1600 kWh/m²);
- The average annual period of sunshine is 2150 hours (2100-2500 hours);
- The total theoretical potential of the country is about 13x10³ ktoe;
- The usable annual potential is about 390 ktoe. (4535 GWh).



Energy Balance

Bulgaria is heavily dependent on energy as it imports more than 70% of its primary energy sources and it is mainly reliant on energy sources from Russia: oil, natural gas, high-quality coal and nuclear fuel. This structure of the energy balance causes concern in terms of the security of energy supply so Bulgaria is making efforts in two key areas:

- Reduction in specific energy intensity per GDP unit in economy; and
- Utilization of local renewable energy sources (RES).



Solar Thermal Statistics

Expert estimations show that in 2005 in Bulgaria there were 56 000 m² solar collectors. The actual expected installation of solar collectors is 5000 m²/year by 2010 and 8000 m²/year by 2015. So in reality it is expected that in 2010 Bulgaria will have 80 000 m² solar collectors and 120 000 m² solar collectors installed in 2015. Statistical data for the market of solar thermal systems is not available. Estimation of the solar collectors market development is done by reviewing respective sectors.

The solar thermal installations, implemented under different programs, were mainly for:

- Hot water in public buildings (hospitals, kindergartens, etc.), in domestic and tourism sector;
- Solar dryers in the wood processing and agricultural products industries.

The following main clients in the collective sector are distinguished now:

- Hotels, holiday houses, camping, swimming pools;
- State and municipal buildings (hospitals, kinder-gardens, social houses, elderly people's homes, etc.);
- Multi-storey buildings (mainly in new buildings);
- Industry – for wood processing and agricultural products.

Imports / exports figures

From the survey made under this project out of the 19 participating firms 42.1% offer Bulgarian collectors, 10.5% Turkish collectors, 47.4% Chinese collectors, 36.8% German collectors, 5.3% Czech, 5.3% Italian, 5.3% Austrian and 5.3% Greek collectors.

Sources of financial support

Title of support	Description	Specification of projects	Height of donation
REECL	The Kozloduy International Decommissioning Support Fund (KIDSF) administered by EBRD via credit line: Small credits for households	<ul style="list-style-type: none"> • Energy efficiency measures in buildings (replacement of windows, thermal insulation of walls, etc.) • RES application including solar thermal systems 	20% Max 600 Euro
BEERECL	The Kozloduy International Decommissioning Support Fund (KIDSF) administered by EBRD via credit line: Credits for private industries up to 2,5 million Euro	<ul style="list-style-type: none"> • Industrial energy efficiency • Renewable energies incl. solar thermal applications 	20 %
EU Structural Funds Operational Program Regional Development and Operational Program Competitiveness	Measures for increasing the energy efficiency in companies and for use of RES, including solar collectors.	Should be part of a set of measures, not a stand-alone measure	85 %
EU Structural funds Operational Program for rural development 2007-2013	Developing and equipping installations for production of heat and/or electric energy from RES, including solar systems	Eligible only: <ul style="list-style-type: none"> • Rural municipalities; • SMEs for projects up to 1 MW 	100 % 70 %

Further information

Further information on: www.cres.gr/trans-solar

Summary

For many years, the use of solar energy in active systems was rather unknown. Fortunately nowadays different applications of these systems are more common.

Solar active systems are used mostly for Domestic Hot Water systems in single family houses. There are now many examples of bigger systems (with area of solar collectors above 50 m²) being installed in schools, public buildings and multifamily apartment buildings, hospitals, sanatoriums. The solar collector market is growing as statistics prove.

Country Overview

- Population: 38.2 million inhabitants
- Size: 312,683 km²
- Climate: The overall climate in Poland has a transitional - and highly variable - character between maritime and continental types. The major elements involved are oceanic air masses from the west, cold polar air from Scandinavia or Russia, and warmer, subtropical air from the south. Six seasons may be clearly distinguished: a snowy winter of one to three months; an early spring of one or two months, with alternating winter and spring like conditions; a predominantly sunny spring; a warm summer with plenty of rain and sunshine; a sunny, warm autumn; and a foggy, humid period signifying the approach of winter.

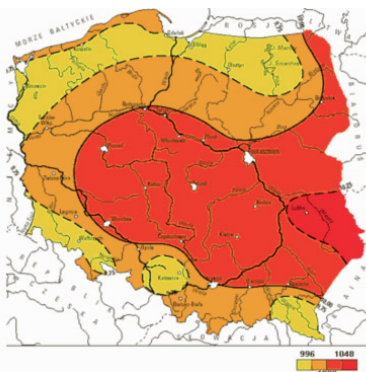
Temperature Data

Indicator	2006
The average air temperature in summer (°C)	16.5 - 20
The average air temperature in winter (°C)	-6 + 0
Annual average air temperature (°C)	7 + 8

Market potential: solar radiation and heat demand

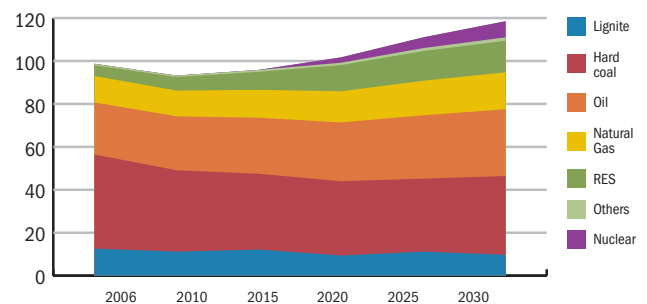
Global Radiation

An average annual insolation on horizontal plane oscillates between 950 - 1250 kWh/m² with 1600 hours of operation. About 80% of total annual radiation occurs from April to September with 16 hours of operation daily. In winter the sun shines for about 8 hours daily.



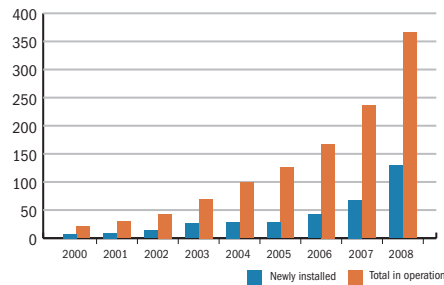
Energy Demand

The forecast concerning primary energy demand by energy carriers is presented in figure 2. (Source: "Poland Energy Policy until 2030", Ministry of Economy 2009).

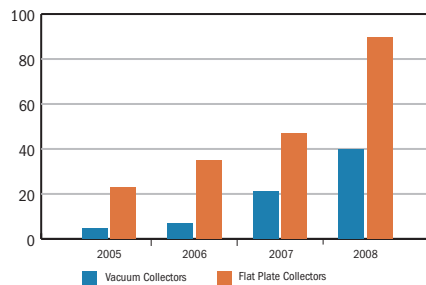


Solar Thermal Statistics

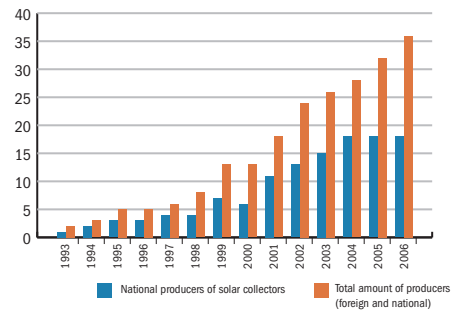
Development of solar collectors market in Poland



Solar collectors sales in 2005 – 2008



Development of Polish manufacturers and distributors of foreign companies on national market



Sources of financial support

National environmental protection funds:

National Fund for Environmental Protection and Water Management (NFOŚiGW) existing for 20 years, is the largest environmental fund in Poland. NFOŚiGW supports up to 20 % of the cost of the project, but it is limited to the commercial and public sector. So far spent PLN 12 millions (1989-2009) for solar collectors. Fund supports municipalities mostly in the form of low interest credits.

16 Regional Funds for Environmental Protection and Water Management (WFOSiGW) functioning at regional level, mostly for public beneficiaries. WFOSiGW supports e.g. Low Emission Limitation Program (PONE), being implemented already in over 20 localities in Silesia and Małopolska. The investment (e.g. purchase and assembly of solar installation) is financed by a subsidy of up to 75% to the private investors by the local authority, who receives the funds from WFOSiGW.

EU funds:

Cohesion and Structural Funds - total amount allocated for RES sector investments in Poland reaches € 1000 million (2007-2013), and additional € 30 million for RES equipment manufacturing (first call 2nd half of 2009). The rate of the support is defined according to the EU rules for public aid, local authorities and public organizations might be funded more than private sector - up to 60 - 70% of the investment cost.

Sources of solar thermal systems financial support until 2013

Fund	Share in total support
Regional Operational Funds	48.0%
Regional Funds for Environmental Protection and Water Management	28.4%
Operational Program Infrastructure and Environment	12.1%
National Fund for Environmental Protection and Water Management	4.9%
Counties and Municipalities Environmental Protection Funds	6.7%

Further information

Further information on: www.cres.gr/trans-solar

Summary

Exponential growth of installed solar systems only began 5 years ago. A national subsidies scheme has greatly influenced this, but only in the sector of domestic hot water systems.

Currently the solar market depends mostly on private investors. But there have been a few new large-scale solar systems built over the last 5 years, mainly in hotels and spas, retirement homes and industrial buildings. All investors are private companies. Until now, no system operates on multifamily houses nor on public buildings. A domestic solar industry exists, but is not well developed and not integrated. Two of the three domestic

manufacturers of solar collectors (IMP Klimat and Lentharm Invest) import selective absorbers, because no domestic manufacturers of selective coatings exist. In contrast to the solar collector manufacturers, there are several manufacturers of heat storage and they sell their products to manufacturers of solar collectors from abroad. Lack of domestic manufacturers is the reason why many of the important European solar collector manufacturers are present on the Slovenian market.

Country Overview

- Population: 2 million inhabitants
- Size: 20.273 km²
- GDP pc (€): 18.000 (year 2008)
- Climate: Sub-Mediterranean on the coast, Alpine in the mountains and continental with mild to hot summers and cold winters in the plateaus and valleys to the east. The average temperature is -2°C in January and 21°C in July. Yearly degree-day value ranges from 2400 Kday to 4000 Kday.

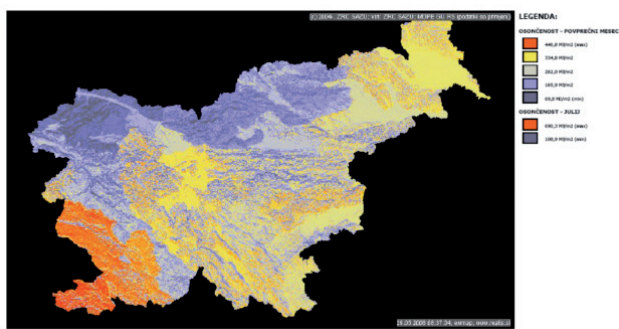
Temperature Data

Indicator	1990	2002
Average annual temperature (°C)	10.6	11.8
The highest temperature (°C)	33.4	34.9
The lowest temperature (°C)	-11.1	-12.9
Total precipitation per year (mm)	1,331	1,287

Market potential: solar radiation and heat demand

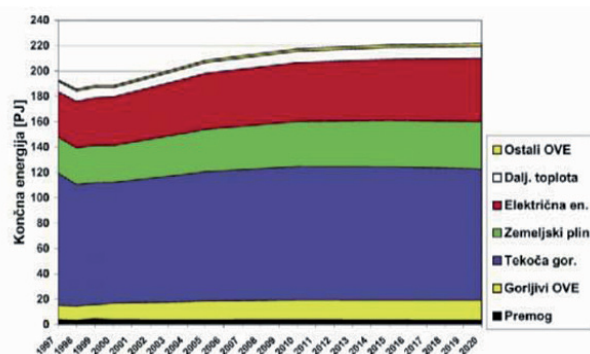
Global Radiation

The yearly solar radiation on horizontal plane is between 1000 and 1300 kWh/m².



Forecast energy consumption

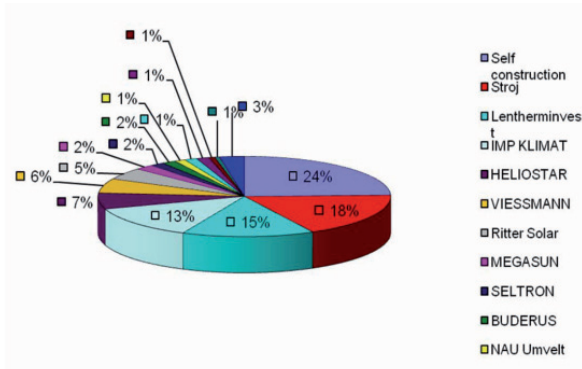
Final energy consumption predictions for Slovenia



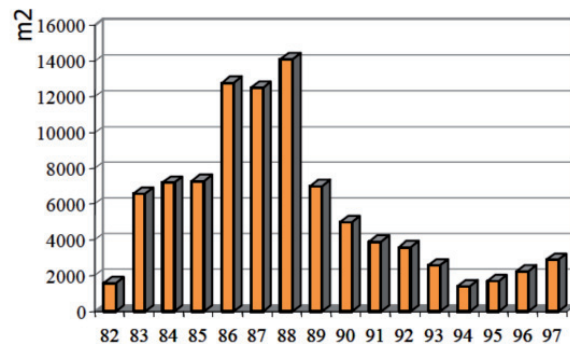
Solar Thermal Statistics

Total	Newly installed			2007		
	2004	2005	2006	Sum	Flat	Vacuum
125,000	1,800	4,800	6,900	12,000	10,300	1,700

Market share of producers of solar collectors in year 2005



Development of solar thermal market in the past



Sources of financial support

There are two main incentive schemes for solar thermal systems offered by Eko Sklad - Environmental Fund public fund: subsidies and loans under favourable conditions.

The national strategy for promoting solar thermal application is orientated mainly on promoting solar heating systems for domestic water heating in single family buildings. A quite successful scheme was established a decade ago. In the last four years the subsidies for solar systems for domestic hot water heating were:

- 104 €/m² solar collector (SC) to a maximum of 628 € (in 2002 – 2004)
- 125 €/m² SC to a maximum of 750 € (in 2005)
- 125 €/m² SC to a maximum of 2085 € for the solar system (in 2006, 2007)

For the larger solar thermal systems, subsidies (for legal investors and companies) were available only between the years 2002 to 2004. It represented 30% of eligible costs or 40% if the solar system was also used for cooling.

The current subsidies (2008-2010) for solar thermal systems which can be applied for are as follows:

For households: (subsidies for solar systems for domestic hot water heating)

- 25% of investment to a maximum of 150 €/m² of solar collector for flat plate collectors
- 25% of investment to a maximum of 200 €/m² for vacuum tube collectors
- 25% of investment to a maximum of 75 €/m² for self produced solar collectors

SolarKeymark-approved collectors receive an additional subsidy of 10 €/m².

Eko Sklad offers loans under favourable conditions for all investments in renewable energy sources. They offer a maximum amount of 20.000 euro for a maximum period of 10 years at a constant 3.9% interest rate.

Further information

Further information on: www.cres.gr/trans-solar

FACTSHEET CROATIA



Summary

Croatia as one of South Europe countries has very good solar radiation, especially on their Mediterranean part of the country. Last few years, the market of solar collectors is going strongly up and predictions are that this trend will continue.

Production of solar collectors is very small (there is only one producer) and the most of them are imported. Besides this firm, Croatia has two firms which is producing solar tanks. Even solar market is growing and there are lots of distributors, on the national level there is not practical strategy how to expend this market even more. We still don't have any testing centre although one of them is on preparing stage. Education about solar technology is based on different seminars and one subject on University for mechanical engineers.

Country info: climate and temperature

Indicator	Average	
	min	max
Temperature (°C) in January - inland	-1	3
Temperature (°C) in January - coast	5	10
Temperature (°C) in August - inland	22	26
Temperature (°C) in January - coast	26	30

Overview of the country

Population: 4,4 millions inhabitants
 Size: 56 600 km²
 GDP pc (€): 11.000

Climate: The climate of Croatia varies from Mediterranean along the Adriatic coast to continental, inland. The coastal areas have hot, dry summers and rainy winters yet the inland areas are cold in winter and warm in summer.

Temperature

Market potential: solar radiation and heat demand

Global radiation	Forecast energy consumption
<p>Between 1,15 MWh/m² and 1,65 MWh/m² of solar radiation falls on the Croatia annually.</p> <p>Srednja godišnja ozračenost vodoravne plohe [MWh/m²]</p> <p>Izvorna karta: Državni hidrometeorološki zavod - Zagreb</p> <p>Tehničko-grafička dorada: Energetički institut Hrvatske Požar Zagreb</p>	<p>Shares in primary energy production 2007</p> <p>Shares in primary energy production 2030</p>

FACTSHEET CROATIA



Solar thermal statistics

Total(m ²)	Newly installed (m ²)					2008 (m ²)		
	2003	2004	2005	2006	2007	Sum	Flat	Vacuum
78.000	5020	6657	5974	7608	10881	13.000	11.500	1.500

Solar system Costs for typically sized systems

Solar Systems Costs for Typically Sized Systems		
	6m ²	15m ²
Total costs (excl. VAT)	710 Euro / m ²	620 Euro / m ²
VAT (23%)	140 Euro / m ²	130 Euro / m ²
Total cost (incl. VAT)	850 Euro / m²	750 Euro / m²

Sources of financial support

Title of institution	Description	Specification of projects	Height of donation
Environmental Protection and Energy Efficiency Fund	Activities include fund activities in connection with the financing of the preparation, implementation and development programs and projects and related activities in the field of conservation, sustainable use, protection and promotion of environment in the area of energy efficiency and renewable energy	Building, reconstruction, modernization, waste energy utilization, raising energy efficiency and RES	up to 30% for private and commercial projects and up to u 100% for state and local organizations.
UNDP - Croatia	UNDP Croatia focuses on regional development and socio-economic recovery of less developed, environmental protection and energy efficiency, support to business development and corporate social responsibility, capacity building in field of development cooperation	Energy audits, reconstruction public buildings and HVAC systems	Depends on project sometimes up to 100 %
Counties: Sisačko-moslavačka Zagrebačka Karlovačka Krapinsko zagorska	Co-financing private house in installing solar thermal collectors in 2008 for Sisačko – moslavačka and 2009. others counties	Solar systems for domestic hot water warming	Max 40% or 1.500 Euro

Further information on: www.cres.gr/trans-solar

Summary

The country has favourable conditions for solar thermal. It has an average amount of solar radiation and high demand for heat. The market is overall still rather small, though it is growing at a steady pace.

Despite the fact that there are many companies, no special marketing strategies are in place and there is no attempt to address the wider public. There are two certification testing centres but there are not any educational facilities focusing exclusively on renewable energy sources leaving some kind of systematic educational program to the primary, secondary schools or colleges, which should include the RES thematic into the standard schedule as well.

Country Overview

Population: 10,3 millions inhabitants
 Size: 79 000 km²
 GDP pc: 3 530,2 mld czech crowns/2007
 3 705,9 mld czech crowns/2008
 Climate: Mild but varies according to region and season.
 The main reason for the differences is the altitude above the sea level. Generally, higher elevations have lower temperatures and higher rainfall

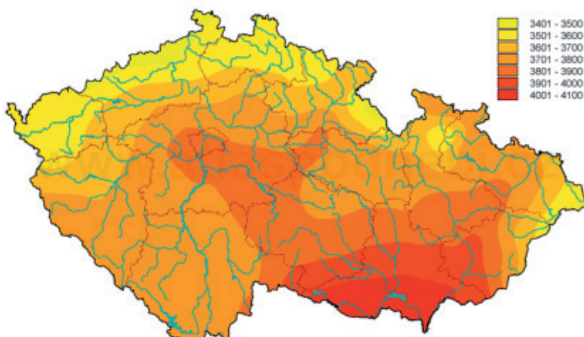
Temperature Data

Indicator	1990	2002
Average annual temperature (°C)	10.7	10.7
The highest temperature (°C)	34.4	27
The lowest temperature (°C)	-13.5	-15.0
Total precipitation (mm)	316.5	625.3

Market potential: solar radiation and heat demand

Global Radiation

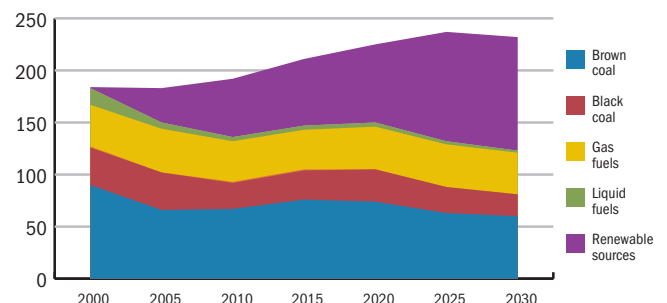
Between 3401 MJ/m² (=945 MWh/m²) and 4100 MJ/m² (= 1140 MWh/m²).of solar radiation falls on the Czech Republic annually.



Forecast energy consumption

Fuel and energy demand is growing faster than domestic demand because of increased exports to more developed EU nations. European sources of crude oil and natural gas will be exhausted by the year 2030, being the alternative Russia or overseas.

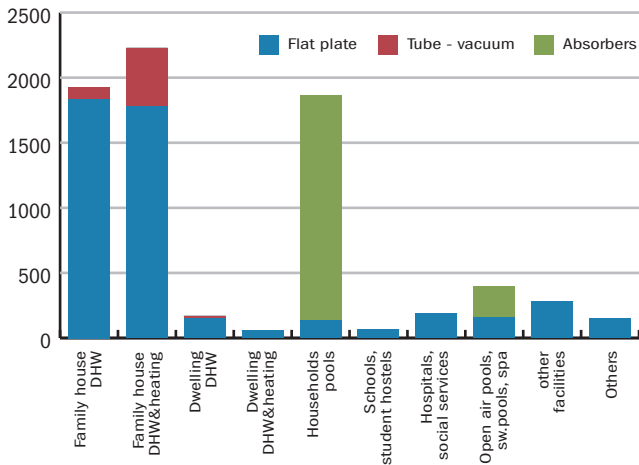
Prediction of primary sources structure for heat production



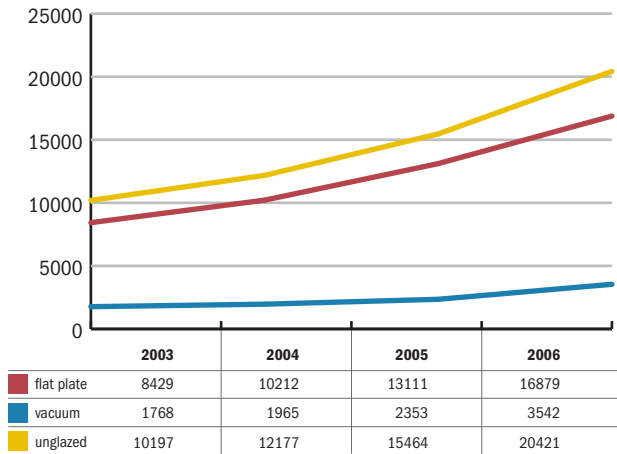
Solar Thermal Statistics

Total	Newly installed					2008		
	2003	2004	2005	2006	2007	Sum	Flat	Vacuum
165,100	10,200	12,250	15,550	20,400	25,000	35,000	26,500	8,500

Installations 2006: areas and applications



Imports of solar collectors



Sources of financial support

Title of support	Description	Specification of projects	Height of donation
EFEKT 2008	State program for energy savings supply and renewable sources usage in 2008 – part A.	Heat pumps in combination with solar thermal systems – bivalent resources.	40% Max. 2000000,- CZK
	Specific pilot projects published as tenders.	Energy savings and RES projects.	100% 3000000,- CZK
Operational Program Business and Innovation 2007–2013	“Eko-Energie” Program shall encourage SMEs to decrease the energy demand and primary energy consumption of production and increase the use of renewables and secondary energy sources as well as their sustainability.	Building, refurbishment, modernization, waste energy utilization, raising energy efficiency.	Max. 60% Max. 100 mil. CZK
Operational Program Environment 2007–2013	Building of new facilities and refurbishment of current stock in order to raise RES utilization for heat and electricity production or combined production.	Building of new facilities and refurbishment of local or central heat sources from RES for heating, cooling and hot water.	max. 90%
Donations for households for ecological heating	SEF grants to individuals within the national Program for energy savings and RES utilization 2006-2009.	Solar systems for whole year hot water warming.	50% max. 50 000,- CZK
		Solar systems for whole year hot water warming.	50% max. 60 000,- CZK
Municipal donations	Some municipalities, on the voluntary base (for example: Prague, Pilsen, Litoměřice).	Renewable sources.	
The Green Savings program	Support for heating installations using renewable energy sources but also investment in energy savings in refurbishment and new buildings; applications for subsidies will be accepted until 30 June 2012 or until the program funds are exhausted.	Subsidised areas: energy savings in heating, construction in the passive energy standard, use of renewable energy sources for heating and hot water preparation, subsidy bonus for selected combinations of measures.	allocation is up to 25 billion Czech crowns

Further information

Further information on: www.cres.gr/trans-solar

Summary

The country has favourable conditions for solar thermal use. It has an average amount of solar radiation and high demand for heat due to the relatively cold winters. The market is overall still rather small although it is growing especially over the last few years.

Basically all well-known manufacturers are present on the Hungarian market and the market becomes slowly but surely transparent. Despite the fact that many companies are present on the market, no marketing activities are targeted to the wider public. Only companies provide training and there is no educational facility or independent training institution.

Country Overview

- Population: 10 million inhabitants
- Size: 93 030 km²
- GDP pc (€): 9 222 (PPP)
- Climate: Hungary has a Continental climate, with hot summers with low overall humidity levels but frequent rainfalls and cold snowy winters. The climate varies very slightly in the different regions.

Temperature Data

Indicator	Value
Average annual temperature (°C)	9.7
Average temperature in summer (°C)	27-35
Average temperature in winter (°C)	0 - -15
Average annual precipitation (mm)	600

Market potential: solar radiation and heat demand

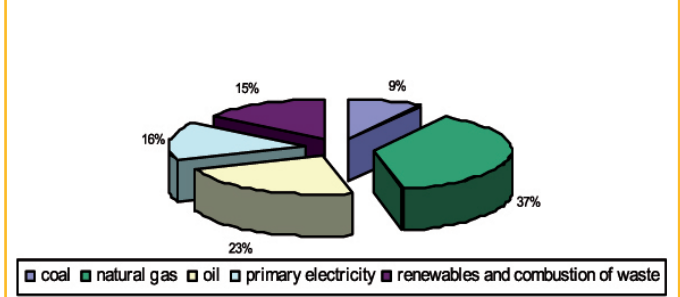
Global Radiation

The global radiation's yearly amount differs from 4300 to 4700 MJ/m² in the different geographical regions of the country



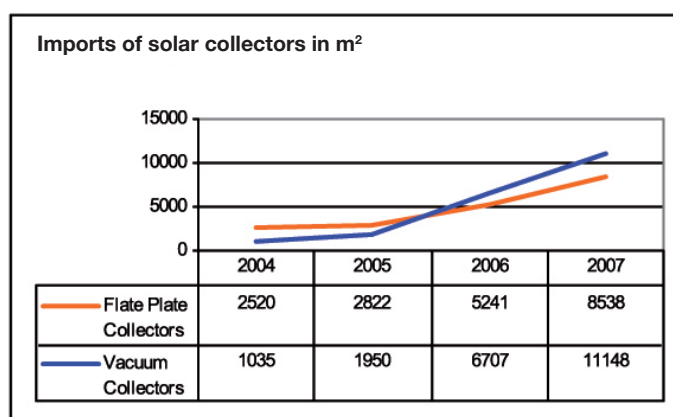
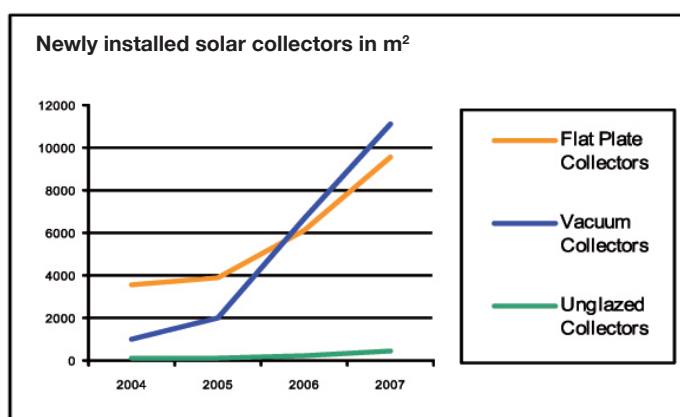
Forecast energy consumption

According to the Energy Policy of Hungary a significant rise in the share of renewables should be reached by 2020 since dependency on energy import is high especially in natural gas and oil. Fuel and energy demand is expected to grow over the next decades.



Solar Thermal Statistics

Newly installed					
Type/Year	2004	2005	2006	2007	Total
Flat	3520	3922	6141	9538	23121
Vacuum	1035	1950	6707	11148	20840
Unglazed	108	156	212	398	874
Total	4663	6028	13060	21084	44835



Sources of financial support

Title of support	Description	Specification of projects	Height of donation
National Energy Efficiency Program (Nemzeti Energiahatékonysági Program)	The main aim of the National Energy Efficiency Program is to increase the population's use of renewables thanks to grants.	Modernization of heat isolation of windows/doors, heating and/or domestic hot water- supply appliances, change from traditional energy sources to renewable energy sources.	maximum of 30% of the investment, but maximal 1.200.000,-Ft (cc. 4.800 Euro) per flat.
	The main aim of the National Energy Efficiency Program is to increase the population's use of renewables thanks to loans at preferential conditions.	Modernization of heat isolation of windows/doors, heating and/or domestic hot water- supply appliances, change from traditional energy sources to renewable energy sources.	0-70% of the total investment cost but maximum 2.800.000 -Ft (approx. 11.200 Euro) per flat.

Further information

Further information on: www.cres.gr/trans-solar