

KNOWLEDGE, SKILL AND COMPETENCE IN PV INSTALLATIONS



ITALIAN AGENCY FOR NEW TECHNOLOGIES, ENERGY AND DEVELOPMENT OF SUSTAINABLE ECONOMICS

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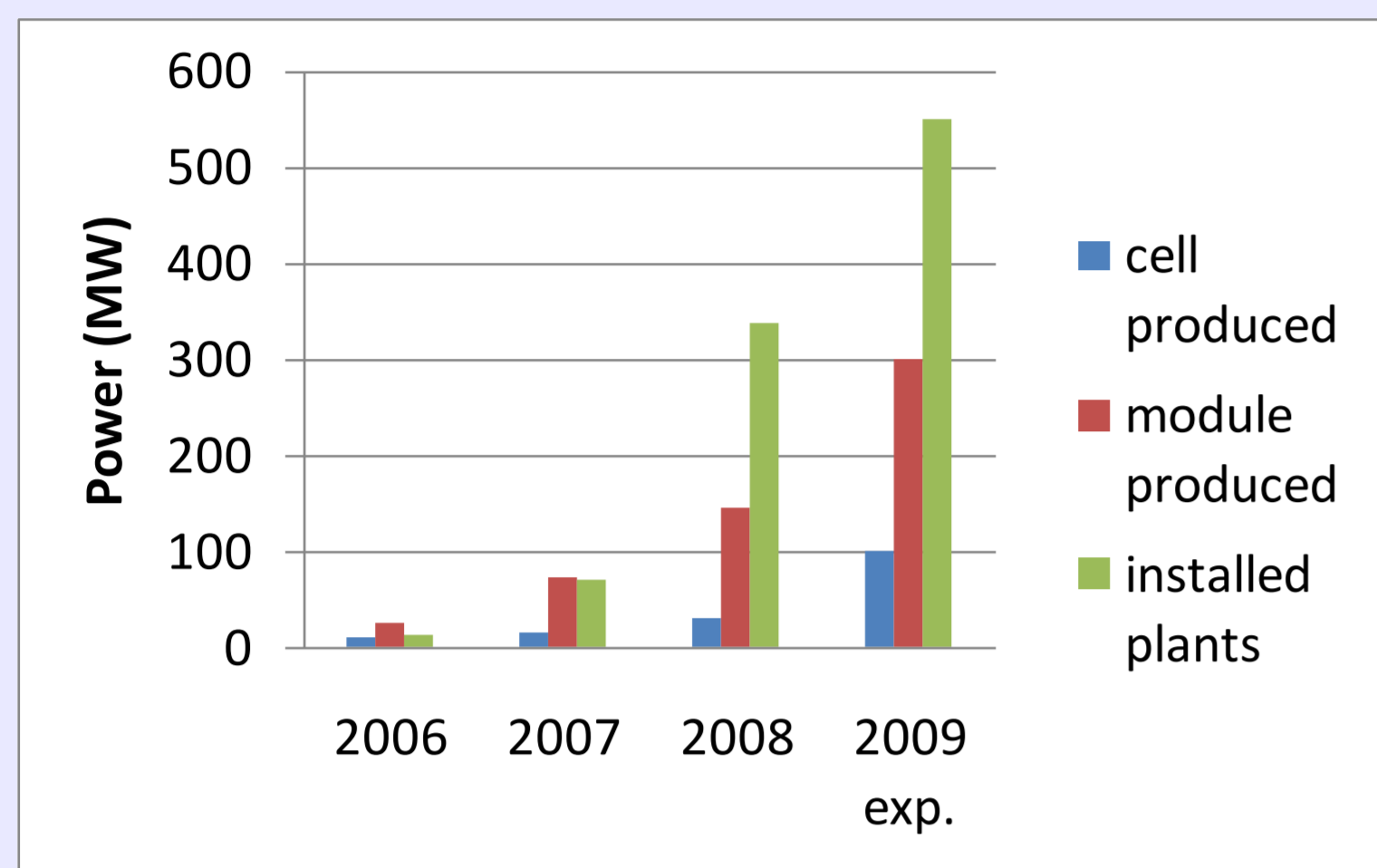
ABSTRACT

In the European Qualification Framework, published in April 2008, it is underlined how important it is to establish the knowledge, the skills and the competences which are needed in order to be considered “good professionals”. The PV installers, for instance, have to demonstrate that the installed installations produce the planned energy. This concern is well underlined in the Directive 2009/28/EC of the 23rd April 2009 on the promotion of the use of energy from renewable sources approved by the European Parliament and Council.

ENEA, together with Mesos, which is an ENEA spin off, and CEPAS, which is a national professional certification body, have set up a blended learning system.

This experience will be presented in the European funded project “QualiCert”

Market situation



The “Conto Energia” promoting Programme is providing the basis for the expansion of PV market in Italy:

- installed PV power has reached today about 600 MWp with an increase of about 280 % as respect to the previous year;
- more than 48 000 plants have been installed all over the country.

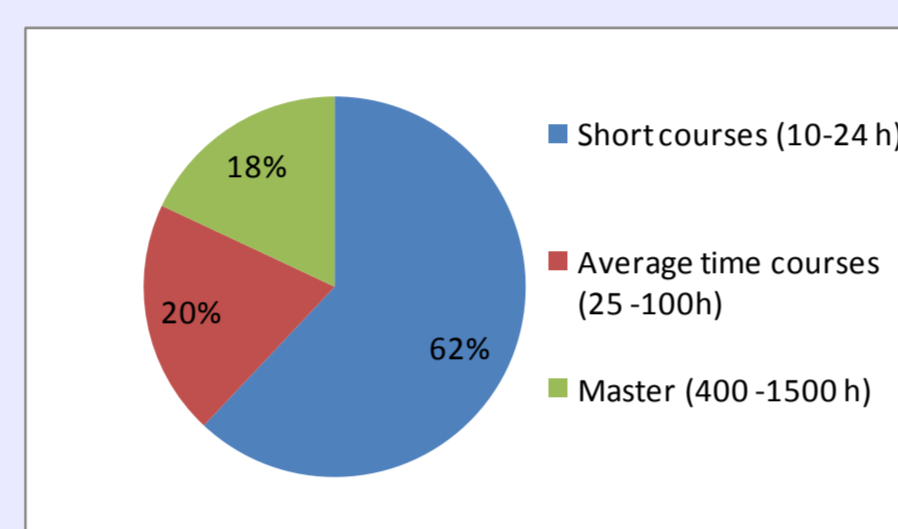
Taking into account the expected growth of the Italian PV market a continuous increase in the demand of skilled persons is needed.

Green job

Year	New installed (MWp) + 50%/y	Installers to be trained	Installers employed
2007	70		945
2008	120	675	1620
2009e	180	950	2430
2010e	270	1215	3645

Training in PV sector

The big gap to fill in a field as dynamic and vital as photovoltaics is primarily the training of qualified technicians, who still need specialized and aimed trainings courses.



Distribution of the courses PV based on duration

Comparison of 50 courses available at this moment in Italy

The courses offered range from master courses, to higher technical education financed by regional funds, to courses offered by companies in the sector and to courses organized by training institutions associated with universities or research centers.

	Short courses	Average time courses	Masters
SPEAKERS	Engineers / technical experts	Researchers / university professors	Researcher / university professors
REQUIREMENT	No	Diploma	Degree
FINAL EXAMINATION	No	In some cases	Yes
AVERAGE COSTS	600 euro	1200 euro	3000 euro
QUALIFICATION	No	In some cases	Master's degree

PV courses qualified by a third party :

- The course organized by ENEA - Mesos, qualified by CEPAS under the ISO/IEC 17024 standard (ex EN 45013)
- The course organized by C.R.E.A., recognized by ESAcert based on CEN standards UNI EN 45011.

Legislation



Directive 2009/28/EC

The Directive on the promotion of the use of energy from renewable sources entered into force in June 2009

Article 14 – information and training

- Member States shall ensure that information on support measures is made available to all relevant actors by the supplier of the equipment or system or by the national competent authorities.
- Before the 31st of December 2012 the State Members must define the certification schemes or equivalent qualification schemes
- Those schemes may take into account existing schemes and structures as appropriate and be mutually recognized by other Member States.

Annex IV - certification of installers

- Reports the criteria of the certification schemes or equivalent qualification schemes.
- All installers shall be certified by an accredited training programme or training provider.
- The accreditation shall be carried out by Member States or appointed administrative bodies.
- Each Member State shall recognize certification awarded by other Member States in accordance with those criteria.
- Local and regional authorities will be involved by National Authorities .

The European Qualification Framework (EQF)

Published in April 2008, it is underlined how important is to establish the knowledge, the skills and the competences which are needed in order to be considered “good professionals”.

Prospects in Italy

10 top players operating in the Italian PV sector

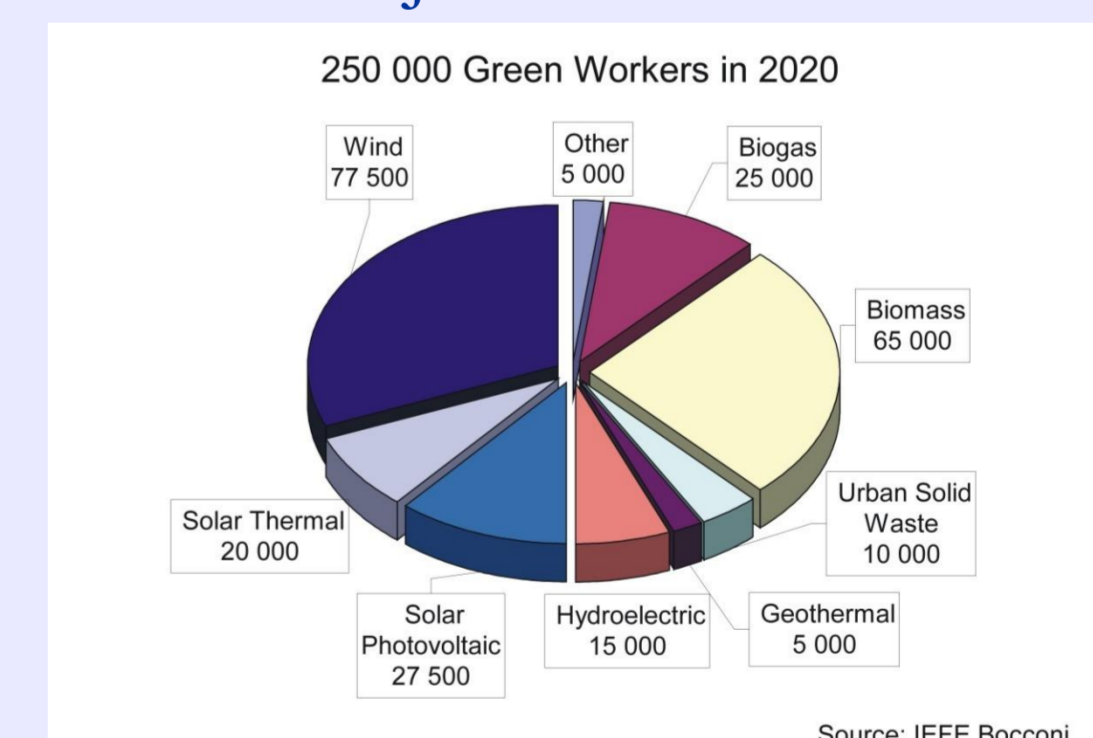
	TOP	Since	Turnover 2008 Mln €	Var % turnover 2007-08	MWp installed 2008
1	ENEL SI	2005	144	27	29
2	ENERPOINT	2001	60	67	2,7
3	SUNERG SOLAR	2004	37	118	10
4	ENERQOS	2006	35	1067	6
5	ECOWARE	2003	29	190	6
6	ENERRAY	2007	20	300	4
7	ERGY CAPITAL	2007	19	N.A.	3
8	ENERECO	2005	13	117	3
9	PHOENIX SOLAR	2009	9	153	2
10	SOLAR CENTURY	2008	4	N.A.	0,8

Investments in PV

- The market's trend is in rapid growth
- The Government estimates a potentiality of 4-5 GW installations by 2020, on building's and in the free field (in the range of 10 to 20 MW).
- The Italian PV market could achieve 1200 MW installed PV power in a couple of years. This target is established by the "Conto Energia". The incentives are expected to be revised downwards as already happened in Spain and Germany..

Expected RES employment by 2020

When considering only skilled workers, in the fields of photovoltaic, wind and biomass, without part-time employment, professional green full-time units could be now just over 5 thousand in Italy.



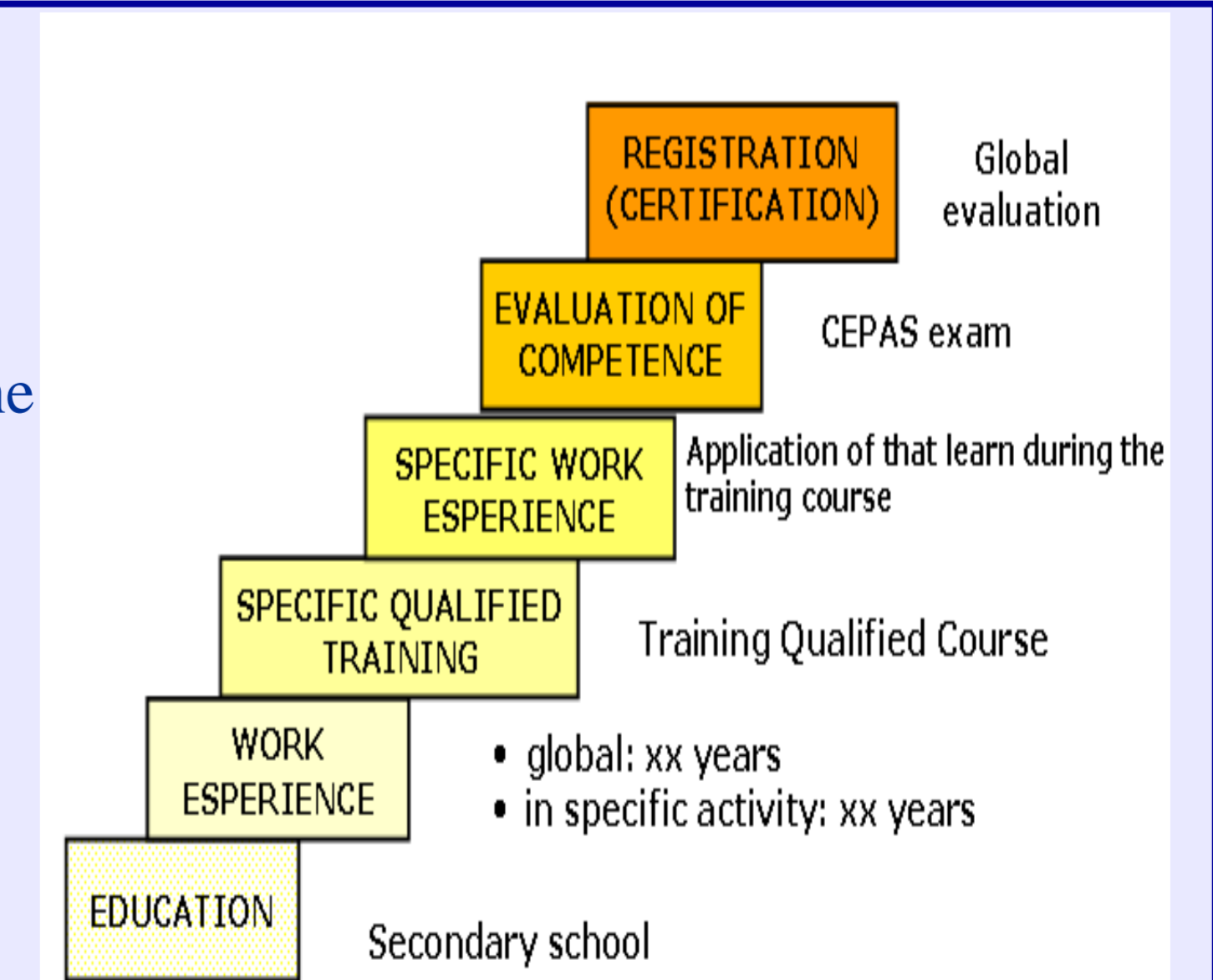
The ENEA certified course mutually recognized

- For the definition of the certification path of the operators involved in the *design, installation and inspection* of PV plants, ENEA has identified CEPAS - Italian Certification Body for Personnel and Training Courses.
- CEPAS follows the ISO/IEC 17024 standard (ex EN 45013) “General requirements for bodies operating certification of persons”
- CEPAS, with the support of ENEA, created a Technical Committee involving major public and private stakeholders in PV to define requirements and specifications of the 3 different operators and the relative qualified training course in Italy

The project QUALICERT - “Common quality certification and accreditation for installers of small-scale renewable energy systems”

- Involves 15 European partners, including EPIA, the European Photovoltaic Industry Association.
- The aim is to define the competences that the installers should have.
- Each member state will organize courses to be validated by third parties certificated national bodies.

In brief the EQF will be used to fulfil the requirements of art.14 of the Directive 2009/28/EC for the promotion of RES.



CEPAS certification scheme.

CONCLUSIONS

- ENEA has a very long experience in R&D on PV including plant realisation and establishing programs and contents essentially for training of professionals in PV sector.
- ENEA is well known as promoter with CEPAS of certification and qualification requirements adopting the suitable schema in the aim to gain standardization and opportunity to carry out acquisition of data and related analysis at national level and request to access to the national incentives and facilitation of PV application.
- The above mentioned experience is used in the European funded Project “QualiCert” which represents a “key project” to the European harmonisation and mutual recognition of the existing certification and qualification schemes