APPLICATIONS OF SOLAR THERMAL ENERGY IN THE MEDITERRANEAN BASIN - ASTEMB

Project undertaken in the frame of the MEDA European program (Contract n° ME8/B7-4100/IB/98/0479 signed on the 06/04/2001)



Solar thermal installation - Abou-Sofiane hotel - Tunis

Context and objectives of the ASTEMB project

Population growth will push the South-Mediterranean population from 200 to 400 millions inhabitants in 2020. This increase should be accompanied by a tripling in the energy consumption. In this context, the development of all the local and renewable energies and, more particularly, of the solar energy should be favoured. This development will contribute to an increase in the energy independence, reduce the financial burden of the energy expenses (for the non-oil producing countries) and, generally speaking, participate in the reduction of the emissions of greenhouse effect gazes.

The production of hot water from solar energy must be developed in priority when taking into account the excellent sunshine of the southern countries concerned, as well as their very important application potential. This project concerns, more particularly, the collective applications but the work and the results obtained relate to all applications, individual as well as collective ones.

For contributing to this objective, the members of the MEDENER^a) association (as designed in 1997) have designed a project that aims to transfer to southern countries the GSR (Guarantee of Solar Results) concept, that is successful in Europe.

It also aims to allow the emergence of an autonomous and sustainable solar thermal market.

In fine, this market should contribute to local industries and professional networks development, in a similar way that northern countries.

^{a)} The MEDENER association was created in 1997, its aim is, namely, to contribute to the development of partnerships between its members, by promoting the exchanges of experiences and sharing the know-how in the fields of the rational use of the energy and the development of the renewable energies as well as the protection of the environment, either at local or global levels, in conjunction with the energy sector. The association now counts 12 members, 10 named above, plus ENEA (Italy) and NERC (Jordan).

Eleven partners, of which ten members of the MEDENER^{a)} association, were initially associated to the project :

- five in the European Union :
 - French Agency for Environment and Energy Management (ADEME^a), which is in charge of the general coordination of the project,
 - Portuguese Agency for the Energy (ADENE^{a)}, ex-CCE),
 - Greek Centre for Renewable Energy Sources (CRES^a),
 - Spanish Institute for the Diversification and Management of the Energy (IDAE^{a)}),
 - Italian Institute for the Technological Innovation Promotion (ISNOVA).
 - six south-Mediterranean countries :
 - Lebanese Agency for Energy Management and Environment (ALMEE^{a)}),
 - Algerian Agency for the Promotion and Rationalisation of Energy Use (APRUE^a),
 - Moroccan Centre for the Development of Renewable Energies (CDER^a),
 - Tunisian Agency for Renewable Energies (ANER^{a)}),
 - Egyptian Authority for New and Renewable Energies (NREA^{a)}),
 - Palestinian Energy and Environment Research Centre (PEC^{a)}).

The Jordanian National Energy Research Center (NERC^{a)}) has joined the project in April 2003.

The Guarantee of Solar Results (GSR)

The procedure of **Guarantee of Solar Results or GSR**, developed in Europe since the beginning of the 90' by the European Union and the professionals from this sector, allow to guarantee by contract the technical and economic performances of a solar boiler.

The technical team in charge of carrying out the installation proposes the GSR to the customer. This latter agrees by contract on the energy contribution of the solar installation (expressed in kWh and obtained by measuring the temperatures, water consumption and sunshine). If the contribution does not match the levels specified in the contract, compensation is paid to the customer.

Follow up of performances and maintenance requirements impose to set up specific equipment for measuring and tele-monitoring.

Organisation of the project – The five phases

Begun in April 2001, this project contains 5 phases spread on 36 months (according to the contract, project end : 6 April 2004). The total budget is 2 379 374 euros. The European Commission's contribution is 1 500 000 euros.

Two endorsements have been adopted during the project. The first one, in April 2003, aimed at validating the NERC arrival in the consortium. This arrival was done with a constant budget. The second endorsement has just been signed by the European Commission (February 2004). Still with a constant budget, APRUE-Algeria and PEC-Palestinian National Authority are granted an additional time to finish task 4, relating to the pilot installations. As we will see, this situation is independent of the work completed within the framework of the project. It comes up to the particular Algerian and Palestinian national situations (absence of collective installation for Algeria and political situation for National Palestinian Authority).

Generally speaking and in order to make the large quantity of documentation easier to study, reports have been produced with the help of guidelines for each of the tasks. Consequently, final documents can be easily compared.

In the frame of the project, a website has been launched. Firstly, this tool was only available to project's partners. It is now on open-access on <u>www.solarmed.net</u>.

All the documents produced in the frame of the project can be downloaded in pdf versions (minutes of the regional meetings and training sessions, reports of the different tasks, training manuals, guides, sizing software and tools...). They are free-access for the public, the professionals of the field, the financing organisations and all the persons interested in the issue

ADEME will regularly update the site on its own budget, even after the end of the project, in order to integrate all the new contributions and inputs.

Phase 1 - State of art of the solar thermal energy in the 7 southern-Mediterranean countries considered

This phase, which ended in June 2002, aimed to analyse local situations and quantification of potentials of development within each of the seven countries studied. NERC-Jordan, despite its late entry in the consortium, has produced its inputs with the help of ADEME.

Very detailed studies were realized. Results are very interesting because in the renewable energies field and solar thermal in particular, very few exhaustive data were available.

It should be noted that the data collecting and analysis was far more difficult than foreseen, due to the general absence of validated data. A large updating work has thus been done. Data used here will certainly become references in the Southern countries considered, which will allow to elaborate action plans but also to maintain an updated database.

Besides an analysis of the state of the markets in every partner country, the different work completed allowed to federate actions and to structure exchanges networks which, we hope, will be sustainable.

For every country, a balance-sheet of exchanges potentials, acquired experiences, technical and material competencies available locally, legal and regulatory aspects, tariffs of the other energy sources and existing local financing has been drawn up.

Each study has been done by a partnership of one European partner + one southern partner.

In-deep studies allowed to evaluate national markets and quantify regional potential. An important disparity between the countries concerned has been highlighted.

On the one hand, within countries producing energy or where the electricity, gas or petrol is cheap, solar thermal energy has a weak development. This is the case of Algeria, where the very cheap gas price (0.17 cents of euro/kWh) penalizes the development of the solar market. In fact, to obtain the same comfort, the over-cost of a solar installation is too important to encourage users to change their energy source.

On the other hand, countries that need to import energy developed significantly solar thermal energy. Tunisia is a very good example of such a situation. Solar thermal energy was strongly supported through a GEF (Global Environment Fund) program. This field could then structure itself. We could as well consider Palestine, landlocked and particularly dependent on its neighbours for its energetic supply, that possesses a very important individual solar collectors stock. On the opposite, Tunisia has highly developed both individual and collective markets.

In all cases, common denominators were highlighted. Without being exhaustive, can be quoted the regulation aspects, the price of reference energies, the need to structure in-depth the solar thermal field. On this basis, experiences of the most advanced countries should then positively influence the strategies of the less advanced countries.

It is also important to highlight the role of public policies. In fact, sometimes, official decisions find difficulties to be implemented. This is why awareness rising actions need to be undertaken regularly at the highest level.

For each of the seven Southern countries considered, a national synthesis has been produced. The potential of implementation of GSR at a regional level has also been quantified. All the documents produced during this task were gathered on a CD ROM which has been disseminated in each of the meetings organised in the frame of the project (training session, regional meeting, national meetings).

Moreover, all these documents are free access on the website of the project.



Collectors stock (individual and collective) and annual solar market in 2000

Phase 2 - Stimulation of solar thermal markets and training actions

The second phase aimed to stimulate solar thermal markets within the Southern countries considered.

Thus, different national and regional seminars have been organised.

First, to encourage regional exchange with all the actors involved in the development of the solar thermal field, two high level regional meetings were organized.

The first seminar was held in Tunis in April 2002. All the partners participated. The Maghreb area countries were particularly concerned. This event was integrated as a central element of the National Tunisian Week for Energy Management. The Tunisian Ministry for the Environment and Land Planning and the European Commission chaired the debates. More than 180 persons, of which 50 foreigners, assisted to the different sessions. Representatives from FFEM-AFD (French Fund for World Environment – French Agency for Development), UNDP (United Nations Development Program) and UNIDO (United Nations Industrial Development Organisation) also attended the meeting. Press, radio and television widely disseminated the project's objectives and the first results. Numerous articles, as well as two interviews for the national television were made.

A second day was devoted to the visit of the SOFTEN company, which manufactures locally equipment under GIORDANO French licence. This company is expanding more and more for exports, with a growing share towards the European Union. Two hotels, equipped with collective solar installation, were also visited.



Audience of the first regional meeting - Tunis 8-9 April 2002

The second regional meeting took place in Cairo on the 27 and 28 of May 2002. All the partners attended the event. The focus has been made on countries of the eastern area and Middle-East. More than 150 persons participated in the debates and round tables of the first day. Fifty representatives

of the partnership participated in technical visits of solar thermal workshops on the second day. Representatives from Jordan and a Syrian Ministry cordially attended the event.

Most of the documents presented during these two seminars are available free to access on the website of the project.



Visit of a solar thermal installation workshop – Cairo area – 28 May 2002

In order to put the focus on North-South but also South-South knowledge transfers, six national and regional training sessions, addressed to study offices, installers, installer's trainers and professionals of the field, were organised (Morocco, Tunisia, Lebanon, Egypt, Algeria and Jordan). Due to the local situation in Palestine, an only session gathered Palestinian and Jordan has been organised in Amman in July 2003.

Numerous guides, manuals, software were specially produced or adapted in French and English and disseminated to each trainee and partner of the project. The technical content of the training sessions was deeply improved by the participation of a large range of Southern and Northern experts. This is one of the most important aspect of the ASTEMB project, that is why the building of expertise networks has always been a priority.

Numbers of practical works and technical visits were also organised. Around 50 persons participated in each of the training sessions. These sessions were organised on a 3 to 5 days period each.

The mixing of experiences was particularly appreciated by participants and everyone seemed to be highly interested. Of course, the initial knowledge level of participants was linked to the solar thermal field development of the country. Thus, each program has been adapted to the local context in order to fulfil the sustainable objectives of the training.

The sessions were adapted in order to meet at best the various national issues but also to open the debates on the regional issues.

Numerous practical work and technical visits were also organised. An average of 50 people was concerned in each session, that is to say a total of more than 300 people within the framework of the project. This figure does not take into account the trainings which were or will be organized later by the trainees who have undertaken to distribute as widely as possible the training documents. The sessions duration was three to five days.

Some countries, like Morocco and Tunisia, were already engaged in these "training" actions. The CDER (Morocco) recently built a training platform corresponding to international standards and get the accreditation from the ISPQ (Institute for Sustainable Power Quality Accreditation). NREA (Egypt) also possesses its own platform dedicated to renewable energies (this platform will be enhanced in the following months). The Tunisian example can also be cited ; the program of the ASTEMB training course is now used as a basis for a training session that has just been put in place. In fine, this session should be a necessary training for professionals that want to get the national accreditation to install granted solar thermal systems.



Technical visit of a solar thermal installation during the Moroccan training session (20-23 May 2002)

The first training session, co-organised by CDER-Morocco and ADEME-France took place in Marrakech, from the 20th until the 23rd May 2002.

The second session, co-organised by ANER-Tunisia and ADEME-France, was held in Tunisia from the 8th until the 12th of July 2002.

The third training session, co-organised by ALMEE-Lebanon and ADEME-France was held in Beirut, between the 28th and the 30th of October 2002.

The fourth session, co-organised by NREA-Egypt and IDEA-Spain, took place in Cairo, between the 15th and the 17th of December 2002.

The fifth session, co-organised by APRUE-Algeria and IDEA-Spain (with the support of ADEME), took place in Algiers, between the 27th and the 29th of January 2003.

The sixth session, co-organised by NERC-Jordan, PEC-Palestinian Authority, and ADEME (with the support of ADENE-Portugal and CRES-Greece) was held in Amman, between the 30th of June until the 3rd of July 2003.

Most of the documents produced in the frame of these sessions are free access on the website of the project : www.solarmed.net.

Phase 3 - Adaptation of the Guarantee of Solar Results, quality procedure and certification

During the third phase, the GSR charter has been adapted to local context within the seven southern countries concerned. It consisted in the consideration of legal, administrative and financial aspects, as well as the translation of reference-documents into French, English and in some cases into Arabic.

All these "personalised" contracts were made available to national professionals in order to facilitate, in the future, the implementation of the GSR concept.

An analysis of the certification and standards systems available nationally in every southern countries considered has been undertaken.

An advising booklet proposing a common approach for the choice of testing methods and standards has been produced.

This task ended in December 2002 for the six initial southern partners of the project.

Considering the late entry of the NERC-Jordan in the project, this task has just been undertaken by the NERC and new documents will be available on line in the following days.

These documents should become references in every studied country. They are available on-line on www.solarmed.net.

Phase 4 - Pilot installation and exemplarity – exchanges of competencies and experiences

The fourth phase aims to implement telemonitoring equipment on selected pilot installations (one per beneficiary country). The objective is to highlight the importance of the performances monitoring within the frame of GSR. Complete telemonitoring systems had thus be installed (local station, sensors, central station, tele-monitor, debit meter, probes, monitoring software, data-analysis software...).

For transferring the data gathered towards the central station which carries out their treatment, it is necessary to have a dedicated telephone line. For most of the countries, this requirement was rather difficult to meet, taking into account the attribution rules of additional lines. The startup time has, in some cases, significantly delayed the installation of the telemetry equipment.

Firstly, an inventory of existing collective installations has been undertaken. This non-exhaustive inventory only concerned installations that may become the national pilot projects.

Then, we acquired complete seven telemonitoring systems (as described above).

In order to be able to compare and study the data, seven similar systems had been chosen through a consulting of all the project partners (who were supposed to organise a national invitation to tenders). A typical configuration has been chosen. Considering the large range of standards in the countries considered, this tasks appears to be far more difficult than expected and some adaptations had to be undertaken as on the technical side as considering the language used by software. These systems, entirely paid by the European Commission, had been sent to Southern countries during the summer 2003.

In the frame of this task, users of the systems shall also be train. Thus, two guidebooks were specially written (French and English) and installation guidebooks were produced for every site. The methodological approach used could be useful for any other installation.

By now, all the partners received the systems. Considering the Palestinian Authority, shipping of the system was particularly complicated and we sought the French Consulate in Jerusalem to help in the procedure with the Israeli authorities.

The main parts of the equipment are in place on the pilot sites.

The Egyptian and Jordanian installation are in order.

The Lebanese and Tunisian installations should be put in order in the following days and the Moroccan one before the end of March.

Concerning Algeria, we had to face a particular and unplanned situation. Indeed, the inventory phase allows to consider that Algeria does not possess any collective solar installation. In the frame of this project, the APRUE identified a thalassotherapy centre, whose landlord was interested in the installation of a collective solar system. Thus, APRUE launched a consultation within the project's partners to realise a feasibility study. The objective was to put into operation the first collective solar installation of more than 50 m² in the country. Despite the convincing results of the feasibility study, the landlord did not accept the financial scheme proposed by APRUE. Actually, in order to find a way out to the situation, APRUE, supported by ADEME, evaluate with SONELGAZ the opportunity to implement a solar collective installation. An extension of 6 months to the project duration has just been granted by the European Commission in order to allow APRUE to fulfil this task (Endorsement number 2 - new final date : the 6th of October 2004). APRUE, on its side, approved to launch an invitation for tender concerning the equipment supplying before the actual contractual end of the project (6th of April 2004).

Given the Palestinian situation, we consider the implementation in two stages.

First, on the basis of the very detailed installation guide realized by ADEME, PEC is installing the whole equipment. The starting can be done remotely from France. As for the users training, it will be done in Jordan, on the pilot installation site, in Amman.

Second, provided safety in Palestine is stabilized before the end of the endorsement number 2 (October 2004), a new training should be organized locally.

Phase 5 - Support to draft projects

The fifth phase initially consisted in a support to every Southern country in elaborating their national plan for the development of solar thermal collective applications. However, a non negligible part of the market concerning the individual applications, we kept, the principle of a global approach on the whole solar thermal field and finally, we decided to design together national Plans for the development of applications of solar thermal energy in each of the 7 southern partner countries.

The analysis of the sectors to be developed in priority as well as the backers programs and the new financing tools were studied.

Tunisia can be cited as an example through its use of the GEF fund from 1997 until 2002, for solar thermal market support. The Tunisian government also apply a pro-active policy dedicated to thermal applications of the solar energy and recently implement a specific grant scheme for collective and individual solar applications. This mechanism might not be strong enough to maintain the important growth observed in the past years. Consequently, Tunisia foreseen to seek international financing organisations for the implementation of additional incentive financing mechanisms.

A recommendations guide has been written to share with Southern partners some European experiences and help them to develop their draft national projects in the best possible way. The Southern countries have exchanged a lot with some Northern partners. As agreed, each Southern country worked out its national plan for the development of solar thermal energy.

The national objectives, the sectors to be developed as well as the context to be taken into account are identified there. The different concerned parts as well as the barriers to be overcome are analyzed. Some proposals are, in each case, expressed.

These documents will be used as a basis in the installation of concrete projects and will be able, in some cases, to be directly supported by an international backer. It is what currently occurs with Moroccan program PROMASOL. A Jordanian program is being discussed between NERC and two international institutions.

Based on the 7 national plans, a significant analysis work was carried out. For each country, the "strong points" and the "weak points" were gathered and, when that was possible, of the regional approaches were studied.

For each country, the "strong points" and the "weak points" were gathered and, when that was possible, regional approaches were studied. The final report of task 5 also replaced the development of solar thermal in the Mediterranean in the regional energy context. In particular, the key factors of the sustainable development of the solar thermal market were analyzed. The financing requirements, their typology and the risks to be taken into account were also approached.

The financing mechanisms and tools of solar thermal activities were reviewed. Can be distinguished, on a side, let say traditional instruments such as loans (trade banks, development bank, third part financing with the example of the ESCO dedicated to hot water sale, leasing, project financing). We then studied let say non traditional instruments and the new instruments (the support programs of the backers, the agencies for exports financing, the partnerships applicable to the Euro Mediterranean zone, the opportunities offered by the FEMIP, the CDM, the public-private type partnerships).

This list is not exhaustive and classification is not fixed. The importance of the regulation context was stressed, with examples of interesting initiatives, such as the Barcelona solar ordinance or the application of some building rules in favor of the solar equipment installation a posteriori. The issue of the equitable conventional energies tariffing and of the expected impact on the development of the solar thermal field were also stressed.

Far from proposing a single solution, the final document offers a panorama of financial tools, which can be adapted to each national or regional context, according to the options which will be retained by the concerned countries but also by the international institutions.

The small size of the projects and the level of the requirements in financing were the subject of a detailed attention. Indeed, to dimension, design, install and maintain a solar thermal installation about fifty square meters cannot be done according to the financing schemes that are generally used for bigger size projects (biomass or wind energy). This observation seems to be obvious but this was the subject of many exchanges between the partners and the financial institutions. In fine, it is a question of working out and setting up adapted financing tools and it is certainly the main issue for the sustainable development of the solar thermal field in the Eastern and Southern Mediterranean countries.

The project final meeting was organized by ADEME on March 2, 2004 in Paris.

From a general point of view, it gathered significant and high level delegations from ASTEMB project partner countries, but also a significant number of representatives from international institutions. The different presentations are available on line on the project website and all speeches will be transcribed in a document, in French and English, which will be distributed on the same website in the next weeks.

More than 100 people participated in this meeting. However, the aim is not to group numerous persons but to dispose of a high level representatives panel. Then, the recommendations which will be approved could significantly help to future exchanges between institutions and decision-makers in charge of the development of renewable energies and, more particularly, on applications of solar thermal energy in the Mediterranean Basin.

We were pleased to welcome the European Commission, represented by the three General Directorates, EuropeAid Co-operation Office, the General Directorate in charge of the Development, and more particularly the European Union Energy Initiative (EUEI), as well as TREN General Directorate. The European Commission opened the day and chaired the debates. The ADEME's Chairwoman opened the day too.

ADEME, as the coordinator of the ASTEMB project, presented the objectives, the various phases and the first lessons to be drawn from this project.

The 7 southern partner countries of the project then presented their national Plan for the development of solar thermal energy (respectively ALMEE, ANER, APRUE, CDER, NERC, NREA and PEC). ADEME and IDAE animated the debates.

The main elements to be taken into account for the development of the field, at a national and regional level, were then synthesized by both ADEME and CRES. The energy context and the success conditions, with a particular stress on the economic, financial and energy issues of the field, were discussed with the participants.

To place the debates in the international context, a first panel of speakers emphasized the policies and the development priorities of the international institutions and insisted on the role of the backers and the international institutions. The European Commission EuropeAid Directorate presented the MEDA program and its strategic orientations in the Mediterranean. The particular place of energy in the Barcelona process was underlined and the strategic importance of renewable energies, for energy aspects as well as for the simultaneous effects on development, was emphasized. The World Bank stressed the importance of the projects promoting renewable energies and presented its mode of intervention and support and more particularly, on the Mediterranean zone. In spite of a real interest of the Bank for these projects, we note that, given the typology of projects, their financing according to traditional schemes is difficult. The European Investment Bank, after having exposed its operating rules, reminded the audience of the energy and financial issues of renewable energies and the difficulty, for the international financial institutions, to get mobilized on small size projects.

The Development General Directorate animated the debates with the participants.

A second panel of speakers presented some financing mechanisms that can be applied to renewable energies and exposed the weaknesses and the strong points for the small projects financing, such as the individual or collective solar thermal water heaters.

ADEME pointed out the operative modes of the clean development mechanisms and underlined the difficulty in taking into account the small projects. The characteristics of the Mediterranean zone and the particular typology of the projects and the requirements in financing allow to imagine a fund-type structure which could, according to operative modes to be defined, take into account other components than the simple greenhouse effect gases reduction.

The UNEP presented the works in progress within the framework of the II MEDREP-type Mediterranean initiative. This initiative concerns, among other things, the development and the implementation of tools for financing small projects on 3 Mediterranean countries. The UNEP presented the public approach to mobilize the financing by trade banks on this kind of projects.

Then, CDC IXIS and ADEME set out the advantages of a public partnership for the implementation of projects financing tools. The FIDEME example was presented and a thought on the implementation practical details of this type of funds for small projects was undertaken.

BRED Management exposed the use of leasing for the sale of equipment dedicated to solar hot water production. Both ENEA and CRES presented the ESCos and the particular case of the hot water sale.

All these presentations were the subject of exchanges with the participants.

The southern partner countries then made the synthesis of the day. Were mentioned the actions to be taken within the frame of the ASTEMB project, with regard to the solar thermal applications but also in the broader renewable energies field. The requirements in coordinated actions, at a national but also a regional level, were underlined.

The European Commission and ADEME enclosed the debates.

Future perspectives and extension of the ASTEMB project

Work undertaken in the frame of the ASTEMB project already allow to list barriers to be overcome and development lines that could positively influence solar thermal markets of the South-Mediterranean countries.

Competencies transfers, both North-South, South-South and even South-North, were particularly fruitful and will surely help countries that begin their thinking on this issue. This project should also allow a quick implementation of essential legal tools.

Aware of the differences and similarities noticed during the different phases of the project, the regional approach appears to be more and more essential.

Barriers to the field development being usually the same from one country to another, a deep knowledge of local situations now allows a better understanding of the mean to be developed to overcome them.

Having this in mind, project's partners already think of their future cooperation and foreseen to open their discussion to other Mediterranean energy agencies. The dissemination of the GSR concept in the Mediterranean Basin is already studied and could be the subject of another project. A regional approach to implement several certification platforms also seems relevant and could consist in a proposal. An in-deep work on financing mechanisms, indicators of energetic efficiency, consultation action on energy tariffs, organisation of training on all the renewable energy sources in the Mediterranean countries have already been discussed by the partners and accepted. Ad-Hoc Groups, within the frame of the Euro-Mediterranean forum's, have validated principles of such actions.

The results get during this project, and particularly the thoughts undertaken on financing mechanisms, will contribute to the works in progress within the framework of the II MEDREP-type Mediterranean initiative and of the regional Center of resources, which has just been set up by Italy in Tunisia.

The recommendations will be also taken up by MEDENER, which will design, on this basis, some proposals for regional projects.

At last, the implementation of sustainable networks of technical, as well as institutional and financial, experts will be a plus within the framework of the Barcelona process.

From now on, all these elements have to be developed and more than a conclusion, we are talking about a new departure here.

Person in charge of the project

Coordinator

ADEME (French Agency for Environment and Energy Management) is an industrial and commercial public body, which is placed under the triple supervision of the Minister for Ecology and Sustainable Development, the Minister for Industry and the Minister for Research and Development.

With more than 850 collaborators, ADEME leads its actions through central services on three sites (Angers, Paris, Valbonne), 26 regional delegations, a representation in Brussels and three representations in the overseas territories.

This project was coordinated by the Renewable Energies, the Energy Networks and Markets (DERRME) Division in Valbonne and by the International Action Division (DAI) in Paris.

This Directorate gathered three departments: Renewable Energies, Energy Efficiency Markets and Services, and Bio-resources.

The range of activities of the Renewable Energies Department covers all the renewable energies field : technical and regulatory aspects as well as funding mechanisms.

Thanks

It is not possible to conclude this presentation note without thanking EuropeAid, which helped us by co financing this large scale action on the Mediterranean zone. We also would like to thank particularly the project partners who get mobilized so that we can meet, in the best conditions, our reciprocal involvements. Thanks also to the MEDENER association, which initiated this project. At last, thanks to all the representatives from authorities, professional environments and associations, who always met with professionalism and availability our requests. Without their active contribution and their motivation, this project could not have had such an impact. We also rely on them to be the spokesman of our common work and to act so as this work remains lively and contribute positively to the development of renewable energies in the Mediterranean basin.

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