



GREEN - BRIDGES FROM GREY TO GREENING JOBS 518525-LLP-2011-ES-LEONARDO-LMP

TRANSNATIONAL DESCRIPTION
PILOT EXPERIENCE: qualifications and
equivalences test

September 2013

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I- OBJECTIVE OF THE PILOT EXPERIENCE

- Plan the stage basing on the results of the previous stage.
- Check the objectivity, reliability and validity of the device.
- Carry out the necessary fittings to "tune" it.

II- PILOT EXPERIENCE DESCRIPTION

A – Methodology

- Each partner selected:
 - At least one company of the sector to participate in the pilot experience. The worker team of the company have 2 to 5 workers on the designed qualifications (with a previous experience of at least 1-2 years in the occupation)
 - 1 evaluator expert on qualifications and on skills in the sectors to evaluates the learning results got by these people. The evaluator will use its own equivalence tool for the national worker evaluations.
 - An Auditor, different from the above evaluator who will check the learning results got, the suitability of the device and audits the quality procedures used. He/she checks the use of the procedures, guidelines and means developed in the project. Each partner of the project offers an auditor to another partner. This activity involves 2 – 3 days-long stages in the partner country. The auditor uses the equivalence tool of the country audited.

B – Test procedure

- Test of the device in the company led by each partner – Evaluation of workers on sectors:

Participant	Tool used by the evaluator	Name of the company	Adress	Numbers of workers involved in the test
ES	Solar design equivalences tool	EKILOR - energías renovables http://www.ekilor.com (Alberto Claudios) aclaudios@ekilor.com	Parque Tecnológico Miramón Paseo Mikeletegi 56, 20.009 Donostia-San Sebastián Tfno.: 943 10 28 00 Fax: 943 30 91 32	3
FR	Solar termal installation equivalences tool	H&CO	10 rue de l'Auberte - 30133 LES ANGLES Tel : 06.15.12.59.31	2
LT	Solar design equivalences tool	JSC Arginta	Moletu pl. 71, LT – 14259, Vilnius Info@arginta.lt Phone:+370 8 5 271 52 73	2
BG	Wind maintenance equivalences tool	Varna Green Energy Ltd.	Bulgaria Varna city str General Kolev 76 en.15, fl. 6 Tel/Fax: +359 (0)52 694 774 E-mail: info@varnagreenenergy.com http://www.varnagreenenergy.com/	3
FI	Solar PV installation equivalences tool	Areva Service Oy www.arevaservice.fi	Satamakatu 20 24100 Salo, Finland Info@arevaservice.fi	2

□ Selection of the Expert evaluator

Participant	Name of the expert evaluator	Position	Organization
ES	José Ignacio Mendoza 0034 945001023 jimendoza@ekisolar.com	Manager of EKISOLAR, consulting and engineering in renewable energy and efficiency energy.	EKISOLAR
FR	Pascal Sady	Training advisor	Greta Vaucluse Nord
LT	Dr. Egle Stasiunaitiene	Expert evaluator & Head of Career and Competence Center	Career and Competence Center of Vytautas Magnus University
BG	Mrs. Meglena Kirova	Trainer and Consultant on Professional Education	Avangard Personal Consulting Ltd. Dobrich 14, Nezavisimost St. floor 2 office 205; tel.: +359 58 601 785 e-mail: office@avangardpc.com
FI	Asko Rasinkoski	Manager/pV specialist	SOLERAS Oy

□ Evaluation by Auditors of the pilot experience led by each partners

Partner auditor	Partner audited	Pilot experience (evaluation of workers) audited	Equivalence Tool used by the auditor
FR	FI	<i>Installation technician in Solar photovoltaic energy</i>	<i>FI tool (solar PV installation)</i>
FI	FR	<i>Installation technician in Solar thermal energy</i>	<i>FR tool (solar thermal installation)</i>
ES	BG	<i>Maintenance technician in Wind energy</i>	<i>BG tool (wind energy)</i>
BG	LT	<i>Design technician in Solar photovoltaic energy</i>	<i>LT tool (solar design)</i>
LT	ES	<i>Design technician in Solar photovoltaic energy</i>	<i>ES tool (solar design)</i>

□ Details on audits

Participant	Name of the Auditor	Position	Organization	Intervention date
ES	BORJA ACILLONA – 690746039 borja.acillona@gmail.com bacillona@zubigune.org	Engineer, expert in wind energy	ZUBIGUNE	June, 10-11 2013
FR	Jean Philippe BICHAUD jean-philippe.bichaud@ac-aix- marseille.fr	Inspector, expert in the renewable energies	National Education	September, 5- 6 2013
LT	Eimantas Miltenis tel.: +370 5 246 1570 mob.: +370 647 36939 eimantas.miltenis@arginta.lt	Project manager, Expert in solar photovoltaic energy	ARGINTA Ltd. Moletu rd. 71, LT- 14259 Vilnius Lithuania www.arginta.lt	June, 18-20 2013
BG	Mr. Ivan Mantarov tel. : +359 895065100 e-mail : mantara@abv.bg	Project Inspector	TPP – EOOD Dobrich, Bulgaria	June, 25-26 2013
FI	Kennet Lindquist/Christer Nyman	Competency assessment specialist	STPKC/SOLECO	September 17- 18 2013

III – AUDITOR'S REPORTS

A - General description of the tool

The GREEN Tool for assessment of equivalencies, or cross-relations between National Vocational Qualification components and competencies, realised through mobility and professional exchange activities, is available online.

This dispositive facilitates the interpretation and understanding of different qualifications related to the renewable energies in the participating countries (Spain, France, Bulgaria, Lithuania and Finland) and therefore is able to determine their transference and capitalisation.

The tool contributes to remove significant obstacles to mobility of these professionals by recognizing and assessing the quality of accumulated training and skills, regardless of the country in which these attributes were developed.

The tool has been tested in live work environments using technical staff and managers of “renewable energy” companies and it describes the profile, in terms of learning outcomes, of the professional categories more demanded by the renewable energy companies:

- Installation technicians on Solar photovoltaic and thermal energy projects
- Maintenance technicians on Wind energy projects
- Design technicians on Solar photovoltaic energy projects

B - General design methodology of the tool (how to introduce the answers)

The aim of this evaluation is to test to what extent the knowledge and skills of a professional in the field of renewable energy, meets the requirements at European level for the categories of:

- Installation technicians on Solar photovoltaic and thermal energy projects
- Maintenance technicians on Wind energy projects
- Design technicians on Solar photovoltaic energy projects

To do this, first, it is needed to determine what is relevant or not; that it means, what we consider necessary for a worker to develop a specific professional activity. And secondly, it is assessed whether the worker is able or not to perform these skills, has the knowledge and develop the necessary behaviors.

C – Spanish pilot experience

1. Description of the tool used by the evaluator

In Spain, the professional category selected has been. "Design technician on Solar photovoltaic energy projects". The person, who has a professional category design technician on solar photovoltaic energy projects, could have a wide profile of competences. There is necessary to estimate energy needs to have knowledge in electricity, to calculate wind loads etc. The main reason, why there is necessary to investigate in NVO, is to describe this professional category and determine what competences are most important and where the qualification should be increased. There was selected professional category design technician on solar photovoltaic energy projects by partner Lithuanian company Arginta, because description of this category could help to determine, what competences is most important and set training needs.

2. The company in which workers have been evaluated

Company EKILOR carries out their projects in the key modality in hand, managing all milestones: the catchment of investors, the project of engineering, the process of installation, the management of subsidies in the face of the public administrations (autonomic help), municipal permission, and high in industry and, starting of the installation, formalizing the contract with the electrical companies.

The company is divided into 4 departments though certain functions are developed in a way that all of the members of the organization participate in them.

- Commercial-Technical Department. Functions:
 - Search for clients
 - visits
 - data gathering
 - proposals' drawing up

Skills: technical and commercial ability

- Engineering department. Functions:
 - Calculation
 - Plans drawing up
 - Projects' drawing up

Skills: technical ability / ENGINEERING

- Sales financing department. Functions:
 - Sales
 - Prices-margins
 - Profitability calculations´ drawing up

Skills: technical ability and financing knowledge
- Documentary Processing Department. Functions:
 - Legalisation
 - Aids and grants processing
 - Permissions
 - Building permits

Skills: knowledge of legal and administrative required

The most relevant and important department is the commercial department where more people are involved. The department's main function is the presentation of offers, and for it, the collaboration of the Engineering Department is essential, so that they guarantee the technical viability of offers. The sales and financial department also plays an important role as it guarantees the economic and financial viability of it. In the same way, the offer has to take into consideration the legal requirements (permissions, licenses, legislation...) as well as considering aids and grants.

To sum up, the central axis or the driving force of the company is the technical-commercial department which interacts with the rest of the departments.

3. The profile of the workers evaluated: position, experience in the position

Alberto S. is a sales person. He is working in that position since the company was established in 2008. He has a electronics and telecommunication education. He has a specific knowledge, which is helpful to make suggestions for costumers. He is able to evaluate, what technical proposal is the best for costumer.

Jorge M. P. Is a business manager. He has a account manager's profile. Experience in accounting is 10 years. Jorge is indicating the company's budget and estimating a margin of projects. He is the person, who can find the best solution for costumers transmitting the technical ideas.

Iñaki L. E. is a technician. He is working in the company since graduated his studies. He has graduated at electricity engineer field. He is able to make a forecasting of photovoltaic plants, make projects for municipality, estimate loads to PV plant's constructions and make electricity projects.

4. Analyze of replies of each workers made by the evaluator

Alberto C. (sales person)

He is more focus on pre sales. The business is mainly based on the company than on domestic/household consumption as it searches for a nearly immediate consumption of the created energy. At home, the energy is first accumulated (during the morning) and then consumed (in the afternoon/at night). The current law does not allow the energy to be kept for a later use. A new law is being waited (it is due to be released soon); it was due to be established by March 2012, so it is running late. His profile (commercial) is quite complicates as he has to have specific technical knowledge: to estimate depending on the panels' power (surface).

Mikel

Technical profile: he determines viability.

He has to have a general knowledge of all of the process (1st step: commercial) no matter he does not participate in this phase. As a small company, everyone needs to have a general knowledge of the whole process although later they develop the competency/ability specific to their area.

It is of great importance to know how to buy in order to get efficient costs (technical task) and to define the best solution not only from the technical point of view, but also considering the technical/economical point of view. It is not only a matter of estimating for customers but also internally so as to gain internal and efficient costs.

Jorge M. P. (business manager)

The sales person transmits the idea to the costumer. Each work is different: it is a personalised strategy. He has to establish a good communication with the technician so that he catches the idea they want to transmit to the client. He also has to be aware of technical matters in order to avoid problems when making the offer; he has to take into consideration all of these values. In the offer a general budget is already indicated.

Iñaki L. E. (technician)

He is not in contact with the clients, but he is doing electrical drawing of photovoltaic plants and making calculations of loads to metal constructions of mounted panels. Also he is evaluating and making prediction of produced energy by photovoltaic plants.

5. The context of the evaluation

The evaluation of employees, which are already working in the field of photovoltaic projects, was very useful to develop the skills. The evaluation helped to determine, which skills are most important to implement such projects. Also it is useful to estimate, what competences could be increased for each employee to improve the quality.

6. The technical context of the jobs/workers evaluated

Personnel are mostly working in domestic facilities. Only few employees there are working. This is the main factor for successful activity, because the regulations in country most focused on allowing developing small photovoltaic plants.

At the moment the main obstacle to have a wide market is to make balance between produced energy and consumption, because the battery systems are still expensive. Nevertheless, subsidies for investments (could be about 20 percent in Catalonia) are not doing market totally closed. The price of electricity from the grid for domestic sector is about 20 euro cent per kilowatt-hour. So, the yearly irradiation (about 1100 kilowatt-hour on one square meter per year in Catalonia) with investment subsidies are the good possibility to invest in photovoltaic projects. The new law, which calls net-balance law, is going to be established on this year, if government will make a positive decision. This law would solve the balance problem between consumption and produced energy. The grid could make a balance role for domestic PV plants. After this law would be established, the market would be bigger in photovoltaic sector.

If the net-balance law will be established, the skills about self-consumption systems would be necessary. The produced and consumed energy should be estimated, during the net-balance law requirements.

7. The quality of the tool

➤ 1st: all the compartments were transversal in the sense that a point could be marked without the need of doing it in the complete section. As `mixed` knowledge can be found in all of the positions, all these share knowledge and abilities of others no matter if that is not their commitment.

For example, the sales person has to know all the technical aspects, the legal aspects and prices and costs.

➤ 2nd: a generic section of basic knowledge (legislation, general aspects) existed for the entire organisation as they exist in all of the positions in the business.

➤ 3rd: remove the thermal energy references, as they have different processes

➤ 4th: classify the functions according to the real commitments:

- Commercial - technical

- Engineering – calculations - plans
 - Sales and financial (related to budgets and costs)
 - Administrative – documentary
- 5th : determination of a training plan following this assessment :

Solving the specific training itinerary there could be diversified trainings for each profile. For example sales manager of photovoltaic energy projects should have not only commercial profile, but must have some knowledge of photovoltaic basics. It could help to make sales easier, according to estimate customer's needs and use it for sale process.

The design technicians on solar photovoltaic energy projects could have training depending on competences gap. Design technicians mostly have a few competences background, but in designing of photovoltaic plants there is necessary to have combined competences. For example design technician have electrical field competence, but he should have a competence to evaluate a cost effective solution. There could be established training itinerary with combined competence field. Otherwise a project team could combine their knowledge and reach a good result.

- Necessary fittings in the device basing on the evidences gathered in the experimentation with companies and workers

Visual appearance of the tool he looks is not attractive, it would be more interesting to give a look more updated and modern.

Utilization:

-it might be interesting simplify its use, as it is a tool to be used by the company itself, without outside help. It could help a more detailed guidelines.

-besides the analysis of equivalence of the specific professional categories, it is a very complete tool because it allows other complementary analysis and comparative analysis with other workers. On the other hand, it is not only a *ad hoc* tool for the three GREEN professionals categories, but it is also possible the comparison of other professional profiles. Once the equivalences are made, the training path is easy to be identified for the different training needs of workers to get a qualification.

D- Lithuanian pilot experience

1. Description of the tool used by the evaluator

In Lithuania, the professional category selected has been “Design technician on Solar photovoltaic energy projects”. The employee, who has a professional category design technician on solar photovoltaic energy projects should have a wide scope of professional competences, not only able to draw up plans, diagrams, design panels, roof constructions, to use computer assisted design programs Auto-Cad basics, but also to have comprehensive knowledge in the field of electricity, health safety, etc. Therefore, the main reason to investigate in NVQ is to describe professional category as well as to determine which competencies are deemed to be the most important and where the skills should be increased. A professional category of design technician on solar photovoltaic energy projects has been selected by partner Lithuanian company Arginta, because description of this category could help to determine, what competences is most important and set training needs.

2. The company in which workers have been evaluated

Arginta group is a group of companies, as of 2 July 2012 uniting 6 companies, operating in the fields water management projects, renewable energy development, metal processing services and asset management. The company joined a team of experienced professionals, the key specialists are working together since 1991. During the last period Arginta group is focusing on the modernization of production processes, quality production and top-level services within metal processing, water management, as well as renewable energy. The company is in rapid growth and one of the fundamental reasons of rapid growth are successful activities and an attempt to continually develop. The company provides technologically advanced products and services to customers in Europe and beyond.

The company is divided into 4 departments: fields water management projects, renewable energy development, metal processing services and asset management and each of them is of equivalent competence areas.

The department of renewable energy development. Key functions: searching for potential clients, preparing commercial offers, drawing up projects, implementing documentary processing, ensuring technical ability and engineering services, commercialization of projects.

3. The profile of the workers evaluated: position, experience in the position

Donatas C. is a project manager. The employee takes position in the company since 2008. He has transport engineering and renewable energy education. Has graduated different international trainings in the field of solar photovoltaic energy. Acquired specific knowledge and experience in commercial projects on energy issues allows to provide customer targeted services, to evaluate cash - flow of projects. He is also responsible for searching and adapting new technologies at projects, performs economic evaluations and justifications of development opportunities.

Jaunius N. is an exploitation engineer. He has graduated in the electricity engineer field and increased skills and competence in the field of solar photovoltaic energy. He is responsible for collection, analysis and presentation of test data, updating databases or files for use by exploitation, ensures that the different elements of the photovoltaic solar installation are compatible with each other and with other elements in auxiliary installations and receivers, guarantees the performance, reliability and production capacity of the installation as a whole, provides support for the dimensions and specifications of the various parts and for different components, if necessary, analyses the safety and protection systems designed, the automations used and other critical points of the installation in the report or specifications.

4. Analyze of replies of each workers made by the evaluator

Donatas C. is mostly focused on individual projects, on a basis of which, the staff is performing activities in the renewable energy sector. Qualifications and experience required for his position is specific knowledge and experience in commercial projects on energy issues allowing to provide customer targeted services. He has to be responsible for searching and adapting new technologies at projects and to perform evaluations and justifications of development opportunities, to have the capacity to carry out administrative processes, to analyze and define the various types of photovoltaic solar installations and describe their components, in order to draw up plans, reports, budgets and the other technical documentation, to have the ability to conduct comparative analytical analysis of collected information and assist in the preparation of reports.

Jaunius N. is an exploitation engineer. He has to have general knowledge of all the processes. Particularly, he has to have specific knowledge in electricity field and the field of photovoltaic energy, basics of direct current and alternating current electrical circuits, general specifications of the installation, installations in premises with special characteristics or purposes, installations for systems of automation, technical energy management. To have the capacity to analyse the safety and protection systems designed, the automations used and other critical points of the installation. To provide support for the dimensions and specifications of the various parts and for different components. Be competent, independent and responsible in organising one's own work.

5. The context of the evaluation

Employees evaluation is very useful and can greatly benefit the company in which they are performing activities related to the renewable energy sector. The performed evaluation helped to determine, which skills are the most important to realistic job performance. Additionally, a detailed and valid picture of which job behaviors and competences could be increased for each employee individually to achieve effective performance and top quality of performance indicators.

6. The technical context of the jobs/workers evaluated

The evaluated employees are working on Small Energy Plants up to 30 kW in Lithuania. The favourable regulations on the development of renewable energy resources in the country was the main factor for effective and successful development of the activities. Moreover, some developers to take advantage of the subsidized tariff, even took the effort to divide their big land plots into a number of small plots. The market reaction to the business possibility was extremely agile. If all these projects were realized, the overall electricity price could have increased significantly, as the grid would have to procure 450 MW of solar electricity at the high, subsidized fixed prices.

Currently, the main obstacle to expand activities of the company operating in the field of renewable energy are the amendments to the LRES that came into force on the 1st Feb 2013 and a separate law on their implementation have been proposed and adopted. Thus, the favorable regulation on incentives to small solar plants was radically changed from an incentivizing development to one that is essentially more restrictive.

7. The quality of the tool

- Following the provided replies, it is obvious that all employees in the company have the knowledge and skills of all the processes, specific knowledge in the electricity field, of legal aspects. Such examples demonstrate that the company's employees are rather competitive in their field
- The provided replies will lead to the development of a specific training itinerary, elaborated individually to each employee. More detailed conclusions are already provided.
- Following the provided replies and the tool structure, it is recommended to classify and structure the functions to the real behavior performances. Additionally, the created tool will be an effective instrument evaluating the other employees' competences and skills in the future.
- Elaborating a specific training itinerary, each profile of employee should be taken into consideration. For example, a project manager has to possess specific knowledge in managerial issues, but also be competent in photovoltaic and electricity field, be able to solve health safety and technical documentation issues.
- An exploitation engineer could have training on more particular on design programs Auto- Cad and be able to draw up plans, diagrams, design panels. He could also increase competence in searching and adapting new technologies at projects, perform economic evaluations and justifications of development opportunities.

E – Bulgarian pilot experience

1. Description of the tool used by the evaluator

In Bulgaria, the professional category, which has been selected, is Maintenance technicians on Wind energy projects. The employee, who has a professional category engineer on energy projects has a wide scope of professional competences, drawing up plans, diagrams, he has also comprehensive knowledge in the field of electricity, health safety, etc. Therefore, the main reason to investigate in NVQ is to describe professional category as well as to determine which competencies are deemed to be the most important and where the skills should be increased. A professional category of Maintenance technicians on Wind energy projects has been selected by partner Bulgarian company Varna Green Energy Ltd., because description of this category could help to determine, what competences is most important and set training needs.

2. The company in which workers have been evaluated

Varna Green Energy Ltd. is a Complete Project Management and specialized engineering company for comprehensive design and construction of wind energy parks.

The company was founded on 16.05.2006 with two main objects of activity production and sale of electric power from renewable energy sources, consultancy services in the sphere of wind energy and a Complete Project Management of wind park projects and energy infrastructure.

The company commenced its operations with the development and design of its own wind parks on the territory of the municipalities of Shabla and Kavarna.

Later on the company expanded its business in the sphere of development and construction of such parks thus proving its professionalism and establishing itself as a leading company for development and comprehensive construction of such projects in the country.

Varna Green Energy is the first company to sign a contract as a leading contractor and a subcontractor with the international company Vestas for 'turnkey' construction and commissioning of a wind park on the territory of Northeastern Bulgaria.

3. The profile of the workers evaluated: position, experience in the position

Mr. Yavor A. - Head of Maintenance. He is working on that position since the establishment of the company. He has graduated engineering and has long years of experience in energy systems and maintenance.

Mr. Vladislav D. – technician with high vocational education;

Mr. Konstantin G. – technician with higher technical degree.

The two technicians are responsible to do the regular tests and prepare the reports from the audits.

4. Analyze of replies of each workers made by the evaluator

Two of the technicians answered all the questions affirmatively. On the other hand, the third worker only answered negatively three questions out of ninety. The reason is that this technician is not capable to work with a laptop, so cannot do reports, send mails, check procedures or see drawings.

Technicians' profiles are very similar. The main difference is their ability to work orders and perform computer reports. They have been working in the company for longer than two years, so they can be considered as experts.

Their main capacities are the next:

- Wind turbine maintenance: preventive, corrective, retrofits ...
- Monitor and control the proper operation of the equipment, maintenance control systems
- Meet policies EHS (Safety, Health and Environment)
- Control certificated tools assigned.
- Warehouse control.

5. The context of the evaluation

The evaluation of employees, was very useful to develop the skills. The evaluation helped to determine, which skills are most important to implement such projects. Also it is useful to estimate, what competences could be increased for each employee to improve the quality.

The workers answered the questionnaires of the tool and we discussed with them the general work conditions and responsibilities.

6- The technical context of the jobs/workers evaluated

They have to performance all the preventive works of the turbines, small correctives if any alarm comes out, manage the warehouse of the windfarm, control their tools and ask for work orders according to Vestas.

They have to work all the time in the windfarm and carry the minor preventives every 6 months and the main maintenance every year. These jobs take two days in each turbine. In addition, they have to change any spare material if any windmill stops when an alarm comes out.



7- The quality of the tool

- The tool gives general idea what specializations and additional training are necessary for the workers.
- It can be used by interviews by hiring new staff.
- It is useful to check the skills of the workers from different countries on common criteria in the EU.
- The tool is efficient to analyse equivalences. It is suitable for checking the skills of new workers.

F – French pilot experience

1. Description of the tool used by the evaluator

For testing the tool in France we chose the professional categories “Installation technicians on Solar thermal energy projects”, as the Provence Côte d’Azur (PACA) region is the largest producer of solar thermal energy in France.

In France, the National Vocational Qualification of the sector is built from professional activities, so the description of professional qualifications (Key Performance Area-KPA) required by the job “Installation technicians on Solar thermal energy projects” was similar. The KPA described in terms of units, learning outcomes (LO) and expertise has been validated and supplemented by two companies.

However, the exercise of this activity is different depending on the type of business. In very small companies, the same worker exercised activities (marketing, technical studies, panel installation, connection, maintenance), while in large companies such activities are spread over several people (for example, a roofer will put solar panels and a plumber who will make the connection).

2. The company in which workers have been evaluated

The company H & Co is a very small company specializing in the installation of roofs, the design and the installation and maintenance of solar panels: photovoltaic and thermal. The company consists of three employees: one manager and two technical commercials.

The main activity of the company is a technical and commercial activity, contact with customers, needs analysis, study of possible technical solutions, and drafting technical documents negotiating with customers, taking orders, customer information, then search operators (subcontractors) for the installation and connection of various devices according to regulations.

The founder of the company has changed the traditional initial activity of roofing installation of the company by creating a new one, H & CO more oriented renewable energy use: primarily solar photovoltaic and thermal.

3. The profil of the workers evaluated: position, experience in the position

Jean Pierre W. (Technical commercial) has graduated a licence in the field of construction and building.

He has experience of 8 years in roofing (tiles) and installation of equipment related to renewable energy. His activities consist of:

- Sell roofing and renewable energy solutions
- Research subcontractors, definition and organization of projects

- Supervision of works
- Acceptance of the work

Jean Denis J. (Technical commercial) has graduated a Master in the field of administrative management of companies.

He has experience of 5 years in roofing (tiles) and installation of equipment related to renewable energy
His activities are the same as Jean-Pierre Wisard.

4. Analyze of replies of each workers made by the evaluator

Jean Pierre W.

His assesment makes appear:

a) Competencies in:

- Customer Relationship
- Oral and written comprehension
- Equipment used

b) training needs in the following areas:

- Scientific Knowledge
- Regulation
- Risk management on a construction site
- Procedures for commissioning and maintenance

These skills are transverse to the solar photovoltaic or thermal.

Jean Denis J.

His assesment makes appear:

a) Competencies in :

- Oral and written comprehension

- Preparation of documents
- Troubleshooting
- Commissioning

b) des besoins de formation dans les domaines suivants :

- Scientific Knowledge
- Organization and planning projects
- Waste Management
- Risk management on a construction site

These skills are transverse to the solar photovoltaic or thermal

5. The context of the evaluation

The technologies implemented in the field of renewable energy are changing very rapidly.

Therefore employees of H & CO must follow these developments and keep abreast of existing solutions, conditions of use, advantages and disadvantages, installation techniques, induced costs (purchase and resale of materials, time and skills for the installation, connection and commissioning of devices).

These devices can be either photovoltaic (PV) systems and solar thermal (ST) systems. It is therefore necessary for employees to position themselves in relation to the expected, both in the PV (Finnish KPA) in the ST (French KPA) skills. Also, it is entirely appropriate to rely on the work of the Finnish and French teams.

Moreover, it is important to consider the contexts and practices in different European countries. For example, with regard to the installation of photovoltaic panels, the technologies are not the same in Finland and France. Finland facilities are often made in remote locations to allow "cottages" not connectable to the grid to produce electricity, while in France the majority of facilities are connected to the network.

The electricity produced is bought by the national operator (EDF). The facilities are different and the skills needed to achieve are partly different. In Finland, the solar thermal energy is undeveloped.

6- The technical context of the jobs/workers evaluated

- Type of facilities: industrial or domestic? Description?

Most of the facilities are domestic. They are mainly residential houses.

- Main regulations in the country on the sector evaluated

The Grenelle Environment fixed at least 23% the share of renewable energy in energy consumption.

In this context, solar thermal increase from 27,000 TOE (tons of oil equivalent) in 2006 to 900,000 toe in 2020, totaling more than 4 million homes fitted.

In accordance with the Grenelle the 2012 thermal regulation set a limit consumption of 50 kWh per m² per year for all new buildings. By 2020, the buildings will be positive energy. Solar thermal energy will be put to for achieving these performance targets.

- **Specific skills expected for the certain job**

Technological intelligence: the worker regularly reads newsletters to keep informed of technical evolutions in solar water heater and administrative rules.

Research and development: in connection with a firm of solar water heater, the worker develops new products.

Training: groups of professionals have created a quality charter (QualisSOL, QualiPV). The worker must train to have these certificates.

Network: the company relies on a network of other companies to do business. For example, it puts the solar water heater on the roof but another company makes the hydraulic connection.

Administration: the treatment of administrative records is very complex and requires specific skills.

7- The quality of the tool

- **Relevancy of the competences /skills evaluated**

Some skills are missing (working in team, height work, ...)

Vocabulary has to be reviewed to be better understood by workers of low-skilled

- **Exploitation of the replies afterwards**

Yes, but is aimed at structured firms, less for little companies

➤ **Determination of a training plan following this assessment**

Yes, but it would be more convenient if there was a link between the different skills tested and training units

➤ **Necessary fittings in the device basing on the evidences gathered in the experimentation with companies and workers**

The online tool is efficient with regard to skills analysis and positioning of employees against expected in professional categories related to the installation and maintenance skills thermal equipment.

On the other hand, as regards the analysis of equivalence with the Finnish partner's KPA "Solar photovoltaic installation technicians ", our pilot experiment was not satisfactory for several reasons:

- Both KPA (Key Performance Areas) "Install and maintain maintenance solar thermic facilities," France and "Solar Power (PV) Installation and maintenance" - Finland - have not been described in the same architecture.

- A bad understanding of the manipulation of the on-line tool due to a lack of clarity of the user guides of the tool and to a lack of support has resulted in improper input KPA "Install and maintain maintenance solar thermic facilities "at the WP 6" Design of the professional qualifications AND ECVET EQF According to guidelines. "

For these two reasons, the equivalences have been difficult to evaluate for salaries tested.

A plan to improve the French device was implemented:

- Review the hierarchy of the KPA "Install and maintain maintenance solar thermic facilities" to improve the correspondences with the KPA "" Solar photovoltaic installation technicians " .

- Review the input KPA "" Install and maintain maintenance solar thermic facilities "in the online tool.

- Repeat the work of definition of correspondences between the two KPA (Define the connections inside the application framework)

D – Finnish pilot experience

The Finnish pilot was carried out both as a pilot testing of competence assessment tool as well as try-outs of the equivalencies assessment facilities provided within the project-developed tool.

The evaluation of the pilot was carried out with the coordination of a national solar power technology expert at two different locations in Finland. The assessment processes as well as the assessment outcomes were very positive, and the assessment tool were by the actors involved appreciated both as an efficient assessment tool, as well as a useful performance checklist.

1 Description of the tool used by the evaluator

The tool that was piloted and evaluated in Finland was the competence assessment and competence equivalencies analysis tool developed/configured as part of the Green project, and which was populated with competence frameworks covering two competence structures;

- Solar power (PV) Installation and Maintenance Technician competencies.
- Finnish national VET curriculum - Electrical Installation and Maintenance Technician (incl. PV).

The competencies assessment tool enabled us to collect competence status information using one of these two competence structures, and derive implications of competence profiles related to the second competence structures. Both directions were tested during the pilot, while only one of the two directions were included in the evaluation activities, namely the validation of informally acquired competencies from job performers having no full or formal vocational education qualifications.

FI Comment: First off-line, thereafter online entry, or direct online entry

2 The design methodology tool (how to introduce the answers)

The tool used by the Finnish project team was configured in such way that it was possible to both enter data in an off-line format as well as a direct online data entry. There was also given to the respective company manager, or supervisors of the evaluated solar power technicians, to enter profiling data on behalf of the assessed technicians from their completed off-line response forms. This option was also tested and used for some respondents during the Finnish piloting of the profiling tool.

3 The company in which workers have been evaluated

The piloting of the Solar Power assessment tool was carried out in a number of Finnish Solar PV-related companies, in stages and with ambition to both verify the content structures of the tool, as well as the testing the functionality of the dual-direction assessment. The assessment taking place as part of the

evaluation/audit of the Finnish implementation of the project-developed tool included two Finnish companies;

- Areva Service Oy Web-site: <http://www.arevaservice.fi/>
- PlayGreen Oy Web-site: <http://www.playgreen.fi/>

Both of the above companies were having both experience in and as a specialization Solar PV installation and maintenance, and both companies could be considered as SMEs.

a. The profile of the workers evaluated: position, experience in the position

The evaluation stag of the Finnish pilot involved one installation & maintenance technician from each of the above mentioned two companies;

<u>UOTILA, Harri</u>	<u>Areva Service</u>	48% hierarchy items	47% competencies
<u>PENTTINEN, Jouni</u>	<u>PlayGreen Oy</u>	25% hierarchy items	24% competencies

The Areva installation & maintenance technician had both a more extensive and wider experience that the technician from the PlayGreen company, while both had relatively similar tasks and responsibilities concerning installation and maintenance of PV systems, and these installation were also of relatively similar kind for the two companies.

4 Analyze of replies of each workers made by the evaluator

There were two stages of the response analysis carried out as part of the tool evaluation/assessment;

- the analysis of the tool's capability and functionality as a competence analysis tool, and
- the analysis as a tool to interpret competence profiles in a second competence structure from e set of equivalencies defined between the two related competence structures.

The first analysis started with an analysis of the scope of competencies covered by an assessed technician, and the result in terms of coverage percentage, found for the two technicians have also been indicated next to the respective technician names in the earlier section. The findings from the analysis percentage of the relevancy for respective technicians in relation to the full scope of tasks and competencies (defined for and inserted into the competence structure for Solar Power Installation and Maintenance technicians) are reflecting correctly the differences interpreted by the tool evaluator for the two persons involved in the tool evaluation activities. The competence profiles generated by the tool were also verified as consistent with the professional opinion of the company manager/supervisor as well as the tool assessment evaluator.

The second analysis, the equivalencies aspects, was also found to be a valid tool for assessment of competencies in related jobs/competence structures, and both the evaluator and auditor pointed out the potentiality of this online tool as an efficient mechanism for e.g. validation of informally acquired competencies among practitioners that have long work experiences but not any corresponding formal education/vocational/professional qualifications.

5 The context of the evaluation

The evaluation of the Finnish tool for solar power installation and maintenance technicians was implemented by the pilot evaluator at the work-site of the two above mentioned solar power companies, located at different parts of Finland. The tool evaluation was also carried out independent of the Finnish tool designers / project partners, which also was a way of assessing to sufficiency of the existing instructions and guidance for the preparation, usage and interpretation (and post-evaluation usage) of the collected competence profiles from/by the two companies involved in the evaluation.

6 The technical context of the jobs/workers evaluated

Prior to the implementation of the tool evaluation by the assigned and independent evaluator the tool and the online service environment was introduced to the evaluation and trial access was given to the evaluator for practice purposes, as well as for an option to carry out a self-assessment and try-out of both the competence profiling functions and the equivalencies capabilities of the tool. This gave the evaluator both confidence for and practical operational guidance for the subsequent usage of the online tool at the companies where the tool was about to be tested/evaluated.

7 The quality of the tool

Both the evaluator and the auditor, as well as the company managers and the assessed solar power technicians, expressed their positive experiences and impressions from the Finnish tool usage, and they saw the potentiality of both using the tool 'as is' as well as the potentiality of the functionality of the tool to be further expanded. It was also expressed that this competence assessment tool had applicability in many other sectors than in renewable energy sector addressed by the Green project.

In addition to above findings and conclusions it was also expressed that;

- **Relevancy of the competences /skills evaluated was high**

The quality of the competence structures defined within the tool by the Finnish project team was highly relevant, precise and valid representation of the jobs involved.

- **Exploitation of the repliers after the pilot was potentially high**

The potentially of post-pilot/post-project application of the tools and the competence structures, and profiles available within it, was expressed a high by both the companies involved in the tool evaluation, as well as by the evaluator and other solar power specialist having reviewed the tool.

- **Determination of a training plan following this assessment**

One of the mentioned potentialities for the tool was its capability to be used as an instrument for producing HR/training plans, and this capability is already prepared for within the tool, and was also demonstrated in connection with the FR audit of the tool.

Necessary fittings in the device basing on the evidences gathered in the experimentation with companies and workers

With t additional capabilities already built into the tool it is planned to further expand the application and usage at least in the Finnish context and for both renewable energy sub-sectors already covered by this project initiative as well as for other VET-related competence assessment initiative both within and outside of the renewable energy sub-sectors and job profiles covered by the Green project.



IV - CONCLUSION

The GREEN Tool for assessment of equivalencies, or cross-relations between National Vocational Qualification components and competencies, realised through mobility and professional exchange activities is useful to check the skills of the workers from different countries on common criteria in the EU.

The tool is also efficient to analyse equivalences and to provide complementary analysis and comparative analysis with other workers or other professional profiles.

But, in view of evidences gathered in the experimentation with companies and workers, some improvements must be made to the tool in terms of:

Visual appearance of the tool

The look is not attractive; it would be more interesting to give a look more updated and modern.

Utilization

It might be useful to further simplify and expand its use, as it is a tool to be used by the company itself, possibly without outside help. It could e.g be done with more detailed usage guidelines and a general guideline to describe the entire design, installation and usage processes.



V - ANNEXES

- Annex 0 – Specifications for the auditor
- Annex 1 – Equivalences form
- Annex 2 - Overview of the connection status
- Annex 3 – Define the connections inside the framework application
- Annex 4 – Definition of the structure of the framework application
- Annex 5 – Profile results for the framework application
- Annex 6 – Equivalence weight of the profile



ANNEX 0

Specifications for the auditor

2-3 working days

Day 1 – In the partner’s office:

- The auditor meets the partner and the experts (evaluator) who evaluated workers:

The evaluator and the partner present to the auditor:

1. Description of the tool used by the evaluator
2. The design methodology tool (how to introduce the answers)
3. The company/ies in which workers have been evaluated
4. The profil of the workers evaluated: position, experience in the position
5. Replies of each workers (on papers) made by the evaluator

Day 2 – Work in Company:

- The auditor visits the company in which the workers have been evaluated.

The auditor interviews the manager of the company or of the department and possibly the worker evaluated on:

1. The context of the evaluation

- Explain why the worker is being evaluated? (For ex. To develop the skills of an employee already working in the field of renewable energies)

2- The technical context of the jobs/workers evaluated

- Type of facilities: industrial or domestic? Description?
- Main regulations in the country on the sector evaluated
- Specific skills expected for the certain job

3- The quality of the tool

- Are the competences /skills evaluated relevant?
- Are the replies exploitable? How can we use them afterwards?
- Can we determine a training plan following this assessment?
- What are the necessary fittings in the device basing on the evidences gathered in the experimentation with companies and workers?

Day 3 – Work in Company (if necessary):

- The auditor visits again the company to continue with the evaluation process (or a second company, in which one or two workers have been evaluated. He follows the same program

ANNEX 1

Spanish pilot annexes

- Equivalences form
- Overview of the connection status
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- Define the structure of the framework application
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ANNEX 2

Lithuanian pilot annexes

- Equivalences form
- Overview of the connection status
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- Define the structure of the framework application
- Profile results for the framework application
- Equivalence weight of the profile

ANNEX 3

Bulgarian pilot annexes

- Equivalences form
- Overview of the connection status
- Define the connections inside the framework application
- Define the structure of the framework application
- Profile results for the framework application
- Equivalence weight of the profile

ANNEX 4

French pilot annexes

- Equivalences form
- Overview of the connection status
- Define the connections inside the framework application
- Define the structure of the framework application
- Profile results for the framework application
- Equivalence weight of the profile

ANNEX 5

Finnish pilot annexes

- Equivalences form
- Overview of the connection status
- Define the connections inside the framework application
- Define the structure of the framework application
- Profile results for the framework application
- Equivalence weight of the profile