



Roadmap "Solar process heat for industry in Upper Austria"

The following roadmap was developed and is implemented in Upper Austria. It aims to increase visibility of solar contracting as an interesting option, to encourage ESCOs to consider solar thermal as an option. The activities are based on the regional network established.

Overview of activities foreseen (or already implemented):

what	when	who	how
FAQs on solar contracting	before the end of 2010	ESV	taking into account stakeholder inputs from previous events (round-tables) and the questions continuously raised in training seminars
update ESV website on contracting	before the end of 2010	ESV	include existing solar contracting projects (non-industry)
give advice and technical support to all project identified within the So-Pro activities as potential pilot projects	before the end of 2010	ESV	The So-Pro work programme foresees that pilot projects will be identified and supported
include the solar contracting option in business advice activities	on-going	ESV	ESV manages an energy advice programme for businesses
including solar contracting in "standard contracting promotion activities"	on-going	ESV	ESV carries out a number of training courses, where general information on contracting is given. A special focus will be put on solar contracting issues
inform relevant ESCOs about potential contracting projects	on-going	ESV	ESV is often contacted by companies that are interested in renewable energy project

consider a training course on solar contracting	2011/2012	ESV	based on the feedback of the planned So-Pro activities, a special training course could be planned in the course programme of ESV's "Energy Academy" in 2011/2012
---	-----------	-----	---

Valuable input in the development of the roadmap came also from stakeholders. Especially at the round-table events, additional ideas to trigger market development were discussed, new ideas were exchanged and valuable input in the development of strategies for further market development was delivered. Among others, the following ideas were discussed and it is now aimed to include these ideas in daily work:

Idea/activity	Description	How could this be done?
"EGEM for companies"	development of a promotion programme for companies similar to one which is in place in the region for municipalities ("Energiespargemeinde")	A regional programme could be implemented depending on financial support available. Nevertheless, even without additional funding, ESV and company advisors will put the focus on increased activities for companies and industries in this field.
motivate "leading" companies	put the focus on companies that are already ahead in terms of energy efficiency and use of renewables	ESV will approach them and inform them about solar process heat.
solar marketing for industry	use new approaches and different ways of solar marketing	ESV will consider how to integrate this in daily promotion activities for companies.
highlighting the strengths of solar thermal	communicate what solar thermal installations can achieve (very often the benefits of solar thermal are not known)	ESV will prepare information and slides on that topic and use this in coming energy advice sessions. The information could also be placed on the website.

Additionally the following activities, which should mainly be implemented by solar thermal companies and ESCOs were discussed with relevant stakeholders:

- Solar contracting included in "regular" contracting projects:
ESCOs should try to include more solar thermal installations in "regular" contracting projects, also as a "sales feature". The argument is that many clients will be pleased to see a solar thermal installation included in a contracting project as it has a very positive image and could therefore accept that the contract duration will be prolonged by a few months.
- Best practice examples:
collecting the few existing projects and presenting existing projects on the websites of solar thermal companies and ESCOs in order to inform stakeholders about this option.
- Use of So-pro documents:
increasing the efforts in triggering best practice examples by using the technical documents developed in the So-Pro project. Stakeholders could actively offer Sog.-Pro materials on their website (e.g. checklist, planning guideline, publication) to interest and inform visitors on solar process heat. Additionally, a link to the information provided on the ESV website on contracting could be helpful.

ESV is trying to motivate solar thermal companies and ESCOs to include these activities in their portfolio. However, this needs a "continuous effort" and implementation takes time.



Roadmap "Solar process heat for industry in Central Spain"

The following roadmap was developed and is implemented in Central Spain. It aims to increase visibility of solar contracting as an interesting option, to encourage ESCOs, users, public institutions and key stakeholders to consider solar thermal as an option. The activities are based on the regional network established.

Overview of activities implemented and foreseen:

what	when	who	how
FAQs on solar contracting	December 2010 Done. Dynamic, changing with new questions.	ESCAN	taking into account stakeholder inputs from communications, previous events (round-tables, conference), publications and the questions raised in training seminars
Start and update Spanish SOPRO sub-website on contracting	Start in early 2010. Monthly update.	ESCAN	include description on solar ESCOs aims, list of ESCOs, FAQs
Give advice and technical support to all project identified within the So-Pro activities as potential pilot projects	2010-2011	ESCAN	The So-Pro work programme foresees that pilot projects will be identified and supported
Organise ESCO roundtable to inform, train and debate with solar companies	2010	ESCAN, Regional Government	Coordination of a roundtable to promote ESCO services, by informing solar companies about the possibilities, and involving Reg.Gov due to their role in providing funding
Promote the solar contracting option in solar companies business activities	2010-2011	ESCAN	By advising and making companies (solar, engineering, etc.) aware on the existing potential for solar ESCOs.

including solar contracting in training activities	2010 to future	ESCAN	ESCAN manages in Spain the EUROPEAN ENERGY MANAGER (c) training course since 2008, and will include a Solar contracting and So-Pro outputs in the Solar module.
inform relevant ESCOs about potential contracting projects	2010 to future	ESCAN	ESCAN staff includes energy auditors and often develop services to manufacturing industries with potential on solar uses.

Valuable input in the development of the roadmap came from stakeholders. Especially at the round-table, conferences and other contacts maintained during the project. Additional ideas to trigger market development were discussed, new ideas were exchanged and valuable input in the development of strategies for further market development was delivered. Among others, the following ideas were discussed and it is now aimed to include these ideas in daily work:

Idea/activity	Description	How could this be done?
Promote the ESCOs services to industries by means of industrial associations	development of a promotion campaign involving main regional industrial associations with a more direct participation	Two main working lines have been detected: 1 To recuperate the contacts made during the project 2 To cooperate with the Chambers of Commerce in events directed to some sectors
Better benchmarks among different Spanish actors to maintain an overall criteria for Solar ESCOs	The differences existing in Spain in different regions (e.g. funding incentives, regulation, etc.) reduce the interest on potential Solar ESCOs	ESCAN is in contact with IDAE (National Energy Agency) Solar Department, in order to inform about the barriers existing on this issue and find solutions to overcome them
New solar marketing concept	Fossil fuels marketing is strong, while RES is usually low (only windpower sometimes is involved in important energy campaigns)	ESCAN will offer the experience and materials gained in So-Pro to Energy Agencies or Companies in order to improve their marketing campaigns
Advance in further solar installations for higher temperatures	Some companies are wishing to make business with medium temperature solar collectors for industries, also with ESCO formula	ESCAN will start contacts with medium temperature collectors distributors and manufacturers to find interesting opportunities for Solar ESCO contracting.

Additionally the following activities, which should mainly be implemented by solar thermal companies and ESCOs were discussed with relevant stakeholders:

- Training to solar companies planners and engineers at industries, including ESCOs concepts:
there is a general lack of planners and engineers with skills on solar, industrial and ESCOs concepts. The design of an solar process heat system involves some specific aspects, including the adequate interconnection with the current process heating system. ESCOs services involve other issues, as knowledge on funding mechanisms and contracting. Some training programme could be programmed, e.g. at some relevant course in cooperation with associations or energy agencies.
- Solar process heat and ESCOs marketing:
little or non specific marketing strategy was presented by solar companies when presenting solar process heat to customers. The energy market for RES-for-heat has become difficult during the last 3 years, and companies are not well prepared to sell this relatively new concepts to customers, causing rejection of some good proposals. Thus, marketing skills on solar ESCOs should be provided.

ESCAN is putting effort to motivate solar thermal companies and ESCOs to include these activities in their portfolio.



Roadmap "Solar process heat for industry in South Bohemia"

The following road map proposes actions by ECCB to make solar contracting more visible as an option of financing to a potential client.

what	when	who	how
We will create a new section on our website on contracting	before the end of 2010	ECCB	We will introduce the basic principles of EPC and EC methods and some good examples of realized projects
FAQs on contracting	before the end of 2010	ECCB	Based on the stakeholders inputs from previous events
We will inform on contracting projects on the website of ECCB	before the end of January 2010	ECCB	We will put examples of some contracting projects (non-industry) on our website
Include the solar contracting option in business advice activities	on-going	ECCB	If a representative of a company is interested in contracting, we advise him/her on ST contracting as an option
Include a lecture on EPC, EC and ST contracting into the programme of the 3rd training course for energy advisors	March-April 2011	ECCB	We organise the training course for energy advisors, so we can influence the content of the programmes. Representatives of industrial companies and other public bodies also participate at the training course.
Inform industrial companies, municipalities and other stakeholders on solar contracting	By June 2011	ECCB	Disseminate information on solar contracting per e-mail
Including contracting (also solar thermal contracting) into the the training course and the final conference or the last So-Pro round table	By the end of September 2011	ECCB	A lecture on EPC, EC and solar contracting will be held at the last round table meeting in SB.
Include a lecture on EPC, EC and ST contracting into the programme of the 4th training course for energy advisors	Spring 2012	ECCB	There will be another training course for energy advisors organised in spring 2012

Include contracting (also solar thermal contracting) into the next training course that should be organised after the end of the So-Pro project	2012 - 2013	ECCB	At the training course it will be informed on EPC, EC and solar contracting.
Inform relevant ESCOs about potential contracting projects and on the contrary inform potential clients on ESCOs that the company /municipality could contact	On-going	ECCB	If an industrial company / a municipality contact us with the request for more information on solar contracting we always inform it also on ESCOs.



Roadmap

"Solar process heat for industry in North-Rhine-Westphalia"

The road map aims to increase visibility of solar contracting as an interesting option for industrial companies and to encourage ESCOs to consider solar thermal as an option. To be successful it is necessary to analyze the motivation and the demand of the customer (e.g. industrial company) concerning the

- Need to invest in new technology
- Need to concentrate of core competence (e.g. production or trade)
- Need to save energy and to reduce energy costs
- Need to reduce CO₂ emission
- Need to gain a green image

On the other side it is crucial to analyze the energy services market to find energy service companies (ESCOs) which are innovative and interested in the following topics:

- Renewable energy
- Solar thermal technology
- Development of new market strategies
- Strengthen the marketing efforts on sustainable aspects
- Developing innovative marketing strategies to combine energy service and CO₂-emissions trading

To take these results into account and to ensure a continuous analysis of the market situation and the circumstances of market partner the following road-map is developed.

what	when	who	how
FAQs on solar contracting	before the end of 2010, continuous actualisation	ESV & Gertec	Taking into account stakeholder inputs from previous events (round-tables) and the questions continuously raised in training seminars (regional and international training course), at the stand on Hanover fair and conferences.
Give advice and technical support to all projects identified within the So-Pro activities as potential pilot projects	before the end of 2010, continuation to project end	Gertec	The So-Pro work programme foresees that pilot projects will be identified and supported.
Inform relevant ESCOs about potential contracting projects	continuation to project end	Gertec	Gertec is often contacted by companies that are interested in renewable energy project.
Including solar contracting in "standard contracting promotion activities"	continuation to project end	Gertec	Gertec staff often takes part as speaker in training courses, conferences and events where general information on contracting is given. A special focus will be put on solar contracting issues.
Establish a strong link and interaction with other projects to ensure know-how transfer	2011/2012	Gertec	Public initiatives from scientific institutes like Uni Kassel, DLR and SIJ are also very interested in solar contracting. These institutions are linked to So-Pro network.
Consider a training course on solar contracting in cooperation with the energy agency of North-Rhine-Westphalia	2011/2012	Gertec & ea.nrw	Based on the feedback of the planned So-Pro activities, a special training course could be planned

Based on the activities of the road map a strong and vivid know-how transfer with a couple of market partner was implemented. The energy agency of North-Rhine-Westphalia, the Department of Solar and Systems Engineering (University Kassel) and some ESCO's (e.g. Cofely, KWS GmbH, Sonneneneck Energie GmbH, Hochtief) are very interested in solar process heat and solar contracting.

As a result of the strong interaction with these companies and institutions the following actions seems to be necessary to push solar contracting forward.

- Solar process heat and solar contracting include in energy consulting projects.
Energy consulting companies and agencies should implement solar process heat and solar contracting as a "standard" feature in their day-to- business.

- Solar contracting as an alternative concept.
To find the right partner for a contracting project, the industrial companies often use a tender process. But the tender often focus only of the cheapest price for energy. These are hard circumstances to place a competitive offer including solar thermal. It seems necessary to motivate the ESCOs to offer in such tender processes additionally an alternative concept including solar thermal.
- Best practice examples:
Collecting the few existing projects and presenting existing projects on the websites of solar thermal companies and ESCOs in order to inform stakeholders about this option.
- Use of So-pro documents:
Increasing the efforts in triggering best practice examples by using the technical documents developed in the So-Pro project. Stakeholders could actively offer So-Pro materials on their website (e.g. checklist, planning guideline, publication) to interest and inform visitors on solar process heat.

Gertec is trying to continue the efforts to spread solar process heat and solar contracting in cooperation with the SoPro network-partner and – especially - the energy agency or North-Rhine-Westphalia.



Roadmap "Solar process heat contracting in Saxony"

The following roadmap was developed and is implemented in Saxony. It aims to increase visibility of solar contracting as an interesting option, to encourage ESCOs to consider solar thermal as an option. The activities are based on feedback from the solar thermal companies.

Overview of activities foreseen (or already implemented):

what	when	who	how
FAQs on solar contracting	2010/2011	SAENA	taking into account stakeholder inputs from previous events (round-tables) and the questions continuously raised in training seminars
update SAENA website on contracting	On-going	SAENA	Try to include existing solar contracting projects, when available
give advice and technical support to all projects identified within the So-Pro activities as potential pilot projects	until 2011	SAENA	The So-Pro work programme foresees that pilot projects will be identified and supported
include the solar contracting option in business advice activities	on-going	SAENA	SAENA gives initial advice to businesses about the use of renewable energies or improving energy efficiency
Make contact between relevant ESCOs and potential contracting projects	on-going	SAENA	SAENA is contacted by companies that are interested in renewable energy projects
consider another roundtable on solar thermal contracting	2012	SAENA	Depending on the situation on the energy market, solar contracting may become more suitable in the future



Valuable input in the development of the roadmap came also from stakeholders. Especially at the round-table event on solar contracting, new ideas were exchanged and input in the development of strategies for further market development was delivered. Among others, the following ideas were discussed and it is now aimed to include these ideas in daily work:

Idea/activity	Description	How could this be done?
Change of subsidies	Base subsidies on produced kWh not m ² collector aperture.	This would mean a change in the national funding schema
motivate "leading" companies	put the focus on companies that are already ahead in terms of energy efficiency and use of renewables	SAENA will approach them and inform them about solar process heat.
Motivate "leading" contractors	Maybe contractors are willing to pass on interest to get experience in solar contracting	SAENA will try to find such contractors.
highlighting the strengths of solar thermal	communicate what solar thermal installations can achieve (very often the benefits of solar thermal are not known)	SAENA will prepare information and slides on that topic and use this in coming energy advice sessions and presentations
targeting district heating	Higher prices for solar process heat could be gained	SAENA will develop ways to approach these sectors
Use solar thermal as an additional technology in a combination of several measures	Maybe a combination of several technologies incl. a (small) solar thermal system could work in a mixed calculation (The solar thermal part itself would not be competitive but subsidies by more cost effective measures)	SAENA will try to find a suitable pilot project

Additionally, the following activities, which should mainly be implemented by solar thermal companies and ESCOs were discussed with relevant stakeholders:

- Solar contracting included in "regular" contracting projects:
ESCOs should try to include more solar thermal installations in "regular" contracting projects, also as a "sales feature". The argument is that many clients will be pleased to see a solar thermal installation included in a contracting project as it has a very positive image



and could therefore accept that the contract duration will be prolonged by a few months.

- Best practice examples:

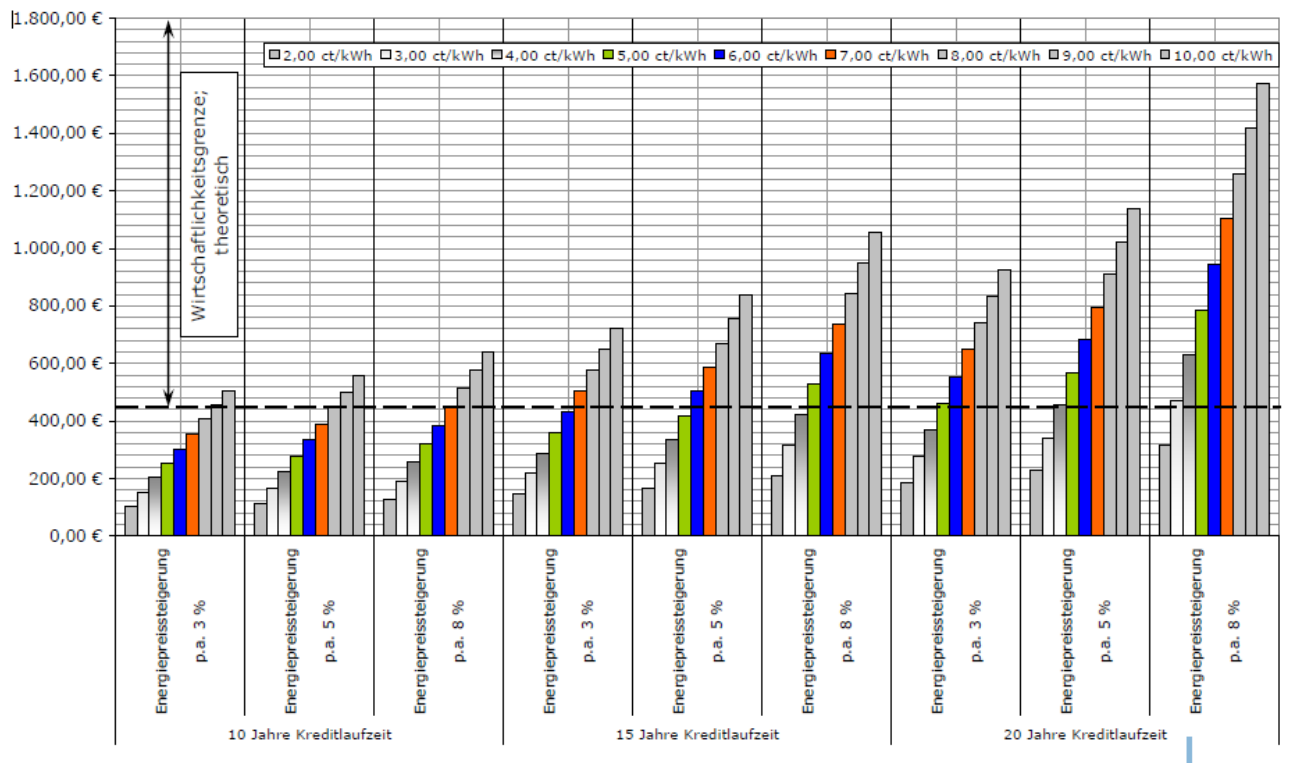
ESCOs should try to identify an existing project and try to put some real data online.

- Use of So-pro documents:

increasing the efforts in triggering best practice examples by using the technical documents developed in the So-Pro project. Stakeholders could actively offer So-Pro materials on their website (e.g. checklist, planning guideline, publication) to interest and inform visitors on solar process heat.

SAENA is trying to motivate solar thermal companies and ESCOs to include these activities in their portfolio. So far there is very little interest because the financial situation (energy prices, solar prices) do not allow solar thermal contracting at the typical interest rates of >15%/a which contractors expect. The risk of financial failure is extremely high in solar thermal contracting.

This picture gives an idea about contracting possibilities for solar thermal heat depending on the energy prices (ct/kWh) and solar thermal prices (€/m²) at 10a, 15a and 20a time frames. Even for a very good solar thermal installation with 600 kWh/m²*a at current prices for fossil fuels solar thermal is not an economic option in Saxony:





Roadmap "Solar process heat for industry in Podravje"

The following roadmap was developed and is implemented in Podravje region. It aims to increase visibility of solar thermal as an option. The activities are based on the regional network established.

Overview of activities foreseen (or already implemented):

what	when	who	how
FAQs on solar contracting	before the end of 2010	Energap	taking into account stakeholder inputs from previous events (round-tables) and the questions continuously raised in training seminars
give advice and technical support to all project identified within the So-Pro activities as potential pilot projects	before the end of 2010	Energap	The So-Pro work programme foresees that pilot projects will be identified and supported
including solar contracting in "standard contracting promotion activities"	on-going	Energap	Energap carries out a number of training courses, where general information on contracting is given. A special focus will be put on solar contracting issues
Inform relevant ESCOs about potential contracting projects	on-going	Energap	When contacted by ESCO companies Energap will spread the idea for expanding contracting projects to solar energy

Valuable input in the development of the roadmap came also from stakeholders. Especially at the round-table events, additional ideas to trigger market development were discussed, new ideas were exchanged and valuable input in the development of strategies for further market development was delivered. Among others, the following ideas were discussed and it is now aimed to include these ideas in daily work:

Idea/activity	Description	How could this be done?
Individual approach to target groups	Making a effort and individually contact the possible target groups or companies	By phoning and visiting the individual companies (ESCOS and Industry) in the field we think is most promising
Making the stakeholders aware that financing solar process heat can be safe	The solar supply is safe as the sun shines very predictably only the demand side can be viewed as a business risk	By showing the ESCOS possible risk management methods and contract securities that can assure a safe investment

Energap is trying to make a great effort to convince the existing ESCO companies for investments in to solar process heat. Due to the underdeveloped ESCO sector in Slovenia this is proving to be difficult as the market is lacking experience in this area.