GSSkills – Geothermal and Solar Skills

VP/2012/009/0065

Presentation case studies

CASE STUDY 1

GREECE

ECOSOLUTIONS

Priority area: Photovoltaic and geothermal installations

Contact name : Papadakis Nikolaos
Function : Engineer
Web : www.ecosolutions.gr
Activity domai : Energy efficiency
Activity region : Regional - National

BRIEF DESCRIPTION

Eco Solutions Ltd. was established in Heraklion, Crete. It offers design and manufacture of systems of production and energy saving in buildings, businesses and industries.

H Eco Solutions Ltd is active in the area of **GEOTHERMAL and SOLAR APPLICATIONS FOR COOLING - HEATING**

The company's customer-oriented philosophy. Its experienced and skilled staff and associates (engineers, economists, environmentalists, lawyers) and its high quality services constitute a competitive advantage, making ECOSOLUTIONS the ideal partner for the implementation and financing of energy projects.

Products and services include:

- **GRID-CONNECTED SOLAR (PHOTOVOLTAIC) SYSTEMS**
- **OFF - GRID PHOTOVOLTAIC & HYBRID SYSTEMS**
- **SMALL WIND TURBINES**
- **SOLAR THERMAL PLANTS (WITH ABENGOA SOLAR) GEOTHERMAL INSTALLATIONS (WITH IMMOSOLAR)**
- **LED LIGHTING SOLUTIONS (IMPORT AND INSTALLATIONS)**

TYPE AND OWNERSHIP OF GOOD PRACTICE

Ecosolutions is **involved in both theoretical and practical training** of technical staff involved in installation process..

Main provider is an External collaborator, who provides both theoretical and practical training.

For **Geothermal installations** the training provider is "**IMMOSOLAR",** Spain, Majorca.

For **Solar thermal and photovoltaic** the training provider is "**EST**" from Germany.Inner company training schemes are provided to technical workers (electricians and plumpers) in form of "on-job" training.

Training provisions

Ecosolutions, gets main training for high technical staff, for both Geothermal and Solar installations from its products provider. In her case, suppliers are from Spain and Germany.

Basic training is get travelling to suppliers country at their premises getting firstly theoretical training and consequently, in working places there are making shadow working following every step of installation.

After they get back, they continue their training in form of - case oriented – depending on the peculiarities each installation has.

Low skilled workers are getting training as a "transfer of experience", by the already experienced staff.

Modules of training

Product marketing - Business management—costing – financing—Technical proposals to customers—3d AutoCAD drawing— Basic technical knowledge

Specific Technical issues needed for Installation.

TRAINING FINANCE

Training actions are financed by own sources

AENAOS

Priority area: Photovoltaic installations

Contact name : Katsikalakis Jiannis
Function : Architecte
Web : http://en.aenaos-systems.gr
Activity domai : Renewable energy sources

BRIEF DESCRIPTION

Since 1996, AENAOS, specializes in installation of photovoltaic plants, hybrid and autonomous systems. Numerous projects of several MW have been performed by now. AENAOS has acquired a team of managers, engineers and staff, able to adapt to our customers' needs. The company has also ensured collaboration with partners all around Greece.

AENAOS is certified by TUV Rheinland for its Quality Management System, according to ISO 9001:2008 standard. Products and services include:

- **PHOTOVOLTAIC POWER STATIONS**
- **WIND PARKS**
- **OPERATION—MAINTENANCE OF P/V STATIONS**
- **OFF-GRID / STAND ALONE SYSTEMS**

TYPE AND OWNERSHIP OF GOOD PRACTICE

AENAOS is **involved in theoretical and practical training** of technical staff involved in installation process.

AENAOS is providing practical and theoretical training to students from Technical University of Crete, department of renewable energy.

In addition specialized theoretical and practical training provider is **External collaborator**, who provides both informal theoretical and practical training.

Training provisions

AENAOS is **involved in theoretical and practical training** of technical staff involved in installation process.

Training has duration of six months. Trainees, are involved in all stages of installation process, enriching their experience and upgrading their skills.

In many case, trainees were offered a job in AENAOS.

Photovoltaic grid producers, as well as producers of photovoltaic inverters, are offering specialized informal theoretical and practical training as **external collaborators.**

Modules of training

Product marketing - Business management—costing – financing—Technical proposals to customers—3d AutoCAD drawing— Basic technical knowledge

Specific Technical issues needed for Installation.

TRAINING FINANCE

Training actions are financed by own sources

ECTE

Priority area: Photovoltaic Geothermal

Contact name : Androulakis Konstantinos
Function : Director
Web : www.ecte-edu.gr, www.ecte-edu.gr
Activity domain : Training
Activity region : Regional

BRIEF DESCRIPTION

ECTE is a training institute certified by Greek ministry of Education (EOPPEP) in providing Lifelong Learning training, aiming to promote employ-ability through acquisition of new or updating adult's professional skills.

The educational programs that ECTE develops and implement are targeting in the adaptation of the working force to the transformations of the technological, socio-economic and physical environment, the promotion of regional development, the improvement of the existing and the acquisition of new qualifications, and the exchange of experience and know-how in national and international level.

Main activity sectors are:

Implementation of training programs.

Elaboration of researches and studies (training need analysis, market researches) related to the needs of the labour market

Planning and development of international European projects related with the local development and employment.

TYPE AND OWNERSHIP OF GOOD PRACTICE

ECTE, provides **basic theoretical training** for electricians and plumbers. A training program is targeting on providing theoretical knowledge to electricians for installing photovoltaic systems, whereas the a second one is targeting plumbers for installing geothermal systems.

Practical training is provided through international mobility, under Erasmus plus "Key Action 1".

- **TRAINING FINANCE**

European funding

TRAINING PROVISIONS

ECTE is a core partner in "GSSkills" project, for improving the efficiency and adequacy of existing training practices in the field of green installations and in particular that of geothermal and solar ones, and to promote training for workers in related professional sectors.

In collaboration with Chamber of Commerce of Chania and local associations of electricians and plumbers, is identifying training needs of these two professions and has developed two training courses. Both are targeting to low skilled technicians. The first one is targeting to plumbers and provides theoretical training to plumbers that want to be engaged in geothermal installations, whereas the second is targeting to electricians that want to be engaged in photovoltaic installations.

Each seminar has duration of two months (90 hours) and covers basic theoretical knowledge.

Trainees can follow **international training experience** to acquire practical training. This international mobility are organised by ECTE, under ERASMUS plus European programs.

Trainees have to communicate in basic English and before their mobility follow basic technical language course. International training has two weeks duration.

MODULES OF TRAINING

- ON Grid PV Power Stations. (photovoltaic parks, domestic rooftops)
- OFF-Grid PV Systems
- Solar-Load Correlation
- PV projects Considerations
- Operation – Maintenance of P/V Stations
- On-Job-Training
- Geothermal
- International training experience/ practice

Cretan Energy Solutions

Priority area: Photovoltaic Geothermal

Web : http://www.cretan-energy.gr
Activity domain : Photovoltaic systems
Activity region : Regional

TYPE AND OWNERSHIP OF GOOD PRACTICE

Cretan Energy SA, is **involved in both theoretical and practical training** of technical staff involved in installation process.

BRIEF DESCRIPTION

"Cretan Energy SA", was established in order to operate in the field of photovoltaic systems, within the geographical boundaries of Crete. It is the fruit of the cooperation between Solarise S.A., a company with long experience in photovoltaic systems installation and Kritika Akinita S.A. (www.kritikaakinita.gr), a company with a success in the field of real estate development, exploitation and construction.

Solarise S.A. is a member of the Corporate Group Prime Green, which also owns Exelgroup S.A. (www.exelgroup.gr), a company that operates in the domain of crystalline technology photovoltaic panel production and fixed mounting structures construction. Prime Energy also belongs to the same Corporate Group which has in its ownership licenses and many photovoltaic parks. Kritika Akinita SA is a subsidiary company of the Cooperative Bank of Chania LLC (www.chaniabank.gr)

Main object of Cretan Energy is the design, the construction and the maintenance of photovoltaic systems. The company human resources consist of experienced executives specializing in their field, with excellent technical knowledge and precious experience, as they have constructed dozens of photovoltaic parks in Crete and the rest of Greece.

As a member of the Hellenic Association of Photovoltaic Companies (www.helapco.gr), Cretan Energy is constantly monitoring the technology of photovoltaic systems and it contributes to their promotion and to their usage as an alternative, environmentally friendly energy source. At the same time the company ensures an excellent quality in its services, applying a quality management system certified by EN ISO 9001:2008.

TRAINING PROVISIONS

High skilled company's staff is providing specialised inner-company training services to electricians, working in company's projects. The form of training is theoretical in companies' premises as well as practical in form of on-job-training.

Training programs are running continuously depending on technological evolvements in the field of photovoltaic systems installations.

MODULES OF TRAINING

- ON Grid PV Power Stations. (photovoltaic parks, domestic rooftops)
- OFF-Grid PV Systems
- Solar-Load Correlation
- PV projects Considerations
- Operation – Maintenance of P/V Stations
- On-Job-Training
- Geothermal

TRAINING FINANCE

Own sources

Plumbers Cooperative of Chania

Priority area: Photovoltaic Geothermal

Contact name : Limogiannis konstantinos
Function : President of plumbers' cooperative
of Chania
Activity domain: Geothermal—Solar thermal systems

BRIEF DESCRIPTION

Plumbers association of Chania has a scope the promotion of professional interests of plumbers members, as well as skills upgrade to be in line with market needs and technological change.

TYPE AND OWNERSHIP OF

Plumbers' associaltion of Chania is **involved in both theoretical and practical training** for plumbers in field of solar thermal and photovoltaic installations.

Training provider is a CVET GESEVE.

TRAINING PROVISIONS

The cooperative in cooperation with Vocational training institutions train their members in geothermal and solar thermal fields.

More specifically, a series of seminars in the above fields have been implemented by CVET institution of GESEVE each one having a duration of 50 hours. Level of training is basic theoretical had is targeted to low skilled workers/ plumber of the region of Chania.

MODULES OF TRAINING

- Climatic data capture.
- Types of solar systems.
- Storage of energy.
- Calculation of the thermal requirements,
- Budgets.
- Regulations.
- Data and costs of installations.

TRAINING FINANCE

EU funding—National funding

PVTRIN

Priority area: Photovoltaic

Contact name : PVTRIN
Function : Training and certification schemes
Web : http://pvtrin.eu
Activity domain: Photovoltaic installers
Activity region : International

BRIEF DESCRIPTION

The PVTRIN (Training of Photovoltaic Installers) project addresses the market needs by developing a training and certification scheme for technicians who are active in the installation and maintenance of small scale PV systems.

This scheme incorporates the criteria set by the 2009/28/EC Directive (article 14, Annex IV) for qualification schemes and certified training courses in each Member State, taking into account the national framework and legislation. It will, initially, be implemented in six (6) countries: Greece, Bulgaria, Croatia, Cyprus, Romania and Spain. In order to incorporate the genuine market needs and to assure the broadest possible support, the key stakeholder groups are involved in the project's activities.

PVTRIN INSTALLER CERTIFICATION

TYPE AND OWNERSHIP OF GOOD PRACTICE

The PVTRIN has developed an e-learning platform in 24 hours virtual classroom environment, providing flexibility and freedom to study or test where and when it's most convenient. A range of online training supporting materials (including practical exercises, cases studies, audiovisual material and additional resources) are accessible to trainees undertaking the PVTRIN training course.

The PVTRIN e-learning platform:

encourages self-assessment, autonomy and further development

enforces the interaction between trainers and trainees

provides technical support to the certified installers for knowledge and skills development, beyond the training course.

The PVTRIN e-learning platform will be accessible only to registered PVTRIN trainees, PVTRIN trainers and certified installers.

TRAINING PROVISIONS

The PVTRIN training courses are addressed to qualified electricians, with relevant working experience, who wish to activate in PV installation and maintenance.

The PVTRIN training course covers the design, installation and maintenance principles of small scale PV systems. Participants will develop their skills and understanding of basic solar and electrical theory, systems components, design, installation, commissioning and troubleshooting of a small scale PV system including.

MODULES OF TRAINING

The PVTRIN training course covers the design, installation and maintenance principles of small scale PV systems. Participants will develop their skills and understanding of basic solar and electrical theory, systems components, design, installation, commissioning and troubleshooting of a small scale PV system including. The course consists of two parts, the theoretical and practical training and covers the following areas:

* Solar energy basics
* Design principles
* BAPV and BIPV
* Installation-Safety
* Maintenance and troubleshooting
* Case studies-best practices
* Example installation of a small scale PV in building
* Quality management and customer care

TRAINING FINANCE

European and national funding

ECOSUN

Priority area: SOLAR INSTALLATIONS

Contact name : ECO SUN
Web : http://www.ecosun.gr
Activity domain: solar

BRIEF DESCRIPTION

ECO//SUN deals with the area of renewable energy sources since 1996. The company's main object is researching, designing, marketing, constructing and activating systems in residential or industrial level such as:

- Producing electricity using solar panels and wind generators.
- Storage systems – Inverters
- Generating sets
- Energy Automation Systems
- Solar pumps

ECO//SUN operates throughout Greece, as well as Cyprus and Balkans, with a network featuring over 100 partners throughout Greece.

TYPE AND OWNERSHIP OF GOOD PRACTICE

ECOSUN, has created a training channel, through the development of official partnerships of suppliers, specialised in solar energy technologies. Official suppliers are offering continuous and specialised training in new technological evolvements, to ECOSUN staff.

Growatt New Energy Technology Co., Ltd is a solar energy company, specialising in photovoltaic inverters, which is an example of ECOSUN such training collaborators.

ECOSUN, organises technical seminars in form of workshops, for its technicians, transferring competences needed

TRAINING PROVISIONS

Training seminars to technicians include both theoretical and practical training mainly for plumbers and electricians that are involved in the field of solar energy installations.

MODULES OF TRAINING

- Types of solar systems.
- Installation.
- Storage of energy – Inverters
- Monitoring systems
- Calculation of the thermal requirements
- Regulations
- Data and costs of installations - Budgeting.

TRAINING FINANCE

Training actions are financed by own funds.

Global Energy solutions

Priority area: SOLAR INSTALLATIONS

Web : http://www.global-energy.eu/
Activity domain: Activity region : National

BRIEF DESCRIPTION

As one of the oldest companies in this sector in Greece, GLOBAL – ENERGY Solutions Ltd. has established itself in the sector of RES thanks to the completion of hundreds of P/V system projects. Top-quality design and study, supplying, installing and maintening P/V, solar and geothermal systems has justly led to our company being ranked among top, pioneering companies of the industry. As a member of the Hellenic Association of Photovoltaic Companies, the Thessaloniki Chamber of Commerce and Industry, the German-Hellenic Chamber of Commerce and Industry and the Hellenic-Chinese Chamber, GLOBAL – ENERGY Solutions Ltd. keeps growing. Besides its certification under the ISO 9001:2008 standard, GLOBAL – ENERGY Solutions Ltd. was recently included among the most reliable companies of the world in the D-U-N-S list of Dun & Bradstreet (D&B).

Photovoltaic and hybrid electricity generating systems (grid-connected photovoltaic systems and off-grid/hybrid systems, ground-level with fixed or mobile mounting systems with a single or double axis as well as on roofs).

•Electricity generating wind turbines.

•Solar thermal systems for hot water and/or heating

•Geothermal and biomass systems for heating or cooling

•Building energy upgrade systems (window and door frame replacements, insulation, installation of heat pumps, installation of waste processing plants, etc.)

•Solar lighting systems

TYPE AND OWNERSHIP OF GOOD PRACTICE

Courses are addressed to specialized technicians for skills updating in new technology applications in the field of RES.

TRAINING FINANCE

Training actions are financed by own funds.

TRAINING PROVISIONS

GLOBAL - ENERGY Solutions Ltd. greatly depends on its high specialized staff, who are responsible for any trainihngs to its workers.

MODULES OF TRAINING

- ◊ Climatic data capture.
- ◊ Types of solar systems.
- ◊ Storage of energy.
- ◊ Calculation of the thermal requirements,
- ◊ Budgets.
- ◊ Regulations.
- ◊ Data and costs of installations.