European Photovoltaic Industry Association

REPLY TO ERGEG CONSULTATION

Brussels, 2 June 2009

ERGEG Draft guidelines for Good practice on Electricity Grid Connection and Access

- Reply of EPIA -

EPIA, the European Photovoltaic Industry Association

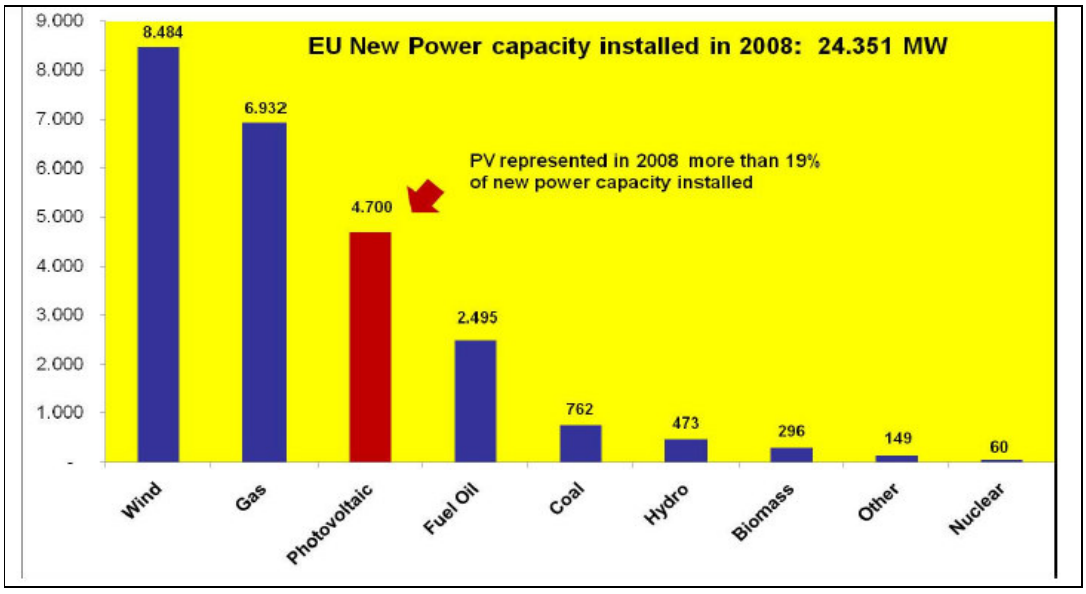
Created in 1985, the European Photovoltaic Industry Association represents over 95% of the European photovoltaic (PV) industry. With 205 members drawn from across the entire solar electricity sector, EPIA members are present throughout the whole value-chain of the photovoltaic industry: from silicon, cells and module production to systems development.

EPIA aims to represent the European photovoltaic industry vis-à-vis political institutions at European and International levels and advising key decision-makers on the most adequate policies to develop a sustainable photovoltaic market. Thus it contributes to the generation of sustainable renewable electricity, the mitigation of climate change as well as the reduction of EU energy dependency.

Background:

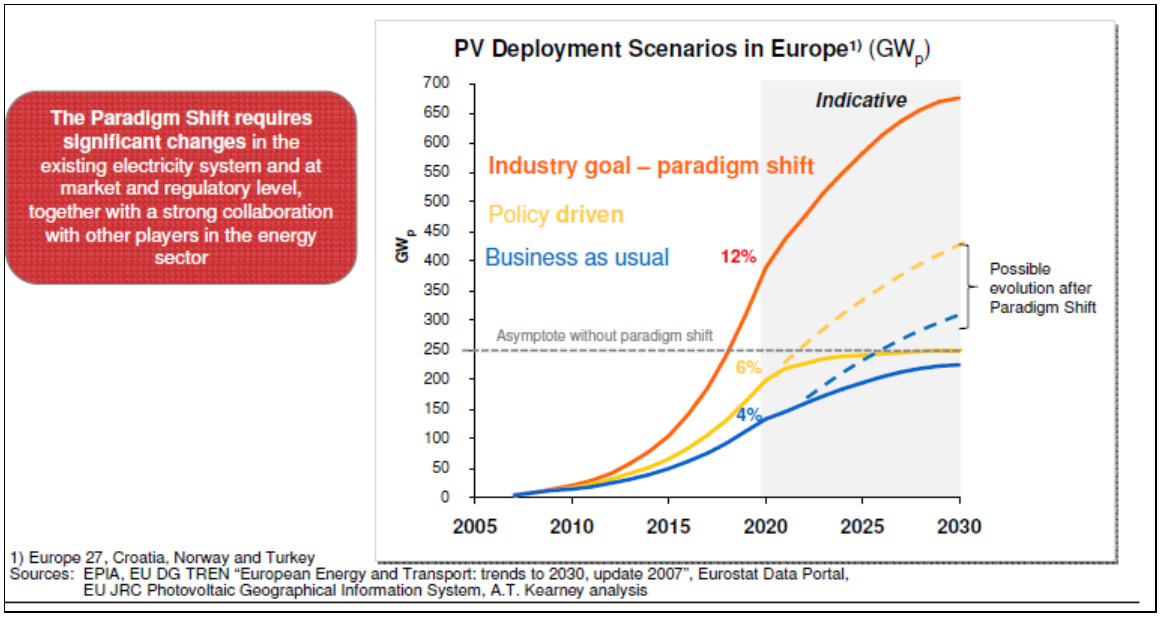
- **Significant contribution of PV to new power capacity**

The photovoltaic (PV) industry contributes significantly to new power capacity. Hence in 2008, PV installations represented more than 19 % of new power capacity, after wind and gas.



- **PV industry vision: to cover up to 12% of the EU electricity demand by 2020**

In September 2008, at the occasion of an industry-wide strategic symposium, top leaders of the European PV industry unanimously adopted a new target for PV to contribute to up to 12% of the total EU electricity demand by 2020, corresponding to about 400 GWp of PV installed capacity.



- **Pre-requisites to achieve the 12% vision**

Achieving this target will require the right policy framework conditions are set by the Member States, a continuous public support to research and development, deployment and demonstration (RDD&D).

It will also require significant changes in the electricity system and at market and regulatory level, together with a strong collaboration with other players in the energy sector.

- **Current situation of PV network integration in the EU**

  - **Grid access and connection difficulties faced by decentralised renewables (RES)**

The Directive 2001/77/EC 'on the promotion of electricity produced from renewable energy sources in the internal electricity market", currently in force, requires to facilitate access to the grid system of electricity produced from renewable energy sources.

Despite this requirement, it appears that grid access and connection of small decentralised RES such as photovoltaics are still problematic in many European member states. Some exceptions can be found in countries such as Germany, Spain and Denmark which account for large amounts of Wind and/or Photovoltaic power and which provide priority access to the grid for RES.

In the case of PV, the lead time for grid connection represent almost half of the overall procedure time. For instance, in France as of December 2008, 50,7 % of the PV capacity installed was still awaiting to be connected. As highlighted by the recently published European Commission Renewable Energy Progress report[1], "the problems of gaining connection to the electricity grid often result from a lack of adequate rules on grid connection and from a failure to dedicate sufficient administrative resources to process applications. Technical problems are also disruptive, with limited capacity of the grid to incorporate more variable

[1] COM(2009) 192 final, April 2009

renewable electricity and a general lack of strategy to address the problem. There are also financial constraints, with different and often opaque connection charging rules and risk of discrimination against smaller distributed power generators compared to large incumbent conventional energy producers."

- **Technical barriers**

Besides the administrative bottlenecks, there are a number of technical barriers that PV project developers and product manufacturers continuously face, such as the lack of standardisation and the lack of testing procedures. The large diversity of requirements and norms, which often vary from utility to utility, are usually not transparent enough, and not uniformly applied. This results in additional costs for manufacturers and project developers to comply with the requirements. Under such a framework, economies of scale are limited since manufacturers can not offer unique pieces of equipment for the European market. They have to design, build, certify and sell different pieces of equipment for each national market. Various studies already pointed out the missing economies of scale resulting from this lack of harmonisation. For instance, the learning rates of inverters (not only playing the role of DC to AC converter but also interconnecting the generator to the grid) are about half of those calculated for photovoltaic modules.

Hence a harmonization of grid connection requirements is key to accelerate the path towards an increased competitiveness of the PV sector. A series of activities are currently taking place at European level in order to develop harmonized interconnection requirements and Standards for Distributed energy sources. EU projects such as the European Network of Excellence of DER laboratories and Pre-Standardisation (DER-Lab) are currently feeding into the work carried out by the CENELEC technical committee CLC/TC8X via the development of specific recommendations. (*please refer to the accompanying document for details*)

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In this context, EPIA is keen to contribute to the ERGEG consultation on Draft guidelines for Good practice on Electricity Grid Connection and Access.

General comments:

- **Need for a harmonization at EU level**

The general purpose of the draft Guidelines on Good Practice (GGP) is to define responsibilities covering all aspects of grid interconnection. The defined responsibilities in the draft paper seem to follow quite conventional structures: all relevant technical requirements have to be defined by regional TSOs and DSOs without any European minimum requirement specifications. The lack of such specification represents one of the major problems that photovoltaic manufacturers have to deal with at present. The draft does not seem to offer many improvements regarding this situation. It could even allow more different requirements than those available today. The need for a harmonization at EU level should therefore be better reflected in the draft guidelines.

- **Reinforced cooperation between stakeholders**

There is a clear need to strengthen cooperation between DSO/TSOs, the photovoltaic sector and energy regulators when drafting grid codes and other technical requirements. This is crucial in order to ensure a full transparency of the drafting processes on the basis of fruitful exchange of views between all relevant stakeholders. In this perspective, the photovoltaic industry is definitely keen to provide any expertise needed.

- **Differentiation by sector**

With the exception of a couple of points related to distributed generation in the draft document, the specificity of decentralized renewable energy sources could be highlighted further in the guidelines. A restriction of their scope to a minimum power capacity (for instance, 100 kW like in the German Renewable Energy legislation-EEG) should be defined, in order to clarify that systems smaller than this limit are not covered by the proposed GGP.

- **Priority access to the grid for renewable energy sources**

Guidelines on good practice must add a specific reference to priority access the grid for renewable energy sources. This is in line with the requirements included in the new Renewable Energy Directive (esp.art.16) adopted on 6 April by the Council and the Third Energy Package adopted by the European Parliament on 22 April. Priority access is a crucial element to foster the deployment of renewable energy sources, such as photovoltaics, and must therefore be highlighted in these guidelines.

- **Specific comments:**

Section	Page	EPIA comment
4.2.2	15	The design of the technical solutions for connection shall not be made by TSOs and DSOs only. It should rather be the result of a **mandatory process of cooperation** between DSO/TSOs and photovoltaic system manufacturers and -integrators**,** as started by the FNN Committee in Germany.
4.3.1	15	All relevant technical requirements should be subject to at least a **basic European requirement specification**. 4.3.1 (1) ...(9) define relevant product features which are up to now subject to regional codes only. In this perspective, on-going work on EU standards by the TC8X Working Group of CENELEC on the basis of DER lab input (*please see accompanying document*) should be duly taken into account.
4.3.2	15	The point of interconnection should be defined in **cooperation between TSO/DSO and the owner of the generation/consumption unit** in order to define the best point under general economical aspects, as specified in the German renewable energy law (EEG).
5.1	16	(Please refer to 4.3.1) Relevant technical requirements should be subject to a **European minimum requirement** in order to allow photovoltaic system manufacturers to concentrate their R&D resources and avoid administrative burden represented by various requirements of each DSO or TSO.
5.1.2.4	17	As an example for 5.1: the **definition of behaviour under fault conditions** (refer (1) voltage dips) has to be subject to a European definition. The necessary equipment to meet these requirements can vary dramatically if there is no overall European specification.
5.2.1	18	The definition of generation units is based on synchronous generators. **Inverter based systems** should be subject to clear definitions too.
5.2.1.3	18	Clarification is required regarding the **definition of "generator"** in the sentence: "Each such generator shall be capable of operating continuously at the rated active power within the power factor range defined by TSO or DSO".
5.2.1.10	19	As an example for 5.2.1: **Minimum requirements for reactive power supply** should be defined. The description in the draft is made to ensure the TSOs and DSOs system operation, but not to ensure that the solutions of the manufacturers are suitable for grid interconnection all over Europe.
5.2.2.2	19	A definition can be a first step but it has to be clarified in detail how a **voltage control in distributed systems** should look like. One should differentiate between power ranges. Indeed voltage control for small systems needs to be tackled in a different manner than for large power plants.

5.2.3	20	Power reserve requirements have to be differentiated within different generation technologies. **It is not sensible to use PV for positive reserve power supply** as the operational characteristics of PV systems (MPP- Tracking, MPPT) require operating at maximum available power. To supply positive reserve power, storage would have to be included, which is at present under-developed. Therefore it is necessary to have a statement stipulating that generation technologies such as PV should not supply positive reserve power.
5.2.4	20	**House load operation** can be optional but should not be made mandatory as this is not feasible for small distributed systems. In addition, the wording "significant" in the sentence "all significant generation units…" should be clarified.
5.2.6	21	**Compliance tests** should not be performed by the system owner. System manufacturers can offer type testing of their equipment and validated models to simulate the behavior of integrated systems to verify that the generation system will meet the TSO or DSOs requirements. German standards already include this way of verification process. (*Technische Richtlinie 8 currently under drafting- Revision 1, May 2009- FGW*)

Accompanying document:

- EU project European Network of Excellence of DER laboratories and Pre-Standardisation (DER-Lab) *"Key needs, priorities and framework for the development of a common European pre-standard on DER interconnection*", July 2008 (please see attached)

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