



Qualification and training for installers of small RES - Update on the CA-RES and IEE projects

**5th BUILD UP Skills EU
Exchange meeting, 27
November 2013**

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General

- supports the transposition and implementation of the Directive 2009/28/EC
- participants are from organisations that have the mandate for the implementation of the directive (e.g. ministries).
- structured dialogue
- allows MS to discuss in confidence how best to implement the RES directive
- Allows for:
 - Common coordinated approaches among MS
 - Exchange of best practices
- Discussion include Article 14 of the RES directive

Article 14 of the RES directive

- **Member States are requested to have certification schemes or equivalent qualification schemes for installers of small-scale RES available by 31 December 2012**
- **Calls for mutual recognition**
- **Former work of the CA RES has produced indicative list of table of competences**
 - Shallow geothermal
 - Biomass boilers
 - Heat pumps
 - PV
 - Solar thermal

Map of competences



Title	BASIC KNOWLEDGE	
Learning outcomes The learner will:	Assessment criteria The learner can:	
A1. Knowledge of ground-coupling technology alternatives	A1.1	<p>Overview of shallow geothermal systems</p> <ul style="list-style-type: none">• Ground temperatures;• Basic system concepts;• Shallow geothermal energy with moderate temperatures;• Ground Source Heat Pump (GSHP) concept;• Underground Thermal Energy Storage (UTES) concept.
A2. Limiting Conditions	A2.1	<p>Awareness of the boundary conditions:</p> <ul style="list-style-type: none">• Energy sources;• Geology / hydrogeology;• Climate;• Environmental issues;

Map of competences



Title	DESIGN AND PREPARE	
Learning outcomes The learner will:	Assessment criteria The learner can:	
B1. Ability to perform the feasibility study	B1. 1	<p>Appreciation of the complexity of geological problems and the feasibility of their solution. Concept and feasibility studies:</p> <ul style="list-style-type: none"> • Ground-side design assessment; <ul style="list-style-type: none"> • Will a Ground Source Heat Pump (GSHP) with groundwater wells or Borehole Heat Exchangers (BHE) be allowed on a certain site? • What is the underground geology in regard to thermal parameters, drilling, and environmental issues? • What are the thermal loads to be covered? • Underground data acquisition; and <ul style="list-style-type: none"> • <u>in</u> the stage of a concept study typically no investigations penetrating into the underground (drilling, geophysics) are made, in order to keep costs low. • Economic feasibility <ul style="list-style-type: none"> • What are the estimated investment and operation costs?
B2. Know the	B2.	Identify the following brine filled heat pump collector circuit configurations:

Map of competences



Title	DESIGN AND PREPARE	
Learning outcomes The learner will:	Assessment criteria The learner can:	
B1. Ability to perform the feasibility study	B1. 1	<p>Appreciation of the complexity of geological problems and the feasibility of their solution. Concept and feasibility studies:</p> <ul style="list-style-type: none"> • Ground-side design assessment; <ul style="list-style-type: none"> • Will a Ground Source Heat Pump (GSHP) with groundwater wells or Borehole Heat Exchangers (BHE) be allowed on a certain site? • What is the underground geology in regard to thermal parameters, drilling, and environmental issues? • What are the thermal loads to be covered? • Underground data acquisition; and <ul style="list-style-type: none"> • <u>in</u> the stage of a concept study typically no investigations penetrating into the underground (drilling, geophysics) are made, in order to keep costs low. • Economic feasibility <ul style="list-style-type: none"> • What are the estimated investment and operation costs?
B2. Know the	B2.	Identify the following brine filled heat pump collector circuit configurations:

Map of competences



Title		INSTALLATION AND COMMISSIONING	
Learning outcomes		Assessment criteria	
The learner will:		The learner can:	
C1. GSHP Installation and grouting	C1. 1	Knowledge about:	<ul style="list-style-type: none"> • construction of groundwater wells, installation of relevant pipes, pumps and control systems; • drilling for the borehole heat exchangers (BHE), connecting the BHE to the Heat Pump, BHE handling during transport, BHE on-site storage; • installation of BHE, grouting, backfilling or otherwise completion of the ground source system; • <u>welding</u> of plastic pipes and other connection methods.
C2. Know the preparatory work required for heat pump installation work	C2. 1	Knowledge of the common requirements of pre-installation checks for ground source heat pump unit installations connected to hydraulic emitters circuits in relation to:	<ul style="list-style-type: none"> • authorization for the work to proceed; • the availability and collation of all relevant information; • verification of the suitability of the hydraulic emitter circuit for connection to the heat pump unit;

Map of competences



Title	MAINTENANCE AND SERVICE	
Learning outcomes The learner will:	Assessment criteria The learner can:	
D1. Know the requirements for the non-refrigerant circuit routine service and maintenance of a ground source heat pump system installation	D1.1	Confirm which documentation needs to be available to enable routine service and maintenance work on heat pump system installations
	D1.2	Confirm typical routine service and maintenance requirements for a ground source heat pump installation in relation to: <ul style="list-style-type: none"> • visual inspection requirements; • cleaning of components; • checking of system water content; • <u>functional tests</u>.
	D1.3	Confirm the industry requirements for the recording and reporting of routine service and maintenance work on heat pump system installations
	D1.4	State the action(s) to take in the event of a failure or suspected failure of the refrigerant circuit and/or a suspected refrigerant circuit defect
D2. Undertake the non-refrigerant	D2.1	Undertake a visual service and maintenance inspection of a ground source heat pump installation to include checks in relation to:

Certification schemes for installers of small-scale RE technologies



European
Commission

CA RES

COHERENT ACTION
RENEWABLE ENERGY
SOURCES DIRECTIVE



www.ca-res.eu

[Name of Country]		[Country flag]
Certification schemes for installers of small-scale RE technologies		
CA-RES II Meeting in Malta – 20th November 2013		
[Name of contact],	[Organisation]	Updated: 10/13
[Email]		

Scheme overview	
The scheme is a:	[qualification] / [certification] scheme
The scheme is:	[mandatory] / [voluntary]
Certification is for:	[a person] / [the company]
Legislation for the certification scheme:	[name of legislation & description if necessary]
Other relevant legislation:	
The bodies providing the training:	
Administrator for the scheme:	

Scheme set up and links					
Duration of the training in hours:		Level of education according to EU qualifications framework*	EQF L: 1/2/3/4/5/6/7/8 {please delete as appropriate} * http://en.wikiopedia.org/wiki/European_Qualifications_Framework		
Examination pass rate:		Coverage of scheme	National/ Regional/ Local	Practical test	Theory test
				✓ x	✓ x
Comments on the examination process:					
Definition of small-scale:	Solar pv	Solar thermal	Wind turbine	Ground source heat pump	Air source heat pump
Web link to certified installers:					
Definition of small-scale:	Micro CHP	Biomass	Hydro	Other	Other
Web link to certified installers:					
Is the scheme mandatory in your country?	Mandatory for all installations	✓	Obligatory to receive subsidy/incentive	✓	Not mandatory but promoted by the Government
		x		x	Other (please explain):
What is the process for disqualification from the scheme?					

Information & communication	
How is information conveyed to the different target groups (installers, consumers etc.)?	Please provide information on how the scheme is communicated and advertised to the relevant target groups.
How is cooperation with stakeholders organised?	Please provide a description of who the stakeholders for the scheme are and how you engage with them.



- training programme for heat pump installers, establishing a certification program for this target group and disseminating the trademark "certified **heat pump installer**" training
- identical examination material (in local language) for all trainees throughout Europe to enable the development of a comparable qualification and an easy mutual acceptance of certificate among participating countries
- currently 14 countries are working together to have this scheme in place
- More info on the European Heat Pump Association <http://www.ehpa.org/european-certified-hp-installer/>



Fig. 2: Map of countries offering EUCERT in 2012

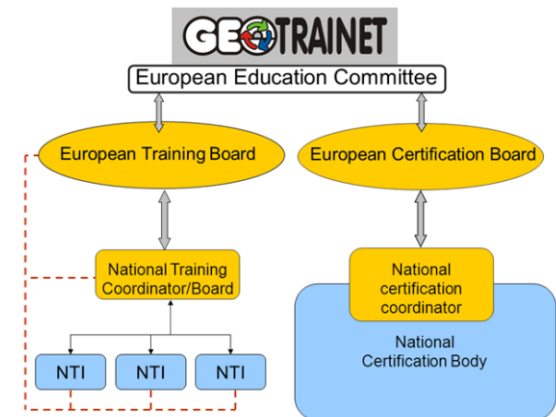
- IEE project (2008-2011), main outcomes
 - education programme with curricula for **designers and drillers of shallow geothermal facilities**
 - didactic materials and e-learning platform,
 - 12 training courses in 8 European countries

Following the project (on-going activity)

- GEOTRAINET certification structure created
- Geotrainet Association established after end of IEE project
- Circa 10 countries taken place in this stage



CO: European Federation of Geologists
www.geotrainet.eu



IEE project (I)



- QUALICERT Qualicert Common quality **certification and accreditation for installers** of small-scale renewable energy (RE) systems (2009 - 2011)
 - Adoption of a common approach to accreditation and certification schemes for installers of small-scale RE systems in 5 EU Member States (FR, AT, IT, PL, GR) with mutual recognition of the schemes (Article 14 and Annex IV of RES Directive).
 - Facilitation of implementation of accreditation and certification schemes based on the joint approach in the 5 MS.



CO: French Environment and Energy
Management Agency, FR
www.qualicert-project.eu/



- PV-TRIN Training and certification of **Photovoltaic installers** in six European countries (2010 –2013)
 - Greece, Bulgaria, Croatia, Cyprus, Romania and Spain
 - Accredited training courses and operational certification scheme for PV installers in 5 countries
 - Practical training material/tools for the installers and their trainers including online tools
 - 8 pilot training courses implemented, a pool of skilled/certified PV installers in participating countries; 185 technicians trained, at least 145 certified.
 - A roadmap for the acknowledgement of the certification scheme across Europe
 - www.pvtrin.eu/



CO: Technical University of Crete, EL
www.pvtrin.eu



- **Install+RES Training courses for installers of small-scale RE systems** (biomass, solar, PV and heat pumps) in buildings (2010 –2013)
 - 33 training courses implemented in Germany, Poland, Italy, Slovenia, Bulgaria and Greece
 - 514 trainees delivered in Bulgaria, Germany, Greece, Italy, Poland and Slovenia), with a result of 434 installers actually certified
 - the 4 training modules developed gain recognition (accreditation) in some of the participant countries recognised at national level in Slovenia and Bulgaria



CO: WIP GmbH & Co Planungs-KG,
DE
www.resinstaller.eu/

Conclusion



- As you can see a lot has been done and it is currently being done
- Please avoid duplication of efforts and exploit synergies -BE PRO-ACTIVE
- Please contact those in charge of relevant projects / schemes / initiatives
- We will assist in the process as much as we can – making information available, networking ... ASK US