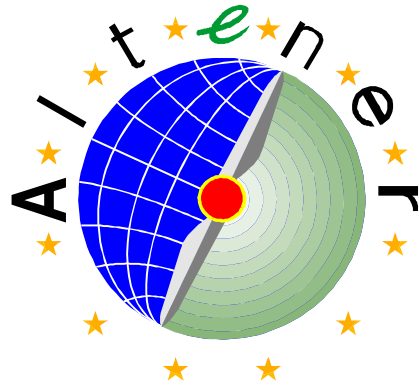


Revised Proposal for an
ALTENER action.



Solar Keymark

*Network co-operation about implementing the EN Standards and
Establishing the CEN/CENELEC Keymark for Solar Thermal Products*

European Solar Industry Federation (ESIF)

Proposal no: AL/2000/144

PRIORITY AREA:

STU

(Development and dissemination of standards and certification)

Thursday, 14 September 2000

1. PROPOSAL SUMMARY (revised September 2000)

Aim of the project

The aim of the project is to open the European market for producers and dealers of solar thermal products by implementing the new EN standards and establishing a certification mark (KEYMARK) for solar thermal products. This "SOLAR KEYMARK" shall ensure compliance with the upcoming European standards for solar thermal products: EN12975, EN12976 and ENV 12977. To the consumers the Keymark act as a common EU quality certificate for solar thermal systems and components. The Keymark shall replace all the different national/regional "certifications" existing now.

Expected results

The direct results of the project will be:

- International co-operation about implementing the EN tests for solar thermal products. A large group of the main national European solar test institutes will be accredited to perform the tests according to the EN standards
- The SOLAR KEYMARK. This certification mark referring to conformity with the EN standards will be used as a quality label for solar thermal products
- A solar thermal product will need one test only according to the EN standards – this test will be valid for whole Europe

And the most important indirect results

- Open market for solar thermal products
- Increased sale
- Lower price
- Improved quality
- Enhanced user confidence

Dissemination potential

The European Solar Industry Federation, representing approx. 300 European solar industries, together with 10 leading national solar test institutes propose this Solar Keymark project. They commit themselves to use their major influence to make the Solar Keymark valid through out all of Europe, replacing all the different national/regional "certifications" existing now. So do the associated partners: Active Solar Thermal Group, representing directly 18 European solar thermal industries and the test institute Testzentrum Saarbrücken.

Financial details	Euro
Total project cost	600,500
Eligible cost (for European Commission support)	600,500
Support requested from the EC	299,700
Support requested from or granted by any other public body (please specify)	0
Expected income (participation fees, sales,etc ...)	0
Financial contribution of the proposer(s)	300,800

Note on September 2000 revision: Compared to the original proposal (November 1999) the following revisions has been made:

- Association of the Active Solar Thermal Group (ASTIG), representing a number of specific European manufacturers and the test institute Testzentrum Saarbrücken (TZSB).
- Budget reduction from 892,800 / 892,800 / 399,100 / 493,700 Euro to above figures.
- Reduction of project duration from two to three years.
- Revisions in work programmes to fit the above changes.
- The project will be co-ordinated with the projects AL181: Sun in Action II and AL297: Solar Combisystems

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2. IDENTIFICATION OF THE PROPOSERS

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3. PROPOSED WORK PROGRAMME FOR THE ACTION

Introduction to the work programme

Aim: To open the European market for solar thermal products

The aim of the project is to open the European market for solar thermal products by implementing the EN Standards and introducing the CEN/CENELEC European Mark in the solar thermal area as the “Solar Keymark”¹, which will act as a common EU quality label. General information about the Keymark and how to establish it is available in Annex 5.

Background: Market situation now and the new EN Standards

As present, each nation (and even region) has its own rules/regulations for “certifying” solar thermal products (if they have any). These “certifications rules” are based on national standards and regulations and are often used in connection with granting subsidy to the products. This means, that for each nation/region one has to apply for “certification” and this most often implies a local test and approval of the product due to the local rules. To cover the whole EU-market with one product you might need more than ten tests and certificates. This situation forces in the best case the manufacturers to spend time and money for getting all these tests and certificates – making the products more expensive, - or in the worst case they stay at their national market, and can not benefit from the European market.

In the year of 2000 the EN Standards for solar thermal products will come into operation². But these standards are not harmonised standards, which means that CE marking of the products is not possible. That is why the TC 312 Committee (CEN Technical Committee for solar thermal products) decided to work for the European Mark (Keymark), and that is again why the European Solar Industry is now proposing this project for the Solar Keymark, to overcome the bad present market situation. The Keymark can not be obligatory to the solar products, but since the European Solar Industry is behind it, it is expected to be indeed very widespread. Also behind the Keymark are the 11 participating test laboratories, representing ten nations, and committing themselves to perform the new EN tests and to use the Keymark.

Result: Open market

Having introduced and implemented the Solar Keymark – valid for the whole of EU, this certificate will be the only certificate necessary. And now it will be possible with only one test and one certificate to enter the whole European market. Still it will be possible for each nation to put extra criteria on top of the Keymark for the national subsidy granting. But it is in the interest of the industry and as a goal for the network of test institutes (to be established in this project) to work for harmonisation of these criteria, and to eliminate/minimise the number of extra national depending criteria.

¹ “The CEN/CENELEC European Mark is a third-party certification mark, demonstrating to users and consumers compliance of products with the requirements of the relevant CEN/CENELEC Standard(s)” [CEN/CENELEC, Internal Regulations, Part 4: Certification, Edition 1995-05].

² If, against expectations, some of the prEN-standards are not approved, the work programme will be revised in the direction of putting an extra effort in revisions of these non approved drafts in order to getting them approved as soon as possible. Most probably it will not be possible within the frame of this project to establish Keymarks for products related to standards which are not approved in the first voting round. The possibilities for harmonising national certifications in the period until Keymarks can be established will be investigated

Organisation of the project work programme

To achieve the result mentioned above, the following “three track” work programme is proposed:

- Track 1: Network of test institutes. The network is co-ordinating the efforts of implementing the new EN tests and getting accreditation for performing them. It is a basic criterion for the Keymark that the tests are performed by an accredited lab. The test institutes participating commit themselves to mutual acceptance of the test results, i.e. the test results of a product tested by one of the accredited labs in the network will be accepted by all others. This track has three subtasks: 1) Network co-operation about implementing the standards, 2) Network co-operation about getting the accreditation and 3) Using the experience gained to improve the virgin EN standards.
- Track 2: Establishing the Keymark procedures. To establish the Keymark a project for a CEN/CENELEC European Mark Scheme for solar thermal products shall be proposed to the CEN Central Secretariat (CEN/CS)³. After approval of the project in the CEN/CS, a Scheme Development group of experts will prepare the Mark Scheme. This group of experts will be the participants in this Altener project, as nearly all the experts in this field are gathered here, and they will through this project have the financial opportunity to do the work. This track has two main phases: 1) Project proposal for the Mark Scheme and 2) Preparation of the Mark Scheme rules.
- Track 3: Marketing the Solar Keymark label and dissemination of the project results. To make the Solar Keymark label a success, it has to be known. An EU-wide marketing campaign will be prepared, and each participant will prepare his own national market for the upcoming Solar Keymark label.

The organisation of the work programme is illustrated below, and each track is defined as a work package and described in details in the following pages.

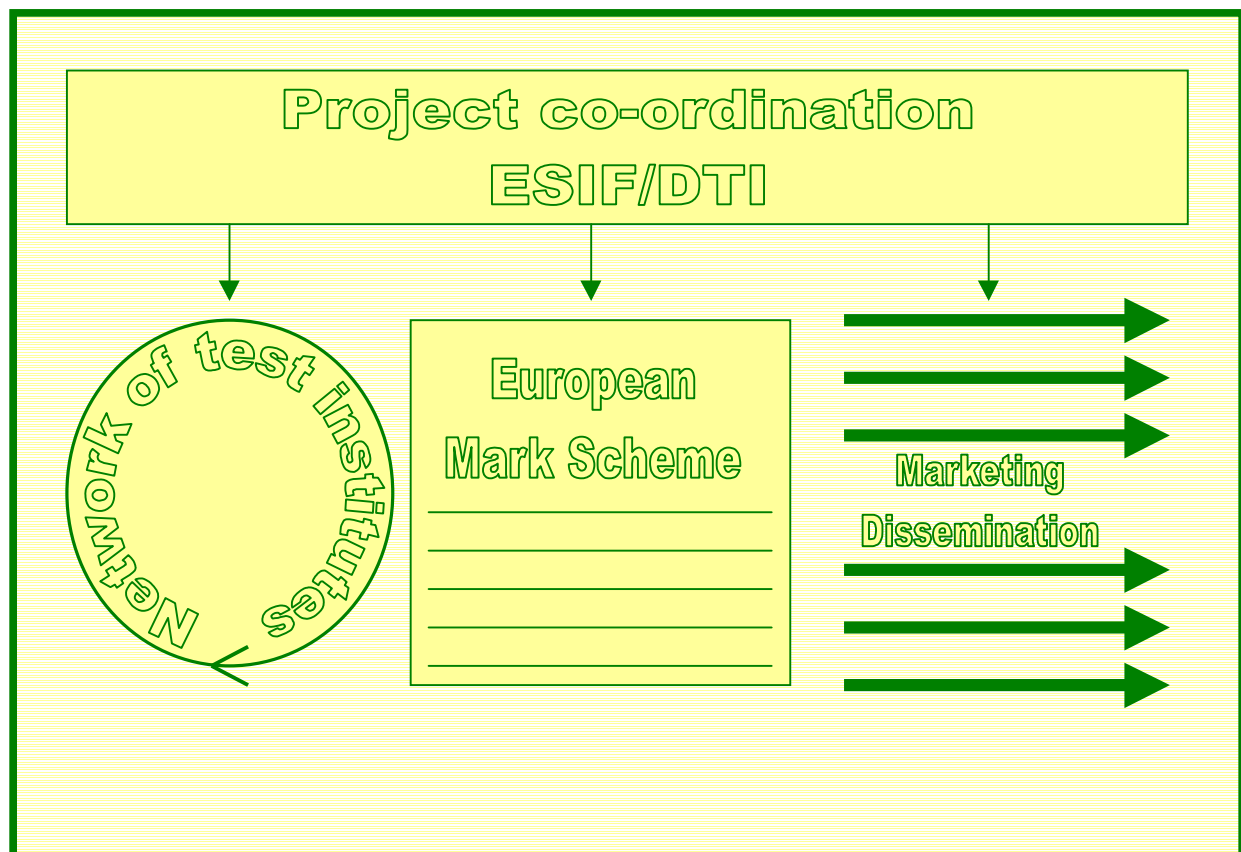


Fig.1. Organisation of the work programme

³ The CEN/CS is aware of this Altener project proposal and very positive to the idea of introducing a Solar Keymark. (Reference: Gaston Michaud, Director Corporate and Legal Affairs, CEN/CS).

Work Package 1: Network of test institutes

Task leader: DTI
Participants: All test institutes
Time schedule: Project start -> project end: 24 months

The network of European test institutes willing to commit themselves to implement one or more of the EN test procedures and get EN 17025 accreditation⁴ for performing these test procedures is already established during the preparation of this project application. The participants in the network commit themselves to mutual acceptance of each other's test results when test results are delivered from participants accredited to perform the EN tests.

During the project the test institutions communicate regularly to exchange experience and co-ordinate their efforts. The aim of this task is to rationalise the implementing and especially the accreditation process using each others experience, avoiding to do the 10-fold work necessary if each lab should do the same work on its own. Workgroups will be formed to outline the format for description of the quality assurance system to be used for each standard. Institutes having already experience in this field will guide the work.

The network will establish common databases for computer models and measured test sequences needed in the standards.

The network will record experience working with the standards with the aim of producing recommendations for improvements of the standards at the next revision.

Towards the end of the project the possibilities for continuing the network will be investigated.

This work package is divided into four subtasks related to each of the EN standards and to the database management.

Subtask 1.A: EN12975 Solar collectors
Subtask leader: SP
Participants: Arsenal, CSTB, Demokritos, DTI, ENEA, INETI, ITW, SP, SPF, TNO

- A1. Co-operation about implementing test procedures. Experience about implementing the EN tests exchanged between the participating labs.
- A2. Co-operation about implementing quality assurance systems. Experience about implementing the quality assurance procedures needed for the accreditations are exchanged between the labs.
- A3. Recommendations for revision of standards. During the work of implementing the standards, writing operational procedures and trying out the test methods there will comments to and suggestions for improvements of the new standards. The Network will be used for gathering together these in a formal list of "recommendations for revisions of standards". Test and evaluation of new procedures and extensive improvements are not included in this project, but has to be worked out in another project.

The subtask leader will have the responsibility of:

- Co-ordinating the subtask
- Collect experience gained from the implementing processes
- Drafting the formal list of "recommendations for revisions of standards"

⁴ To have the Keymark, the product has to be tested according to the EN standards by a test laboratory accredited to perform these tests.

Subtask 1.B: EN12976 Factory made systems
Subtask leader: TNO
Participants: CSTB, Demokritos, ENEA, INETI, ITW, SPF, TNO

- B1. Co-operation about implementing test procedures. Experience about implementing the EN tests exchanged between the participating labs.
- B2. Co-operation about implementing quality assurance systems. Experience about implementing the quality assurance procedures needed for the accreditations are exchanged between the labs.
- B3. Recommendations for revision of standards. During the work of implementing the standards, writing operational procedures and trying out the test methods there will be comments and suggestions for improvements of the new standards. The Network will be used for gathering together these in a formal list of “recommendations for revisions of standards”. Test and evaluation of new procedures and extensive improvements are not included in this project, but has to be worked out in another project.

The subtask leader will have the responsibility of:

- Co-ordinating the subtask
- Collect experience gained from the implementing processes
- Drafting the formal list of “recommendations for revisions of standards”

Subtask 1.C: EN12977 Custom built systems
Subtask leader: DTI
Participants: CSTB, Demokritos, DTI, ENEA, INETI, ITW, SP, SPF

- C1. Co-operation about implementing test procedures. Experience about implementing the EN tests exchanged between the participating labs.
- C2. Co-operation about implementing quality assurance systems. Experience about implementing the quality assurance procedures needed for the accreditations are exchanged between the labs.
- C3. Recommendations for revision of standards. During the work of implementing the standards, writing operational procedures and trying out the test methods there will be comments and suggestions for improvements of the new standards. The Network will be used for gathering together these in a formal list of “recommendations for revisions of standards”. Test and evaluation of new procedures and extensive improvements are not included in this project, but has to be worked out in another project.

The subtask leader will have the responsibility of:

- Co-ordinating the subtask
- Collect experience gained from the implementing processes
- Drafting a formal list of “recommendations for revisions of standards”

Subtask 1.D: Databases for computer models and test sequences
Subtask leader: ITW
Participants: Arsenal, CSTB, Demokritos, DTI, ENEA, INETI, ITW, SPF, TNO

- D1. A database for computer models (1 collector model and 2 storage models) necessary for the EN tests is organised by the subtask leader based on input from the participants. Validated collector and store models are needed to make the standards work properly. Validation criteria are put up, and the models passing these criteria are collected in a database, which can be used for free by the participants during the project. The future maintenance of - and the accessibility to - this central database after the project will be discussed at the end of the project. The participants will have a copy of the last version of the database before project end.
- D2. A database for test sequences for validation of these computer models is organised by the subtask leader based on input from the participants. To validate the models mentioned just above, it is necessary to have measured data one can believe in to check the models against. Validation criteria for

test sequences, which are allowed into the database, are put up, and the test sequences passing these criteria are collected in a database, which can be used for free by the participants during the project. The future maintenance of - and the accessibility to - this central database after the project will be discussed at the end of the project. The participants will have a copy of the last version of the database before project end.

The subtask leader will have the responsibility of:

- Co-ordinating the subtask
- Managing the databases

WP1 Milestones

- ✓ Meetings and meeting reports.
- ✓ Labs ready for testing due to EN tests
- ✓ Labs ready for applying for accreditation
- ✓ Labs having accreditation
- ✓ Databases established

WP1 Deliverables

- Meeting reports
- A set of recommendations for revision of EN/ENV 1297x
- Databases for models and test sequences

WP1 Meeting plan

The meetings will be common for all the WP1 participants. And they will of course be planned in a way giving the participants the possibility to participate in all subtask meetings.

- At the beginning of the project: Planning meeting
- After first year: Status meeting
- Near the end of the project: Final meeting

WP1 budget

Total: 370,400 Euro. EC financing: 29%; 105,800 kEuro

Financial details: See Annex 1

Work Package 2: CEN/CENELEC European Mark Scheme

Task leader: ESIF

Participants: All test institutes

Time schedule: Phase one: Project start -> 2 months

Phase two: End of phase one -> Project end

The CEN/CENELEC European Mark Scheme is giving the rules for granting to a manufacturer the license to use the CEN/CENELEC Keymark. The CEN/CENELEC Keymark demonstrates compliance of products with the requirements of the EN standards.

This work package has to be divided into two phases. First a project for a Mark Scheme has to be proposed to the CEN/CS and next the Mark Scheme has to be prepared.

In Annex 5 is described what the Keymark is and how to establish it.

Phase one

In this phase a project proposal for a CEN/CENELEC European Mark Scheme is done. This proposal is officially forwarded to the CEN Central Secretariat by the TC 312 together with a “declaration of desire”

from the industry (ESIF). The task leader has the responsibility to draft the proposal and to revise it taking in comments from the participants.

Phase two

The CEN/CENELEC European Mark Scheme rules are prepared by the Scheme Development Group of Experts created by the CEN Certification Board (on the basis of recommendations from this project) . The CEN Certification Board appoints the convenors and agrees on the allocation of the secretariat of such a group (the CEN TC312 Secretariat will be proposed by this project).

Mark Scheme rules drafted by the Scheme Development Group are verified for integrity and conformity by the CEN/CS and then circulated to members of the Certification Board and CEN national members for an inquiry of two months. Comments from this CEN Certification enquiry are forwarded to the Scheme Development Group for the final preparation of the Scheme rules.

Approval of Scheme rules is done by a formal vote of national members. Voting period two months. Copies of the European Mark Scheme rules are circulated by the CEN/CS to the CEN members and made available to any interested party.

The task leader has the responsibility of drafting the project proposal and the mark scheme. The participants discuss and comment on the drafts.

WP2 Milestones:

Phase 1

- ✓ Declaration of desire
- ✓ Project proposal for a CEN/CENELEC European Mark Scheme delivered
- ✓ Project proposal for a CEN/CENELEC European Mark Scheme approved

Phase 2

- ✓ Scheme Development Group of Experts created
- ✓ Draft European Mark Scheme rules prepared
- ✓ Inquiry done
- ✓ Final preparation done
- ✓ European Mark Scheme rules approved

WP2 Deliverables

Phase 1

- Project proposal for a CEN/CENELEC European Mark Scheme
- Approved project proposal for a CEN/CENELEC European Mark Scheme

Phase 2

- CEN/CENELEC European Mark Scheme for solar thermal products

WP2 budget

Total: _____ 96,300 Euro. EC financing: 88%: 84,400 Euro

Financial details: See Annex 2.

Work Package 3: Dissemination of project results and marketing the “SOLAR KEYMARK” label

Task leader: ESIF

Participants: All participants

Time schedule: 6 months from start -> project end

The goal for the marketing campaign is to make the Solar Keymark known to the public, contractors and authorities in order to get them demanding the Keymark label on the products. The private consumers will demand the label on the product they buy, the contractors will make requirements for the Keymark in their

invitations for tenders for projects, and the national authorities will require the Keymark for granting subsidies and the Keymark will replace national certificates.

The “SOLAR KEYMARK” label is designed and promoted in a marketing campaign targeted to the industry, the consumers and the authorities. Responsible for label design, campaign strategy and international dissemination is the task leader, the other participants will do comments to drafts and participate in discussions.

Efforts will be made to co-operate with national certification institutes, already involved in national certification of solar products, about the promoting of the Keymark together with the national recognised certificate in order to get a fast recognition of the Keymark.

The national participants will promote the label nationally according to the strategy from above and through independent national actions. A very important part of the nationally activities is to influence the national regulations/rules for certification of solar thermal products. The participating national test institutes all have major national influence in these matters, and they will use their influence to replace the national certification schemes with the Keymark. Doing this will have a very substantial effect on the use of the Keymark, especially in the countries/regions where a certificate is a condition for having subsidy.

Results and status of the project will be disseminated to members of ESIF through the normal channels of the organisation twice a year (at ESIF meetings and in ESIF NEWS). The project will also be promoted on fairs and conferences.

Results and status of the project will be disseminated to members of ASTIG through the normal channels of the organisation (ASTIG meetings, ASTIG Update and ASTIG web site).

Milestones

- ✓ Updated project information twice a year
- ✓ Papers
- ✓ Campaign materials ready
- ✓ Replacement of national certificates with the Solar Keymark

Deliverables

- Solar Keymark design
- Newsletters
- Papers
- Campaign materials
- International actions
- National actions

WP 3 budget

Total: _____ 93,800 Euro. EC financing: 74%: 69,400 Euro

Financial details: See Annex 3

4. EVALUATION OF THE EXPECTED RESULTS

(cost/benefit analysis obligatory for Pilot Actions and Targeted Actions)

As mentioned in the introduction to the work programme the expected result of the project is an opening of the EU-market for solar thermal products. But it is expected also to see other results, due to the fact that a common EU quality label now is introduced:

- The products will be tested to the same criteria all over EU. It will be easier to compare different products and give more fair competition.
- The quality of the products will generally be enhanced.
- Enhanced user confidence
- The end of the many different national ways of certification of solar thermal products

All these effects will work together and accelerate the so very much desired “good circle”: Bigger market for each product -> More sale -> Lower prices -> Bigger market -> More sale -> Lower prices ->...

It is difficult to quantify the influence of the results of this project on the acceleration of the “good circle”. And it will be also be difficult to measure it, i.e. to separate the influence of this project from other factors (energy price changes, political actions, other projects, etc.).

A qualified guess from the participants in this proposal, is that the combined effect of the points mentioned above is expected to give within two years from the end of the project:

- 20% decrease in prices
- 50% increase in total sale
- 20% decrease in (different) products

A 50% increase of the estimated annual sale in 2005 in EU of 3-5 million m² per year⁵ is approx. 2 million m², each m² saving 500 kWh per year. This sums up to an *extra annual sustainable energy production of 1,000 GWh (3.6 PJ). CO₂ savings corresponding to this figure is roughly ½ million ton per year.*

A small increase in number of jobs could be expected. When the expectations are not very high, this is due to an expected more rational production in fewer and bigger companies. As the project is expected to contribute to harder competition on the open market, small companies will have difficulties in surviving.

⁵ Figures from the Sun in Action Altener Project (DGXVII 4.1030/E/94-003)

5. DISSEMINATION

Dissemination and marketing of the Keymark has a very high priority in the project. For this reason a separate work package is planned, please look up the Work Package 3 in the Working Programme (p.19).

As the Solar Keymark will not be obligatory, it is important to make the Solar Keymark known to the public, the authorities and contractors in order to make them demand products with the Solar Keymark label.

The Keymark will be implemented in the ten countries by the participating national test institutes. And these institutes will use their influence on the national authorities to replace the national certification schemes with the Keymark.

The success of the Keymark can be monitored by the number of products wearing the label and the number of nations making the Keymark replacing the national certification and/or incorporate the Keymark in the national certification. Within the 2 years duration of the project it is not expected that a very big number of products will obtain the label – the monitoring of this success parameter should be done a year or two after the project end.

The project has been clustered together with the projects AL181: Sun in Action II and AL 292: Solar Combi Systems, so the projects will be co-ordinated by ESIF and DTI, and all relevant information and results from each project will be distributed to the other projects. Especially will information about test methods and certification be exchanged between the Solar Combi Systems project and the Keymark project, and the Solar Keymark will make use of the Sun in Action II project to promote the Solar Keymark label.

6. MAIN ACTIVITIES OF EACH PROPOSER AND PREVIOUS CONTRIBUTIONS IN SIMILAR OR CONNECTED FIELDS

Proposer No 1: ESIF (Project co-ordinator)

Year of establishment	Number of staff (expert level and above)	Turnover in the last available year of certified accounts (Euro)	Main activities
1992	0	NA	<p>ESIF is the European Federation of Solar Thermal Energy Industry Associations that was founded in 1992 and named: «European Solar Industry Federation» ESIF groups together 12 national industrial associations of the European Union (with over 300 member companies) and 8 energy agencies, testing labs and institutes. ESIF offers a wide range of experience in the solar thermal energy sector essential to achieve the aims of the project and its dissemination as well as bringing the necessary commercial expertise to the project. The objectives of ESIF are:</p> <ul style="list-style-type: none"> • Promotion of the use of solar energy, considering the protection of the environment energy saving and the quality of life. • Diffusion of information concerning solar energy application products, production methods, sales strategies and advertising campaigns. • Collection and analysis, on regular basis, of statistical data. • Stimulation in order to provide collective input into international certification and standardisation organisations, in order to improve system performance, reliability and durability standards. • Representing of the Solar Industry to EU authorities, national governments and any other private or public bodies, including consumer unions. • Elimination of national protectionism requirements. • Exploitation of Solar Energy applications by means of publications, meetings, conferences and trade shows, by collaboration with other organisations, by securing financing and or grants for products, systems or clients. • Stimulation of incentive programs, aimed to provide support for products, systems and end users. • Development of an European Federation label of quality • Encouragement and assistance for the foundation of national associations of manufacturers and other professionals of Solar Systems, in those European countries, where they do not exist

The European Solar Industry Federation (ESIF) was founded in 1992 to promote solar thermal energy in Europe. The 23 members of ESIF include national solar industrial associations representing 300 companies

with 10,000 employees. Other members are national agencies, institutes and laboratories working in the solar field.

The goals of ESIF include:

- dissemination of information about solar energy
- representing the views of the solar industry to the European Union and national governments
- ensuring that trade in solar energy equipment is free and unencumbered developing a European quality label for solar thermal systems

Recent ESIF activities have included a market study of solar thermal energy in Europe, entitled "Sun in Action", and the creation of common European Standards for solar systems and components. In 1998, ESIF is involved in two new activities: the dissemination of the "Sun in Action" report through an information binder, videos and workshops, the Internet and a series of solar thermal exhibitions in south European countries.

Proposer No 2: DTI

Year of establishment	Number of staff (expert level and above)	Turnover in the last available year of certified accounts (Euro) ⁶	Main activities
1906	780	93 MEuro	<p>Danish Technological Institute</p> <p>Development and dissemination of technological innovation. The many activities are organised in 5 divisions: Energy, Environment, Building Technology, Industry, and Industrial Development.</p> <p>Energy Division</p> <p>The Energy Division's main working area comprises the rational use of energy and energy conservation, considering the supply side and the demand side as a whole.</p> <p>Solar Energy Center Denmark</p> <p>Solar Energy Center Denmark is organised as a "virtual" centre and is the result of the joint efforts of the Danish Technological Institute, the Technical University of Denmark and Risoe National Laboratory. The Centre's secretariat and management are located at the Danish Technological Institute in the Energy Division. The Centre unites the main solar research and development institutions in Denmark. The Centre holds the test facilities (accredited to ISO 45001 by DANAK) and quality assurance programmes for solar thermal and solar PV systems.</p>
1926	130	18 MEuro	
1998 (1981)	25	2,5 MEuro	

Previous experience in the field related to the proposal:

⁶ For private companies only

Since 1981 Danish Solar Energy Laboratory (from 1998: Solar Energy Center Denmark) has been testing and approving solar energy systems and components on behalf of the Danish Ministry of Energy. This testing and approving scheme has been acting as a quality guarantee for the solar products on the Danish market. Only systems and components approved at the centre are entitled to get subsidy from the Danish government. The last ten years more than thousand system types and components have been approved. The test facilities of the centre have been accredited to ISO 45001 to perform ISO and national test procedures since 1997. Solar Energy Center Denmark has been participating in the preparation of the upcoming EN standards at TC and WG level.

Proposer No 3: Demokritos

Year of establishment	Number of staff (expert level and above)	Turnover in the last available year of certified accounts (Euro)	Main activities
1980	10	-	<ul style="list-style-type: none"> • R&D in the fields of Solar Energy and Energy Saving • Testing of Solar Thermal Products • Development, optimisation and evaluation of new products in the area of solar thermal, desalination, energy storage, agricultural energy systems • Metrology-Standardisation-Testing-Quality

Previous experience in the field related to the proposal:

- Since 1985 the Laboratory participated in the "European Solar Collector and Systems Testing Group", a group of 22 European laboratories. This group, lead by J.R.C. ISPRA, was financed for the development of evaluation methods of solar collectors and systems in order to develop relative standards.
- Since 1996 the Laboratory participated in a group of 10 European laboratories in the framework of SMT Programme aiming to evaluate testing methods for solar thermal systems included in the new European Standards.
- It activated the Technical Committee TE-35 of the Greek Organisation for Standardisation (ELOT) for Solar Energy in order to create national standards for the efficiency and durability of flat-plate solar collectors and systems.
- It participated in the elaboration of the Standards ISO 9806-1 (efficiency testings in flat-plate solar collectors), ISO 9806-2 (durability testings in flat-plate solar collectors) and ISO 9459-2 (testings in domestic solar hot water systems). Moreover, it plays important role in the elaboration of new European Standards for solar collector and systems testing, through the National Standardisation Committee (prEN 12975, prEN 12976 and prEN 12977)
- It has contributed essentially in the elaboration of more than 35 drafts for standard concerning Water storage, (anti-corrosive protection, safety, manufacture), materials (insulating, etc) and systems (heating of pools, central solar systems, automatic control). It contributes essentially to the creation and forming of new standards and policy in the area of standardisation, by participating in several Technical Committees and scientific teams, such as for Solar Energy, Heating-Cooling-Ventilation, Greenhouses, Accreditation, (of ELOT) and to CEN TC 312 (Thermal Solar systems and Components), ISO TC 180 (Solar Energy), Committees of Greek Ministry for Environment.
- Since 1989 the laboratory has conducted testing in more than 170 solar collectors and more than 120 solar systems according to the respective ISO Standards. Testings according to the new European Standards

have already been performed. All testing has been performed by satisfying the requirements of the Laboratory Quality System (EN 45001).

- It has elaborated and developed a first draft for a certification scheme for solar collectors and domestic solar hot water systems, with the cooperation of the Greek Solar Industry Association (GSIA). Base for the draft was the results from testing of solar thermal products conducted in the laboratory.

Proposer No 4: TNO

Year of establishment	Number of staff (expert level and above)	Turnover in the last available year of certified accounts (Euro) ⁷	Main activities
1990	320	30 MEuro	<p>TNO Building and Construction Research TNO Building and Construction Research is part of the Netherlands Organisation for Applied Scientific Research, as one of the 14 knowledge institutes. Within the world of construction, TNO Building and Construction Research occupies a special place because of its independent position. The organisation sets great store by the reliability and quality of the research and the development of new knowledge. Providing customised work for the customers is the prime objective.</p>
2000 (1990)	20	2 MEuro	<p>Division Building and Systems – Renewable Energy Section Activities in the field of solar energy consist of active and passive thermal solar energy, photo-voltaics and renewable building in which energy and building and construction are handled in an integral way. TNO’s major customers in this field are solar industry, government and the EU. Projects cover among others energy studies, product development and improvement, testing of materials and products, education and marketing of solar energy applications.</p>

Previous experience in the field related to the proposal:

TNO has vast experience of over 20 years in testing of solar energy components and systems and was the initiator and developer of certification of solar domestic hot water (SDHW) systems in the Netherlands. Results of dynamic testing of SDHW systems have been coupled to the Dutch subsidy system to lower the threshold for solar energy application. European standardisation for thermal solar products is a major activity: TNO is convenor of the working group within CEN, which is involved in the standards for factory-made solar heating systems.

TNO has been involved in the co-ordination of a large number of international and European projects. In the field of dynamic testing of solar energy components and systems, TNO co-ordinated the IEA Dynamic Systems Testing Group and the Dynamic Component and System Testing Subtask in Task 14 of the IEA SH&C Programme. Ongoing co-ordination involves the SMT project “Research and experimental validation on the DST performance test method for solar domestic water heaters” and the subtask on development of performance test methods and numerical models for solar combi-systems and their components in Task 26 of the IEA SH&C Programme.

⁷ For private companies only

Proposer No 5: SP Swedish National Testing and Research Institute

Year of establishment	Number of staff (expert level and above)	Turnover in the last available year of certified accounts (Euro)	Main activities
1910	500	42 MEuro	<p>Research and Development, Technical evaluation, Technology transfer and advisory services in the fields of materials, components and systems. SP holds one of Europe's widest accreditation's as a testing laboratory and as a certification body.</p> <p>Dep. Of Energy Technology has been working in the field of testing and research regarding energy technology, including solar thermal components and systems, since the end of the seventies.</p>

Previous experience in the field related to the proposal:

Head of the Swedish Standardisation group concerning solar thermal energy, Swedish delegate in solar thermal standardisation in ISO and CEN TC 312, Member of CEN TC 312 WG 1, WG 3 and PT1. Since 1978 the laboratory has conducted testing in more than 100 solar collectors and some 20 solar systems, in recent years according to the respective ISO Standards. Our test facilities have been accredited according to EN 45001 to perform ISO and national test procedures since 1996.

SP recently participated in the project "Research and experimental validation on the DST performance test method for solar domestic water heaters" (Contract no. SMT4-CT96-2067). SP also conducts field studies on installations and our own product certification scheme has been applied on solar thermal collectors since 1991.

Proposer No 6: Arsenal

Year of establishment	Number of staff (expert level and above)	Turnover in the last available year of certified accounts (Euro)	Main activities
1950	220	5,2MEuro	Research and Development in the fields of renewable energies, partic. solar thermal testing, certification, national and international standardisation,

Previous experience in the field related to the proposal:

Head of the Austrian Standardisation group concerning solar thermal energy, Austrian Delegate to CEN TC 312, Member of CEN TC 312 WG 1 and PT1, Head of the department of renewable energy at arsenal research, head of the solar thermal test group (1993-1998), member of the board of the Austrian Solar Industry Association Bundesverband Solar.

Proposer 7: ENEA

Year of establishment	Number of staff (expert level and above)	Turnover in the last available year of certified accounts (Euro)	Main activities
1952	3800	452 MEuro	ENEA, the Italian National Agency for New technology, Energy and the Environment, is a scientific research and technology development organisation with vast, internationally recognised experience in conducting advanced complex projects.
1982-98	25	1,2MEuro	Solar collector testing laboratory and "solar energy powered town". <ul style="list-style-type: none"> • R&D in the fields of Solar Energy and Energy Saving • Testing of Solar Thermal Products • Task for the promotion and diffusion of solar thermal energy in the public offices.

Previous experience in the field related to the proposal:

ENEA bases its operations on the development and application of innovative, leading-edge technologies, in which it has achieved excellence. For the most part this work is carried out in the framework of programmes aimed at strategic goals. ENEA works with the Ministries of Industry, Ministry of Environment, University and Research, Agriculture and Cultural resources on designing conducting projects involving the European union and other international organisations such as united nations and the OECD as well as non governmental organisation on technology and applications of mutual interest.. ENEA Also acts as a Technology Agency, providing scientific and technological consulting and support to national and local governmental bodies in the solution of complex, urgent and serious problems, the preparation of regulations, and participation in international initiatives and projects.

ENEA activity in the sector of the promotion of energy technology and renewable energy sources started in 1982 in support of national energy policies. ENEA is Italian representative for IEA working group, contractor to European Commission on various energy programmes (VALOREN, JOULE-THERMIE including OPET, SAVE, ALTENER). Since 1994 ENEA has been EⁿR member since 1993.

In reference to the present proposal, it is to be noted that ENEA installed a laboratory for the testing of solar collector at its centre at Casaccia, in Rome during the year 1982. The laboratory functioned till late 1990 when all the activities relevant to solar energy as well as all the operating plants were shifted to ENEA research centre Trisaia, in Southern Italy. It is in this reference that during the year 1998, ENEA completed the installation of an solar collector testing laboratory equipped with advanced equipment and functioning in accordance with the international and European standards (ISO 9806/1-2 and 9459/2 respectively). Since 1998 the laboratory is actively involved in the testing of different components of a complete solar collector in accordance with the standards as mentioned above. In addition, a task force responsible for the implementation of the project entitled, "Solar Cities" has also been set up at the Trisaia centre. The principle objective of this TASK is to manage the installation of nearly 72000 m2 of solar collectors in the public buildings of 130 cities of south Italy over a period of three years. The project has been possible thanks to the aggregation of demand and estimate the employment of nearly 400 young employers. For the installation of such plants, the Ministry

of Environment has foreseen a non refundable contribution of nearly 18 Million Euro The Trisaia centre will be responsible for the verification of the characteristics of the components to be installed and to verify the onsite technical performance of the plants realised

In brief, the main tasks of the laboratory are:

- * Quality qualification for the different components of solar energy collector system.
- * Technical support to the national enterprises formulating norms and regulations ;
- * To control monitoring activities (acquisition of data and analysis of the results obtained) for the plants realised for diffusion ;
- * To provide technical support for both national and regional tenders;
- * Technical-scientific support for the initiatives taken for the diffusion of solar energy programme.

Proposer 8: ITW

Year of establishment	Number of staff (expert level and above)	Turnover in the last available year of certified accounts (Euro)	Main activities
	25		<ul style="list-style-type: none"> - teaching (thermodynamics, solar energy, heat transfer, refrigeration, thermal engineering) - solar energy research -testing of collectors, stores and solar thermal systems - development of products and new test methods

Previous experience in the field related to the proposal:

The ITW carries out experimental and theoretical investigations in the field of thermal use of solar energy since 1976. Some of the research topics were e.g. thermal energy storage (short term and seasonal), system studies on the field of small thermal solar systems as well as large swimming pool heating systems and large solar district heating systems. Furthermore one main work item of ITW is the development and validation of test procedures for thermal solar systems and components such as heat stores and collectors. In 1987 ITW was approved as DIN test institution for solar collectors. The testing activities, also for other solar components and systems, have been expanded since 1993 within the *Research- and Test centre for Solar Systems Stuttgart*. This test centre will more and more take over the role as consultant and partner of industry for certification and development of thermal solar systems, also with regard to environmental aspects. In 1996 ITW initiated, among others, the founding of the IEA Task 26 on solar combisystems within the IEA Solar Heating and Cooling Program. The institute is actively participating in the task and also the national contact person for Germany is employed at ITW. A project on solar combisystems with regard to test methods and detailed scientific investigations is running at ITW since 1999. This project is a co-operation with the German solar industry association (DFS) and 20 German solar manufacturers.

The ITW acts as the official consultants for the national programme 'Solarthermie 2000, Part 3' of the German Ministry of Research. ITW co-operates closely with other European institutes within Tasks and work groups of the IEA Solar Heating and Cooling Programme.

Relevant publications:

- /1/ H. Visser and H.A.L. van Dijk, Commission of the European Communities, Test Procedures for Short Term Thermal Stores, Kluwer Academic Publishers Dordrecht/Boston/London, 1991, ISBN 0-7923-1131-0
- /2/ H. Drück, E. Hahne: Thermal Testing of Stores for Solar Domestic Hot Water Systems, IEA Task XIV Report no. T.14.DCST.1A, Pages 111 - 127, TNO Report Nr. 96-BBI-R0876/526.6.3573, Delft, Netherlands, 1997

- /3/ H. Drück, S. Fischer, A. Knorr, F. Köhler, Th. Pauschinger, M. Peter, Dynamische Prüfverfahren in der Solartechnik, TAB 1/97, Seite 55 - 62, Bertelsmann Fachzeitschriften GmbH, Gütersloh, Januar 1997
- /4/ Th. Pauschinger, H. Drück, E. Hahne: Comparison Test of Solar Heating Systems for Domestic Hot Water Preparation and Space Heating, Proceeding of EuroSun 98

Proposer 9: INETI

Year of establishment	Number of staff (expert level and above)	Turnover in the last available year of certified accounts (Euro)	Main activities
1979	360		Research, Development and Dissemination

Previous experience in the field related to the proposal:

The Department of Renewable Energies of INETI has activity in this field since 1981 and has participated in several European Projects, within Joule Programme and Altener Programme. This department participated in the CSTG Round Robin test programme (1984-1987) and did an evaluation of the Round Robin test results in association with Centre d'Energétique, École des Mines de Paris (France). Since the beginning of the 80's INETI has an important role in the National Technical Commission for standardisation (CT54) and participates in meetings of ISO TC 180 and CEN TC 312.

Since the beginning of 1995, INETI is the Sectorial Standardisation Body for Renewable Energies by mandate of the Portuguese Institute of Quality (IPQ). The Solar Collector Testing Laboratory has Accreditation from the Portuguese Institute of Quality (IPQ) since June 1993 to perform tests of solar collectors and systems according to Portuguese Standards and Internal Procedures based on ISO standards. Furthermore, the Solar Collector testing Laboratory participated in the SMT project "Research and intercomparison on the DST performance test method for solar domestic water heaters" (Contract no. SMT4-CT96-2067).

Relevant publications:

M.J.Carvalho, C. Buscarlet, R. Marshall, E. Mathioulakis, B. van der Ree

Factory made systems: Thermal performance comparison of test methods Eurosun'98, Portorose, Eslovénia, 1998

M.J.Carvalho, M.Collares Pereira, J.Farinha Mendes, C.Rodrigues, R.Rodrigues

Guarantee of Results (Performance) in Solar Systems

Contractors Meeting - Altener, Salzburg, July 1996 and Barcelona, November 1996

B. Bourges, A. Rabl, M.J. Carvalho, M. Collares Pereira

Accuracy of the European solar water heater test procedure. Part 2: Prediction of long-term performance Solar Energy, vol.47, pag.17-25, 1991

B. Bourges, A. Rabl, B. Leide, M.J. Carvalho, M. Collares Pereira

Accuracy of the European solar water heater test procedure. Part 1: Measurement errors and parameter estimates

Solar Energy, vol.47, pag.1-16, 1991

Proposer No 10: CSTB

Year of establishment	Number of staff (expert level and above)	Turnover in the last available year of certified accounts (Euro)	Main activities
1947	300	50 MEuro	Research / Technical Consultancy / Quality Assessment / Knowledge Dissemination

Previous experience in the field related to the proposal:

CSTB has a long experience in the assessment of solar components and systems. In this field CSTB participated in several European working groups: the Solar Collector and System Testing Group (CSTG, 1984-87), the Solar Storage Testing Group (SSTG, 1986-89), the PASSYS group (1986-91) and more recently CSTB has been involved in the project “Bridging the gap: research and experimental validation on the DST performance test method for solar domestic water heaters” in the frame of the SMT programme.

CSTB participates in various standardisation groups at the international, European (i. e. CEN TC 312) and national level.

Proposer No 11: SPF

Year of establishment	Number of staff (expert level and above)	Turnover in the last available year of certified accounts ()	Main activities
1981	20	2 MEuro	<ul style="list-style-type: none"> • R&D in the fields of Solar Thermal Energy • Material research such as solar selective surfaces • Testing of Solar Thermal Products including collectors and systems • Product development in cooperation with industry • Development of simulation software (Polysun)

The Solar Research Institute SPF is part of the University of applied science HSR in Rapperswil, Switzerland. The institute, financed to more than 60 % by the “Federal Office of Energy”, focuses on industry-oriented research work, specialized in the field of solar thermal energy. It is the only institute of this size, with the mentioned scope, nation-wide. It is divided into 4 main areas: components (solar collectors, storage tanks, heat exchangers etc.), systems (domestic hot water, space heating, process heat), simulation software for thermal solar systems (Polysun), materials (solar selective absorber coatings, absorber substrates, glazings etc.).

Scientists at SPF can draw on up to 18 years of experience in a number of activities:

- Design of new systems and system testing are services which SPF offers to the industry. A large testing and certification campaign involves more than 20 domestic hot water systems (DHWS) which are currently sold on the Swiss market.
- Performance testing of standard solar thermal collectors and innovative new concepts is one of SPF’s specialities. A large number of collectors (more than 400) has been analysed and results are published in an update service for more than 1000 customers throughout Europe.
- Materials research includes durability and lifetime estimation of solar energy materials such as selective solar absorbers or cover materials. Besides national and international research programs, the institute works on commission to material manufacturers to assess or select new materials for a specific application.
- Dissemination of results are also in the scope of the institute. An attractive CDROM “Facts and Figures”, contains easy to use evaluation tools for solar thermal collectors including a detailed data base of used materials, performance price etc. Easy to use software to assess the thermal output of solar thermal systems are also part of SPF’s activities. Pre-dimensioned systems for different applications helps to avoid planning errors.

Scientists of SPF have participated and are currently working in activities of the International Energy Agency, Solar Heating and Cooling Programme, Task 3, 10, 14, 26, 27. International standardization is also an important task for SPF. Activities are taking place in the European Standards Committee in the field of solar energy CEN TC 312 and in the relevant International Standards Organization ISO TC 180.

7. ILLUSTRATE THE CAPACITY OF THE PROPOSERS TO IMPLEMENT THE ACTION

The proposers covers the whole Europe concerning both the production of and the testing of solar thermal products. On the production side ESIF represents more than 300 manufacturers in 12 countries. On the testing side the 10 participating testing institutions represents the main solar test institutes in 10 countries.

- The majority of the participating test institutes has already for many years national certification schemes for assuring the quality of the products
- The majority of the participating of the test institutes have already experience with the draft prEN standards
- Some of the test institutes have already accreditation for performing ISO and/national tests
- The majority of the participants has already participated in former Altener projects
- The participants has major influence on the national certification schemes

Proposer 1. ESIF

Representing more than 300 manufacturers in 12 countries, ESIF really has the power and the channels for influencing the European Solar Thermal Industry to make use of the Solar Keymark.

Proposer 2. DTI

Since 1981 the DTI has been administrating the national Danish Approval and Testing Scheme for solar thermal products. Based on this scheme, state subsidy is granted to the products. The test facilities of the SolarEnergy Center Denmark at DTI have been accredited to ISO 45000 series to perform ISO and national test procedures since 1997.

DTI is member of:

- DS312 (National committee for standardisation of solar thermal products)
- ISO/TC180 since 1981
- CEN/TC312 since 1993

The international experiences of the DTI technical responsible person is the following:

- CEC - Collector and System Testing Group, 85 - 89
- IEA - Solar Heating & Cooling Programme (S-H&C), task III, Collector Testing, 88 - 89
- IEA - S-H&C, Dynamic System Testing Group, 89 - 92, (Working Group)
- IEA - S-H&C, Task 14, Advanced Systems, 92 - 95
- EU - ALTENER, Project: Quaranteed Yields of Solar Hot Water Systems 94-96
- IEA - CADDET, Expert Group: Active Solar Thermal, 95 -
- CEN - TC312, Solar Thermal Systems and Components, 95 -
- EU - ALTENER, Project: Dissemination of a European design tool for large solar hot water systems, 97 -
- EU - SMT, Project: Bridging the gab: Research and experimental validation on the DST performance test method for solar domestic water heaters, 97 - 99
- IEA - S-H&C, Task 24, Solar Procurement, 97 - 98
- IEA - S-H&C, Task 25, Solar Assisted Air Conditioning of Buildings, 99 -

Proposer 3. SESL - NCSR «DEMOKRITOS»

The laboratory is staffed with the necessary scientific, technical and administrative personnel. The scientific staff, which has responsibilities of the correct operation of the Laboratory Quality System (Laboratory Head,

Quality Assurance Manager, Testing Manager) has large theoretical and research experience in the area of solar thermals (post-graduate and doctoral studies, involvement in large number of research projects, active participation in CEN and ELOT Committees, etc).

The Laboratory operates a Quality System which conforms with the requirements of EN 45001 and is in the final stage of the accreditation process.

Infrastructure of the laboratory is a large number of sensors and instruments, devices, electromechanical equipment, computer packages and other auxiliary hydraulic, electrical and electronical equipment, placed in 500 m² of closed laboratory area and 2000 m² of out free space. The laboratory has many measuring instruments and devices of high quality and accuracy such as meteorological instruments (pyranometers, temperature sensors, anemometers, temperature sensors, anemometers, hydrometers, rain precipitation meters, barometers), data acquisition and control systems for the test installations, measuring instruments, and sensors of high accuracy used in testing. The equipment of the laboratory include fully computerised testing installations for testing flat-plate solar collectors and systems, which operate and satisfy the requirements of the relative ISO Standards as well as the new European Standards. There are also installations for sensors calibration (pyranometers, flow meters, temperature sensors and manometers). The laboratory has also several computer packages and software for the acquisition and analysis of experimental data (EUROSOL, EMGP3, TRNSYS, PHOENICS κλπ).

The installations for testing solar thermal collectors and systems were financed by the European initiative PRISMA with the amount of 1.3 MECU. Furthermore, the laboratory was financed with 2 MECU by the European Community and the Greek Government for the development of installations for testing other energy systems (air conditioning units, heat pumps, agricultural energy systems, insulating materials, liquid acid batteries etc.).

Proposer 4. TNO

From the point of view of testing, TNO has vast experience with implementation of test procedures and matching quality system into test facilities. The Renewable Energy Section is involved in European standardisation through the convenor ship of working group WG2 within CEN TC312. Experience in certification is available from initiation and development of a certificate for solar domestic hot water systems in the Netherlands.

Proposer 5. SP

SP has the necessary expertise, experience and equipment needed to carry out our parts of the project due to the following qualifications: SP has been working in the field of testing and research regarding energy technology, including solar thermal components and systems, since the end of the seventies. This work comprises laboratory work as well as field investigations. SP staff are the national delegates to ISO - and CEN - TC's, SC's and WG's. SP has been involved in several larger national and international research projects in the field, among them the project "Research and experimental validation on the DST performance test method for solar domestic water heaters" and the Altener project "Dissemination of a European design tool for large SHWS and upgrading into a certified instrument for the Netherlands". In the late 80's SP was active in the development of the ISO 9806-2 durability tests and in co-operation with the Swedish solar industry, the P-mark certification of solar collectors was elaborated. During the past ten years, dynamic collector testing according to the proposed CEN standard has been carried out in close co-operation with Vattenfall Utveckling, from where this new and promising test approach originates. Through several ongoing projects and undertakings SP has a close contact to the Swedish solar industry and to the solar community as a whole.

Relevant Publications:

1. Bergquist and P. Kovacs. Dynamic testing with measured data from two smaller SDHW systems. In final report of IEA-DSTG, 1992.
2. Perers, B. Karlsson and P. Kovacs. Short term dynamic testing and long term collector performance prediction using standard spread sheet and simulation programs. In Proceedings of ISES Solar World Congress, Budapest 1993.
3. Kovacs. A comparative test of Domestic Hot water Systems. SP-AR 1994:61 (In Swedish)

4. Kovacs. A comparative test of small heat stores for domestic hotwater and space heating. SP-AR 1998:13 (In Swedish)
5. Kovacs. Results from testing of small heat stores for domestic hotwater and space heating. Eurosun'98, Portorose, Slovenia, 1998

Proposer 6. Arsenal

Since the proposer is member of the board of the Austrian Solar Industry Association Bundesverband Solar there are tight connections to the Austrian Industry, which produces about 160.000m² of thermal collectors per year. As delegate to the International standards CEN - but ISO as well, it is easy possible to exchange the views of different solar markets and their needs.

4-5 experts in the field of solar thermal energy are the basis for the work within this project.

Proposer 7: ENEA

ENEA's technological facilities and know-how and its long experience in working with both large and small enterprises explain its ability to transfer, adapt and apply new technologies consistently with end-users' needs.

The technologies developed at ENEA have numerous applications in a wide range of manufacturing and service sectors.

ENEA cooperates with major research centres in other countries or operating under international organisations (United Nations, OECD, European Union), as well as non governmental organisations, on technology and applications of mutual interest.

Co-operation with Assolterm and association for solar energy powered national town.

The Laboratory is equipped with two fully automatized and computerized test circuits for testing flat-plate solar collectors and domestic hot water system, which operate according to the requirements of the ISO 9806/1-2-3 and ISO 9459/2. The infrastructures are made by a large number of instruments, devices, thermo-hydraulic, electromechanical and electronic equipment. The Laboratory is equipped with meteorological instruments (pyranometers, temperature sensors, gonio-anemometers and hydrometers) and measuring sensors (temperature sensors, manometers and flow-meters) of high quality and accuracy that satisfy the European and international standards. An advanced hardware and software PC-based data acquisition system collect all system and meteorological data. In order to study their short-period behaviors, laboratory is also equipped with an IR thermovision system for a temperature mapping of solar components. Finally the laboratory has also several software packages for acquisition and data analysis (LabView, LabWindows, MatLab, TRNSYS).

Proposer 8: ITW

In several projects dealing with test procedures for solar domestic hot water systems the ITW gained experience on this research field both with experimental and theoretical work. Within a EU Round Robin test, several test methods were applied on complete systems as well as on components. In the German project VELS (Verfahren zur Ermittlung der Leistungsfähigkeit von solaren Wassererwärmungsanlagen) the DST (dynamic system testing) method was developed and validated in co-operation with other research institutes. During the follow-up project VELS II the DST method was further developed based on the test results of the ITW. New test methods, like insitu testing of thermal solar systems and component based testing of solar domestic hot water systems, as proposed for ISO 9459-4, are under elaboration.

Furthermore ITW was strongly involved in the European standardisation work of TC 312 for thermal solar systems and components, leading to the standards prEN 12976 and prEN12977.

Proposer 9. INETI

INETI has participated actively since 1981 in Standardisation Activities in Portugal contributing for the publication of the Portuguese Standards in 1985. INETI has been involved also in the CEN work within TC 312 and specially the Working Groups 1 (Collector) and 2 (Factory Made Systems).

Testing activities with the objective of testing different equipment's (collectors) present in the Portuguese Solar Market, have been performed at INETI in 1989 and in 1999. These activities have been developed as pre-certification schemes.

The Solar Collector Testing Laboratory of INETI is an Accredited Laboratory since 1993, according to EN 45001. The tests performed within the accreditation are:

- Test of solar collectors, qualification and efficiency
- Test of Factory Made Systems

Relevant publications:

M.J.Carvalho, C. Buscarlet, R. Marshall, E. Mathioulakis, B. van der Ree

Factory made systems: Thermal performance comparison of test methods Eurosun'98, Portorož, Eslovénia, 1998

M.J.Carvalho, M.Collares Pereira, J.Farinha Mendes, C.Rodrigues, R.Rodrigues

Guarantee of Results (Performance) in Solar Systems

Contractors Meeting - Altener, Salzburg, July 1996 and Barcelona, November 1996

B. Bourges, A. Rabl, M.J. Carvalho, M. Collares Pereira

Accuracy of the European solar water heater test procedure. Part 2: Prediction of long-term performance

Solar Energy, vol.47, pag.17-25, 1991

B. Bourges, A. Rabl, B. Leide, M.J. Carvalho, M. Collares Pereira

Accuracy of the European solar water heater test procedure. Part 1: Measurement errors and parameter estimates

Solar Energy, vol.47, pag.1-16, 1991

Proposer 10. CSTB

CSTB has done at French level what the project wants to do at the European level: he has been involved in the definition of qualification procedures for solar systems components since the beginning.

Various building materials, products or components, including solar collectors and solar water heaters, are subject to the product certification "CSTBat" managed by CSTB (750 certificates representing 33 product ranges). CSTB supervises the French "NF" brand of behalf of the French Standards Association (AFNOR) for Building standards.

In addition CSTB was instrumental in setting up the European Organisation for Technical Approvals (EOTA), where it acts on behalf of France; CSTB is acting secretary of the European Union for Technical Approvals in the construction industry (UEAtc); CSTB audits production systems under the agreement signed with the official French Association for Quality Assurance (AFAQ).

Proposer 11. Institut für Solartechnik (SPF)

The staff of the laboratory consists of scientists with degrees as physicists or mechanical and electronics engineers.

The responsibilities regarding the Quality Management System is dedicated to a mechanical engineer with a large experience in solar thermal R & D. The QMS-system is fulfilling the EN 45001 requirements. The accreditation should be finalised by the end of the year.

The infrastructure of the institute both indoor and outdoor equipment is suitable to perform all R & D and Testing purposes according to the specified requirements.

Relevant Publications:

/1/ *SPF-Info CD-ROM, Facts and Figures, one edition per year, distributed to more than 6000 specialized industries, engineers, consultants and other interested persons.*

8. ILLUSTRATE THE CAPABILITY OF THE PROPOSERS TO APPLY THE RESULTS AND TO ASSIST IN THEIR DISSEMINATION

Proposer 1.ESIF

Though the representatives of 12 national solar thermal associations, ESIF has the channels and the power to influence the European solar thermal industry to use the Solar Keymark

Proposer 2.DTI

Since 1981 the DTI has been administrating the national Danish Approval and Testing Scheme for solar thermal products on behalf of the Danish Energy Agency under the Ministry of Energy. Based on this scheme, state subsidy is granted to the products. DTI is in fact in power to determine the criteria for giving approval for the state subsidy. This means that DTI will be able to replace the existing criteria for granting subsidy with the Solar Keymark scheme, and so forcing the implementation of the Keymark in Denmark.

Proposer 3. Demokritos

Through testing and research activities, the laboratory has developed close co-operation with the respective productive sector. This co-operation is mainly with the manufacturers of solar collectors and systems not only in Greece and Cyprus but also abroad. There is a very close relation with the Greek Industry of Solar collectors and systems, since the laboratory is an active member of Greek Solar Industry Association (G.S.I.A.) and also of European Solar Industry Association (ESIF). Moreover it plays important role as a consultant of several Greek authorities concerning evaluation and promoting renewable energy and energy saving projects.

The Laboratory has also cooperations with productive sector, research and education institutes and other relative parts (R. W. T. U. V., Technology Center, Germany, K. F. A. JULICH, Germany, J. R. C. ISPRA, Italy, Cyprus Organisation for Standards and Control of Quality, College of Engineering, University of South Florida, USA, Electrical Engineering Department, University of South Florida, USA, TNO Building and Construction Research, The Netherlands etc).

Taking into account the above, the laboratory is in position to promote the accreditation scheme which will be developed by this project in possible interested parts: manufacturers of solar systems, accreditation bodies, national authorities and consumers.

Proposer 4. TNO

As TNO owns a test facility results of the project can be applied directly by carrying out tests according to EN12976. Through testing, contacts with manufacturers and suppliers of solar energy systems are extensive.

Proposer 5. SP

The Department of Energy Technology at SP is the only laboratory in Sweden accredited in routine testing of solar components and systems. Its activity is known among Swedish manufacturers and consumers. SP has been developing education material for installers in co-operation with the branch organisation for Swedish installers and with The National Swedish consumers Board, both being key organisations in a future Swedish dissemination activity.

Proposer 6. Arsenal

The experience in several years of standardisation work in Austrian and Europe and work within the national Industry association is the basis for a suitable application of the results.

Workshops together with the industry and presentation of the keymark on national fairs and congresses (f.e. the Energiesparmesse in Wels, Upper Austria, biannual Solar congress at Gleisdorf,...)

Contributions to European workshops together with the European Solar Industry Association ESIF.

Publication in national journals, presentations.

Proposer 7. ENEA

ENEA works in close collaboration with different companies involved directly or indirectly in the manufacturing of solar collector system of both public and private nature. The main aim of this collaboration is to define a common strategy and the relevant immediate actions to be taken for the diffusion of solar energy systems for the large scale installation of duly tested high quality systems both in the government and private buildings. In addition, initiatives have also been undertaken for the active participation of the users as well as the technical workers.

Technical collaboration with the principle associations for the manufacturing of solar energy collector such like ASSOLTERM and SOLARTERMIA , co-ordination of programme for the numerous solar installation in a large numbers of municipalities spread over large Italian territory in number of regions in Italy, integration of solar energy system in the national public residential dwelling , etc., are the major initiatives that have already been undertaken.

Moreover, it is to be noted that ENEA in the framework of its collaboration programme at the international level, has taken a number of initiatives for closer technical ties with a number of countries.

Considering the facts mentioned above and above all taking into consideration the fact that laboratory at Trisaia centre of ENEA is the unique laboratory of its kind, in Italy, authorised for the certification of the solar collector system, it is hoped that ENEA would definitely be in a better position to diffuse the results obtained both effectively and efficiently.

Proposer 8. ITW

Testing activities are one important part in the work of ITW. Since 1994 approximately 170 solar collectors, 32 stores and 27 thermal solar systems were tested at ITW. Hence this activities from a quite good basis for the application of the results of this project.

The results of the project will be disseminated by presentations on conferences, publications and seminars, which will be organised in co-operation with the German solar industry association (DFS)

Proposer 9. INETI

The Solar Collector Testing Laboratory of INETI is the only Laboratory in Portugal within this field of activity. Its activity is known by the Portuguese manufacturers.

Also INETI through its Department of Renewable Energies has frequent contacts with the companies working in this field.

Proposer 10. CSTB

CSTB performs evaluation and testing of thermal solar systems and components according to French standards. CSTB is the only one French laboratory able to deliver qualification certificates (according to EN 45011) to solar water heating systems for use in France.

Proposer 11. SPF

In a yearly interval an attractive CDROM containing newest research results as well as data basis on solar thermal components and systems is distributed in various countries. The information is – at least partly – in 3 languages, English, German and French. The CDROM is distributed to more than 6000 specialized industries, engineers, consultants and other interested persons.

Further on SPF is often engaged as consultant for the solar thermal component industry if new products are developed.

9. EXPLAIN HOW THE ACTION WILL CONTRIBUTE TO THE DEVELOPMENT OF RENEWABLE ENERGY SOURCES IN THE EUROPEAN UNION

(refer in particular to the “campaign for take-off”, included in the white paper on res)

The project refers to the keysector 1.2: “15 million m² solar collectors” in the “CAMPAIGN FOR TAKE-OFF”. By opening the European market for solar thermal systems and components, it is expected that the sale will increase / the prices will decrease considerable. The institutes participating in the project will commit them selves to mutual acceptance from the moment they have the accreditation for performing the EN tests, and this will already start the market opening. However, the full gain of the project will take place from mid 2003 – when the Keymark is introduced.

The project unites the forces of national test institutes, EU-authorities (CEN), the industry and the European industrial association in order to open the EU-market and increase the sale of solar thermal collectors.

To reach the long term goals in the white paper, it seems absolute necessary to have an open EU-market and a common EU-quality certificate for solar thermal systems and components.

10. DESCRIBE THE COMPLEMENTARITY BETWEEN THE PROPOSAL AND NATIONAL ACTIONS

In test institutes all over Europe, the new EN tests will be implemented in the year of 2000. Joining together in this project, the test intitutes will benefit from each others experiences during this work.

As present, each nation (and even region) has its own rules/regulations for “certifying” solar thermal products (if they have any). These “certifications rules” are based on national standards and regulations and are often used in connection with granting subsidy to the products. One of the main ideas of this project is to harmonise these certification rules into one common European scheme.

11. HAVE ANY OF THE PROPOSERS ALREADY BEEN BENEFICIARIES OF ALTENER OR OTHER DG XVII PROGRAMMES? IF SO, PLEASE GIVE DETAILS (contract no., Date, current status of contract):

Proposer 1. ESIF

PROPOSER	PROPOSAL NO.	TITLE	STATUS
ESIF	1993 (CEN)	Standardisation of solar systems and components	Ongoing
ESIF	4.1030/E/94-005	Sun in Action. The Solar Thermal Market. A strategic plan for Action in Europe	Completed

ESIF	4.1030/E/96-007	Sun in Action. The Solar Thermal Market. A strategic plan for Action in Europe	Ongoing
ESIF	DIS 1273-97/GR	Local Market Stimulation and Business Development in Southern Europe Based on an Strategic Plan of the European Solar Thermal Industry	Ongoing
EPUN TUA	DIS 1362-97/GR	Business Opportunities for Solar Technologies in Caucasus	Completed
ESD	SME/1694/98/UK	Promoting Renewable Energy Development in Bulgaria and Rumania	Ongoing
ESIF	4.1030/Z/98-199	Study and Implementation of Key Actions for the Strategic Regional Market Development of the Solar Thermal Sector in Europe	Ongoing

Proposer 2. DTI

PROPOSER	PROPOSAL NO.	TITLE	STATUS
DTI	BM/50	Organisation and economic of District Heating on Wood Combustion in Latvia	Completed
DTI		EC Energy Labelling	Completed
DTI- TNO	XVII/4.1031/93-16	Energy Labelling of Air Conditioners	Ongoing
DTI	AL/109793DE	Guaranteed Yields of Solar Hot Water Systems under Reference Conditions	Ongoing
DTI	SME/0055/95/SW	Solar heating in Northern and Central Europe	
DTI/ECD		OPET-contracts 1991 – 1995	Completed
DTI/ECD		OPET contract 1996-2000	Ongoing
DTI/ECD	SUP/0195/95/DK	A Service for the Improved Cost Effective Use of Skills and Experience available in DK, SW, FIN, (NO) with Regard to Energy Technology	Completed
ETSU (DTI/ECD)	STR/0253/95/UK	The Environmental Acceptability of RES – Phase 1	Completed
DTI/ECD	STR/0193/95/DK	Strategy for the Extended Use of DH and –Cooling in Europe, Incl. the Continuation of the Marketing Group on DH/Cooling	Completed
DTI/ECD	DIS-1530-97-DK	European Marketing Group District Heating & Cooling - Phase 2	Ongoing
DTI/ECD	JOS3-CT95-005	Synergies between European and National RTD, Strategy for Energy	Completed
ETSU (DTI/ECD)	STR/0519/95/UK	Analysing RTD Strategy, ATLAS Project	Completed
DTI/ECD	STR/0194/95/DK	Strategy for the Dissemination of Wind Energy in Europe	Ongoing
EVE (DTI/ECD)	DIS/0701/95/ES	European - Latin American Seminar: “Use of Energy from Municipal Solid Waste”	Completed
(DTI/ECD)	DIS/0072/95/FR	Development of the Small Co-generation (50 to 500 electrical kW) in France according to the acquired experience in the UK, DK, Germany, Italy and Spain	Completed
DTI/ECD	DIS/0314/95/FR	Updating the Wood-fuel Catalogue, Publishing a Newsletter and Creating a Marketing Group	Completed
DTI/ECD	SME/0055/95/SW	Solar Heating in Northern and Central Europe	Completed
COGENA (DTI/ECD)	XVII/4.1031/Z/98-113	“HERCULES PROJECT” Promotion of combined heat and power. SAVE project	Ongoing
DTI/ECD	XVII/4.1030/Z98-042	Developments of solar water heating market and training infrastructure in the Republic of Ireland. ALTENER	Ongoing
DTI	PL960107	PV VENT Low cost Energy efficient PV-Ventilation in Retrofit Housing	Ongoing
DTI	JOR3-CT97-0189	Solar Power Envelope	Ongoing
DTI/ECD	JOS3 CT97-0023	Priority Setting Initiative	Ongoing
DTI/ECD	SME-0792-96/BE	Interactive CD-ROM on Wind Energy Technologies THERMIE Project	Ongoing
DTI	STR/1879/98-DK	Sustainable Cities Europe-Energy Planning and Implementation	Ongoing
DTI/ECD	STR71683/98-NL	FEMOPET project	Ongoing
ZAE DTI/SECD	XVII/4.1030/93-35	Guaranteed Yields of Solar Hot Water Systems	Completed 1996
TNO DT/SECD	XVII/4.1030/Z/96-018	Dissemination of a European design tool for large solar hot water systems and upgrading into a certified instrument for the Netherlands,	Completed 1999

TÜV (DTI/SECD)	SME-1662-98/DE	Lightning Protection and Overvoltage Protection in PV an Solar Thermal Systems – Insulation Guidelines	Ongoing
DTI	9.1030/D797.004	Production and publication of brochures “Renewable Energy Islands in Europe” and “Focus on biomass” Furthermore a conference was held in Denmark from 29 th -30 th June 1998 “European Seminar on Renewable Energy Islands”.	Completed

Proposer 3. Demokritos

PROPOSER	PROPOSAL NO.	TITLE	STATUS
	XVII/4.1030/A/94-82	Project for a Hellenic alternate energy thesaurus via a hypermedia online network	Completed 12/94-12/95
TNO	XVII/4.1030/Z/96-018	Dissemination of a European design tool for large SHWS and upgrading into a certified instrument for the Netherlands	Completed 1/97-12/98

Proposer 4. TNO

PROPOSER	PROPOSAL NO.	TITLE	STATUS
	XVII/4.1030/A/94-023		- 01-07-94 - Ongoing
	XVII/4.1030/A/94-025		- 01-01-96 - Completed
	XVII/4.1030/S/94-045		- 01-11-94 - Completed
	XVII/4.1030/Z/95-031		- 01-01-96 - Ongoing
	XVII/4.1030/Z/95-032		- 01-01-96 - Completed
	XVII/4.1030/Z/96-018		- 01-11-96 - Completed
	XVII/4.1030/Z/97-020		- 23-12-96 - Ongoing
	XVII/4.1031/Z/96-029		- 01-04-97 - Ongoing
	XVII/4.1031/Z/96-061		- 01-01-97 - Ongoing
	XVII/4.1031/Z/96-148		- 01-01-96 - Ongoing
	XVII/4.1031/Z/97-050		- 01-01-98 - Ongoing
	XVII/4.1031/Z/97-191		- 01-12-97 - Ongoing

Proposer 5.SP

PROPOSER	PROPOSAL NO.	TITLE	STATUS
TNO	XVII/4.1030/Z/96-018	Dissemination of a European design tool for large SHWS and upgrading into a certified instrument for the Netherlands	Completed 1/97-12/98

Proposer 6. Arsenal

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Proposer 7. ENEA

PROPOSER	PROPOSAL NO.	TITLE	STATUS
	4.1030-94-003	Altener Information Network-Database	completed
	4.1030-94-004	Altener Info. Network-News & Events	completed
	4.1030-Z-95-131	local plan to develop and promote the energetic use of renewable sources	completed
	4.1030-D-96-004	Altener Info. Network-News & Events	completed
	4.1030-D-97-004	Altener Info. Network-News & Events	completed
	4.1031-Z-95-033	state of the art of cooling household appliances standard market and technology	completed
	JOR3-CT96-2001	cd-rom on bioclimatic architecture: the basic concept and some examples from the past to the present	completed
	DIS-0101-95-UK	support to DGXVII to coordinate and assist with utilisation of appropriate financial tools and the development of new financial instrument	ongoing
	DIS-0700-95-FR	strategy for market penetration of bioclimatic, wind and solar technologies in Palestine (Gerico, Gaza strip, west bank)	completed

Proposer 8. ITW

PROPOSER	PROPOSAL NO.	TITLE	STATUS
TNO	XVII/4.1030/Z/96-18	Dissemination of an European design tool for large solar hot water systems	completed
	XVII/4.1030/Z/96-121	Polistudies	completed
TNO	SMT4-CT96-2067	Bridging the gap: research and intercomparison on the DST performance test method for solar domestic hot water heaters	completed

Proposer 9. INETI

PROPOSER	PROPOSAL NO.	TITLE	STATUS
INETI	n°XVII/4.1030/93-28	Guarantee of Solar Results (Performance)	Concluded
TNO	SMT4-CT96-2067	Bridging the gap: research and intercomparison on the DST performance test method for solar domestic hot water heaters	Concluded
Coaltec & Ambiente	XVII/4.1030/A-94-98	Training actions in the field of renewable energies	Concluded
SPES/INETI CCE/DEA	XVII/4.1030/Z/96-104	Action for the dissemination of the solar thermal active energy in Portugal	Ongoing
ILK	n.JOR3-CT96-0003	Codec - A novel high efficient solar collector for desiccative and evaporative cooling	Concluded
Christian Zahler/INETI	SMT4-CT96-9002	Solar Domestic Water Heaters - Performance test methods	Concluded

Proposer 10. CSTB

PROPOSER	PROPOSAL NO.	TITLE	STATUS
HTWdS	XVII/4.1030/94-136	Guarantee of Results for Solar Domestic Hot Water Systems	Terminated
HTWdS	XVII/4.1030/Z/97-149	Fault Detection and Diagnosis Tool for Solar Domestic Hot Water Systems	Running

Proposer 11. SPF

PROPOSER	PROPOSAL NO.	TITLE	STATUS
TNO	SMT4-CT96-2067	Bridging the gap: research and intercomparison on the DST performance test method for solar domestic hot water heaters	Concluded

12. TASK PLANNING

Please indicate the duration in weeks or months of each phase of the task.

TASK DESCRIPTION	Indicators or "Milestones" for the completion of the task	Duration of phase Months
Network co-operation about implementation of tests and accreditation	Implemented EN tests Accredited labs	24 Project start to end
European Mark Scheme	European Mark Scheme rules approved	24 Project start to end
Dissemination/marketing	Campaign materials ready Marketing campaign done nationally and internationally	18 From sixth month to project end

Time Schedule

Activity	2000 Nov- Dec	2001 Jan-Dec	2002 Jan-Oct
1. Network & implementation			
2. European Mark Scheme	Phase 1	Phase 2	
3. Dissemination/marketing			

The project is expected to start November 2000. Project duration 2 years.

13. FINANCIAL TERMS

Please indicate in Euro:

- the distribution of costs per phase,
- the total cost of the proposed action,
- the support requested and possible co-financing:

	Cost (Euro) / EC financing
0. Co-ordination	40,000 / 40,000
1. Network	370,400 / 105,800
2. European Mark Scheme	96,300 / 84,400
3. Dissemination/marketing	93,800 / 69,400

Total cost (all work packages together)	600,500
Amount of support requested	299,700
Total amount of all other sources of financing	300,300

14. ESTIMATED TOTAL COSTS EXCLUSIVE OF VAT IN 1000*Euro.

Activity	Staff	External services	Travel costs	Other refundables	Total per Activity
0. Project management & co-ord.	17,5	17,5	3,0	2,0	40,0
1. Network&Impl.	333,4	0,0	33,0	4,0	370,4
2. EU Mark Scheme	52,0	31,3	13,0	0,0	96,3
3. Dissemination	57,8	25,0	3,0	8,0	93,8
TOTAL	460,6	73,8	52,0	14,0	600,5

Estimated total costs exclusive of VAT by partner in 1000*Euro

Proposer 1. ESIF						
Activity	Staff	External services	Travel costs	Other refundables	Total per Activity	
0. Project management & co-ord.	17,5	17,5	3,0	2,0	40,0	
1. Network&Impl.	0,0	0,0	0,0	0,0	0,0	
2. EU Mark Scheme	1,7	31,3	1,0	0,0	34,0	
3. Dissemination	2,5	25,0	0,0	8,0	35,5	
TOTAL	21,7	73,8	4,0	10,0	109,5	
Proposer 2. DTI						
Activity	Staff	External services	Travel costs	Other refundables	Total per Activity	
1. Network&Impl.	58,1	0,0	3,0	4,0	65,1	
2. EU Mark Scheme	5,0	0,0	1,0	0,0	6,0	
3. Dissemination	5,5	0,0	0,0	0,0	5,5	
TOTAL	68,6	0,0	4,0	4,0	76,6	
Proposer 3. Demokritos						
Activity	Staff	External services	Travel costs	Other refundables	Total per Activity	
1. Network&Impl.	24,4	0,0	3,0	0,0	27,4	
2. EU Mark Scheme	2,3	0,0	1,0	0,0	3,3	
3. Dissemination	2,6	0,0	0,0	0,0	2,6	
TOTAL	29,3	0,0	4,0	0,0	33,3	
Proposer 4. TNO						
Activity	Staff	External services	Travel costs	Other refundables	Total per Activity	
1. Network&Impl.	36,6	0,0	3,0	0,0	39,6	
2. EU Mark Scheme	3,7	0,0	1,0	0,0	4,7	
3. Dissemination	5,3	0,0	0,0	0,0	5,3	
TOTAL	45,6	0,0	4,0	0,0	49,6	
Proposer 5. SP						
Activity	Staff	External services	Travel costs	Other refundables	Total per Activity	
1. Network&Impl.	53,7	0,0	3,0	0,0	56,7	
2. EU Mark Scheme	5,1	0,0	1,0	0,0	6,1	
3. Dissemination	5,7	0,0	0,0	0,0	5,7	
TOTAL	64,4	0,0	4,0	0,0	68,4	
Proposer 6. Arsenal						
Activity	Staff	External services	Travel costs	Other refundables	Total per Activity	
1. Network&Impl.	20,2	0,0	3,0	0,0	23,2	
2. EU Mark Scheme	4,0	0,0	1,0	0,0	5,0	
3. Dissemination	5,8	0,0	0,0	0,0	5,8	
TOTAL	30,0	0,0	4,0	0,0	34,0	
Proposer 7. ENEA						
Activity	Staff	External services	Travel costs	Other refundables	Total per Activity	
1. Network&Impl.	34,3	0,0	3,0	0,0	37,3	
2. EU Mark Scheme	4,6	0,0	1,0	0,0	5,6	
3. Dissemination	5,1	0,0	0,0	0,0	5,1	
TOTAL	44,0	0,0	4,0	0,0	48,0	
Proposer 8. ITW						
Activity	Staff	External services	Travel costs	Other refundables	Total per Activity	
1. Network&Impl.	16,8	0,0	3,0	0,0	19,8	
2. EU Mark Scheme	2,1	0,0	1,0	0,0	3,1	
3. Dissemination	1,5	0,0	0,0	0,0	1,5	
TOTAL	20,5	0,0	4,0	0,0	24,5	
Proposer 9. INETI						
Activity	Staff	External services	Travel costs	Other refundables	Total per Activity	
1. Network&Impl.	29,9	0,0	3,0	0,0	32,9	
2. EU Mark Scheme	4,1	0,0	1,0	0,0	5,1	
3. Dissemination	4,6	0,0	0,0	0,0	4,6	
TOTAL	38,6	0,0	4,0	0,0	42,6	
Proposer 10. CSTB						
Activity	Staff	External services	Travel costs	Other refundables	Total per Activity	
1. Network&Impl.	39,0	0,0	3,0	0,0	42,0	
2. EU Mark Scheme	3,7	0,0	1,0	0,0	4,7	
3. Dissemination	4,1	0,0	0,0	0,0	4,1	

TOTAL	46,7	0,0	4,0	0,0	50,7
Proposer 11. SPF					
Activity	Staff	External services	Travel costs	Other refundables	Total per Activity
1. Network&Impl.	5,0	0,0	3,0	0,0	8,0
2. EU Mark Scheme	2,5	0,0	1,0	0,0	3,5
3. Dissemination	0,6	0,0	0,0	0,0	0,6
TOTAL	8,1	0,0	4,0	0,0	12,1

Associated partner 1. Astig					
Activity	Staff	External services	Travel costs	Other refundables	Total per Activity
1. Network&Impl.	0,0	0,0	0,0	0,0	0,0
2. EU Mark Scheme	11,2	0,0	1,0	0,0	12,2
3. Dissemination	14,0	0,0	3,0	0,0	17,0
TOTAL	25,2	0,0	4,0	0,0	29,2

Associated partner 2. TZSB					
Activity	Staff	External services	Travel costs	Other refundables	Total per Activity
1. Network&Impl.	15,5	0,0	3,0	0,0	18,5
2. EU Mark Scheme	1,9	0,0	1,0	0,0	2,9
3. Dissemination	0,5	0,0	0,0	0,0	0,5
TOTAL	17,9	0,0	4,0	0,0	21,9

15. STAFF COSTS IN Euro

Proposer 1. ESIF			
Daily			
Staff category	Direct cost (Euro)	Overhead rate (%)	Total (Euro)
Junior consultant	292	20	350
Formula for revision of costs			Rate is 2000 rate. The rate will increase 4% per year
Proposer 2. DTI			
Daily			
Staff category	Direct cost (Euro)	Overhead rate (%)	Total (Euro)
Researcher	292	85	542
Technician I	212	85	393
Technician II	169	85	313
Formula for revision of costs			Rate is 2000 rate. The rate will increase 5% per year
"Please note that settling of accounts is based on expenditures so that settlement is effected according to the actual expenditures at the time in question, no matter whether this amount differs from the budgeted amount in a positive or negative direction"			
Proposer 3. Demokritos			
daily			
Staff category	Direct cost (Euro)	Overhead rate (%)	Total (Euro)
Leader	206	20	257
Senior engineer	160	20	200
Junior engineer	120	20	150
Formula for revision of costs			Rate is 2000 rate. The rate will increase 3% per year
Proposer 4. TNO			
Daily			
Staff category	Direct cost (Euro)	Overhead rate (%)	Total (Euro)
Jun. engineer / Sen. technician	186	120	410
Engineer	238	120	523
Engineer / Sen. engineer	301	120	657
Formula for revision of costs			Rate is 2000 rate. The rate will increase 4% per year
Proposer 5. SP			
Daily			
Staff category	Direct cost (Euro)	Overhead rate (%)	Total (Euro)
Researcher	416	56	650
Technician	307	56	480
Formula for revision of costs			Rate is 2000 rate. The rate will increase 3% per year
Proposer 6. Arsenal			
daily			
Staff category	Direct cost (Euro)	Overhead rate (%)	Total (Euro)
A (Academic)	560	20	672
B (Engineer)	400	20	480
Formula for revision of costs			Rate is 2000 rate. The rate will increase 3% per year
Proposer 7. ENEA			
daily			
Staff category	Direct cost (Euro)	Overhead rate (%)	Total (Euro)
Leader	490	20	588
Senior engineer	440	20	528
Junior engineer	350	20	420
Formula for revision of costs			Rate is 2000 rate. The rate will increase 3% per year

Staff costs (continued)

Proposer 8. ITW			
daily			
Staff category	Direct cost (Euro)	Overhead rate (%)	Total (Euro)
Researcher	255	20	306
Formula for revision of costs			Rate is 2000 rate. The rate will increase 3% per year
Proposer 9. INETI			
daily			
Staff category	Direct cost (Euro)	Overhead rate (%)	Total (Euro)
Researcher	196	20	235
Technician	100	20	120
Formula for revision of costs			Rate is 2000 rate. The rate will increase 2,5% per year
Proposer 10. CSTB			
daily			
Staff category	Direct cost (Euro)	Overhead rate (%)	Total (Euro)
Senior researcher	221	131	510
Technician	134	131	310
Formula for revision of costs			Rate is 2000 rate. The rate will increase 3% per year
Proposer 11. SPF			
daily			
Staff category	Direct cost (Euro)	Overhead rate (%)	Total (Euro)
Leader	580	20	696
Senior researcher	540	20	648
Technician	440	20	528
Formula for revision of costs			Rate is 2000 rate. The rate will increase 3% per year

Associated partner 1. ASTIG			
daily			
Staff category	Direct cost (Euro)	Overhead rate (%)	Total (Euro)
Consultant	292	20	350
Formula for revision of costs			Rate is 2000 rate. The rate will increase 4% per year
Associated partner 2. TZSB			
daily			
Staff category	Direct cost (Euro)	Overhead rate (%)	Total (Euro)
Manager	525	20	630
Project Engineer	280	20	336
Formula for revision of costs			Rate is 2000 rate. The rate will increase 4% per year

ANNEX 1. DETAILED BUDGET WP1

Solar Keymark						
Task 1: Network of test institutes for implementing the EN 1297x standards and EN 17025 quality systems at the labs						
Total task 1:				370,4	105,8	29%
Task/subtask	Responsible	Responsibilities	Participants	Staff costs k€	EC budget k€	EC%
Task 1	Task leader	Co-ordination of task	DTI	5,5	5,5	100%
Subtask A: EN 12975	Subtask leader	Co-ordination of subtask Drafting	SP	5,7 11,3	5,7 11,3	100% 100%
A1: Implementing standards A2: Implementing quality assurance systems A3: Recommendations for revision of standards	Participants	Exchange of information & Commenting	Arsenal	17,3	0,0	0%
			CSTB	12,3	0,0	0%
			Demokritos	7,7	0,0	0%
			DTI	16,6	0,0	0%
			Enea	15,4	0,0	0%
			INETI	13,8	0,0	0%
			ITW	0,0	0,0	0%
			SP	17,0	0,0	0%
			SPF	1,2	0,0	0%
			TNO	1,1	0,0	0%
	Ass. partner		TZSB	4,8	0,0	0%
Total A				129,6	22,5	17%
Subtask B: EN 12976	Subtask leader	Co-ordination of subtask Drafting	TNO	5,3 10,6	5,3 10,6	100% 100%
B1: Implementing standards B2: Implementing quality assurance systems B3: Recommendations for revision of standards	Participants	Exchange of information & Commenting	Arsenal	0,0	0,0	0%
			CSTB	12,3	0,0	0%
			Demokritos	7,7	0,0	0%
			DTI	0,0	0,0	0%
			Enea	15,4	0,0	0%
			INETI	13,8	0,0	0%
			ITW	0,0	0,0	0%
			SP	0,0	0,0	0%
			SPF	1,2	0,0	0%
			TNO	15,9	0,0	0%
	Ass. partner		TZSB	4,8	0,0	0%
Total B				87,0	15,9	18%
Subtask C: EN 12977	Subtask leader	Co-ordination of subtask Drafting	DTI	5,5 11,1	5,5 11,1	100% 100%
C1: Implementing standards C2: Implementing quality assurance systems C3: Recommendations for revision of standards	Participants	Exchange of information & Commenting	Arsenal	0,0	0,0	0%
			CSTB	12,3	0,0	0%
			Demokritos	7,7	0,0	0%
			DTI	16,6	0,0	0%
			Enea	1,0	0,0	0%
			INETI	0,0	0,0	0%
			ITW	0,0	0,0	0%
			SP	17,0	0,0	0%
			SPF	1,2	0,0	0%
			TNO	1,1	0,0	0%
	Ass. partner		TZSB	4,8	0,0	0%
Total C				78,3	16,6	
Subtask D: Databases	Subtask leader	Co-ordination of subtask Managing databases	ITW	4,6 12,2	4,6 12,2	100% 100%
D1: Database for computer models for EN tests D2: Database for test sequences for EN tests	Participants	Giving input to database	Arsenal	2,9	0,0	0%
			CSTB	2,1	0,0	0%
			Demokritos	1,3	0,0	0%
			DTI	2,8	0,0	0%
			Enea	2,6	0,0	0%
			INETI	2,3	0,0	0%
			ITW	0,0	0,0	0%
			SP	2,8	0,0	0%
			SPF	1,2	0,0	0%
			TNO	2,7	0,0	0%
	Ass. partner		TZSB	1,0	0,0	0%
Total D				38,4	16,8	
Travelling: 3 meetings á 1k€ per participant				33,0	30,0	91%
Others: To be distributed by task leader				4,0	4,0	100%

ANNEX 2. DETAILED BUDGET WP2

Solar Keymark						
Task 2: CEN/CENELEC European Mark Scheme for the Solar Keymark						
Total task 2:				96,3	84,4	88%
Task/subtask	Responsible	Responsibilities	Participants	Staff costs kE	EC budget kE	EC%
Task 2	Task leader	Co-ordination of task Drafting Mark Scheme	ESIF	5,0	5,0	100%
				25,0	25,0	100%
Phase 1: Project proposal	Participants	Commenting drafts	Arsenal	0,0	0,0	100%
			CSTB	0,8	0,8	100%
			Demokritos	0,5	0,5	100%
			DTI	1,1	1,1	100%
			Enea	1,0	1,0	100%
			INETI	0,9	0,9	100%
			ITW	0,0	0,0	100%
			SP	1,1	1,1	100%
			SPF	1,2	0,0	0%
			TNO	0,0	0,0	100%
			Ass. partners	ASTIG	0,7	0,2
		TZSB	1,0	1,0	100%	
	Phase 2: Preparing Mark Scheme	Participants	Expert Group	Arsenal	4,0	4,0
CSTB				2,9	2,9	100%
Demokritos				1,8	1,8	100%
DTI				3,9	3,9	100%
Enea				3,6	3,6	100%
INETI				3,2	3,2	100%
ITW				2,1	2,1	100%
SP				4,0	4,0	100%
SPF				1,2	0,0	0%
TNO				3,7	3,7	100%
Ass. partners				ASTIG	10,5	2,6
		TZSB	1,0	1,0	100%	
Travelling: 1 meetings á 1kE per participant				14,0	13,0	93%
Others				2,0	2,0	100%

ANNEX 3. DETAILED BUDGET WP3

Solar Keymark						
WP3: Dissemination of results and marketing the "SOLAR KEYMARK" label						
Total WP3:				93,8	69,4	74%
Task/subtask	Responsible	Responsibilities	Participants	Staff costs kE	EC budget kE	EC%
WP3	Task leader	Co-ordination of task Label design and campaign	ESIF	7,5 15,0	7,5 15,0	100% 100%
	Participants	National marketing	Arsenal	5,8	2,9	50%
CSTB			4,1	2,1	50%	
Demokritos			2,6	1,3	50%	
DTI			5,5	2,8	50%	
Enea			5,1	2,6	50%	
INETI			4,6	2,3	50%	
ITW			1,5	1,5	100%	
SP			5,7	5,7	100%	
SPF			0,6	0,0	0%	
TNO			5,3	2,7	50%	
Associated partners		International marketing	ASTIG	14,0	7,0	50%
	National marketing	TZSB	0,5	0,2	50%	
Travelling:				8	8	100%
Others				8	8	100%

ANNEX 4. BUDGET FOR PARTICIPANTS

Participant	Total budget in kEuro	EC-funded budget in kEuro	EC-funded part in %
ESIF	109,5	109,5	100%
Arsenal	34,0	10,9	32%
CSTB	50,7	9,7	19%
Demokritos	33,3	7,6	23%
DTI	76,6	37,9	49%
Enea	48,0	11,2	23%
INETI	42,6	10,4	24%
ITW	24,5	24,5	100%
SP	68,4	31,7	46%
SPF	12,1	0,0	0%
TNO	49,6	26,3	53%
ASTIG	29,2	13,8	47%
TZSB	21,9	6,2	28%
Total	600,5	299,7	50%

ANNEX 5. THE KEYMARK

What is a Keymark:

- The Keymark or the CEN/CENELEC European Mark is a third-party certification mark, demonstrating to users and consumers compliance of products with the requirements of the relevant CEN/CENELEC Standard(s).
- The process of granting to a manufacturer the license to use a Keymark is given in the matching CEN/CENELEC Mark Scheme

How to establish a Keymark:

- A precondition for establishing the Keymark is existing EN standards for the products
- The desire for products to carry the Keymark should come from the market or representative groupings from the market
- To establish a Keymark a CEN/CENELEC European Mark Scheme is needed. In this Mark Scheme the rules for granting the license to a manufacturer to use the mark are given
- A project for a CEN/CENELEC European Mark Scheme could be proposed to the CEN Central Secretariat by CEN national Members and Affiliates, CEN Technical Committees (TCs), or by any European organisation
- The CEN Central Secretariat carry out through the CEN national members, an inquiry to evaluate the support from interested parties for the development of the CEN/CENELEC European Mark Scheme
- The CEN Certification Board reviews the results of the inquiry and decide on the proposal advised by Technical Sector Boards (BTSs), Programming Committees and Technical Committees (TCs) if appropriate
- The European Mark Scheme rules are prepared by Scheme Development Groups of experts created by the CEN Certification Board. The CEN Certification Board appoints the convenors and agrees on the allocation of the secretariat of such groups. Appropriate liaisons with relevant BTSs/TCs are set up.
- Mark Scheme rules drafted by the Scheme Development Groups are verified for integrity and conformity by the CEN Central Secretariat and then circulated to members of the Certification Board and CEN National Members for an enquiry of 2 months. Comments from this CEN Certification enquiry are forwarded to the Scheme Development Group for the final preparation of the Scheme rules
- Approval of Scheme rules is done by a formal vote of national members. Voting period two months
- Copies of the European Mark Scheme rules are circulated by the CEN Central Secretariat to the CEN members and made available to any interested party.

Some of the basic European Mark Scheme rules:

- Type testing performed by a third-party testing laboratory
- Manufacturer shall apply a quality system of at least the level of the EN-ISO 9002 standard (maybe with a transitional period of maximum 3 years)
- Periodic surveillance
- Bodies engaged in certification, testing and inspection shall fulfil the requirements of the relevant EN 45000 / 17000 series standard

ANNEX 6. EXTERNAL ADVISER

External Adviser

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ANNEX 7. ASSOCIATED PARTNERS

Associated partner No. 1: ASTIG

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Teun Bokhoven

Chairman of ASTIG

TeunBokhoven@compuserve.com

Signature

Associated partner No. 2: TZSB

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