

Supporting study on photovoltaic products: ongoing work on potential Ecodesign (ED) and Energy Labelling (EL) measures

Minutes of the stakeholders webinar (Webex, 29/04/2021)

DRAFT

Participants	
DG GROW (organizer)	French Ministry for the Ecological Transition
JRC (organizer)	German Federal Institute for Materials Research and Testing
ADEME	
AGC Glass Europe	German Ministry for Economic Affairs and Energy
ANEC-BEUC	Global Electronics Council
Austrian Energy Agency	Hanwha Q CELLS
Austrian Institute of Technology	Heliatek
Belgian Ministry of Environment	Huawei
Bulgarian Ministry of Economy	IEE-CAS
CEA	Institut Photovoltaïque d'Île-de-France
China Building Material Test & Certification	Lund University
Coveme SpA	NorSun AS
Czech Republic Ministry of Industry	Oeko-Institut e.V.
DSM Advanced Solar	PV CYCLE France
ECOS	REC Group
EDF	SMA Solar Technology AG
EDPR	SmartGreenScans
ENGIE	SolarPower Europe
European Copper Institute	Swedish Energy Agency
European Recycling Industries' Confederation	TEC Solar Norway
EXXERGY GmbH	TECNALIA
Finnish Energy Agency	TÜV NORD CERT GmbH
First Solar, Inc.	UBA
Fortum	UK BEIS
FPS Economy	VDE Renewables
Fraunhofer ISE	Volta vzw
Fraunhofer IZM	VOLTEC Solar
Fronius International GmbH	Wacker Chemie AG

Objective:

Present and discuss with stakeholders an updated version of the potential regulatory measures for photovoltaic products, under Ecodesign and Energy labelling.

Agenda:

1. Background & meeting objectives (DG GROW)
2. Walk through the policy recommendations for new requirements under Ecodesign and Energy Labelling Directives, followed by Q&A after each section (JRC/DG GROW)
 - a) Product scope
 - b) Potential Ecodesign requirements for PV modules
 - c) Potential Ecodesign requirements for PV inverters
 - d) Potential Energy Labelling scheme for PV systems
 - e) Potential Energy Labelling scheme for PV modules
3. Concluding remarks and the next steps (DG GROW)

Summary of the discussion

1. Background & meeting objectives (DG GROW)

DG GROW presented the aim of the meeting, as well as the context for the project.

The discussion paper presented during the webinar is available on [the project website](#) . It provides a summary of the potential measures for PV products, in light of the work carried out since the last stakeholder meeting and the input received.

2. Walk through the policy recommendations for new requirements under Ecodesign and Energy Labelling Directives

a. Product scope

JRC presented exclusion from the scope of the project for PV modules and inverters (slides 8-9)

- A participant asked for clarifications regarding building attached/integrated PV. JRC responded that if a standard module is attached to the building but not replacing its functionality (e.g., façade/roof), it is included in the scope. The 'in/out of scope' definitions that will be included in the documents to be discussed at the Consultation Forum meeting will clarify in detail this aspect.
- A participant asked about the exclusion of specific BIPV in windows and tiles. JRC confirmed that these elements are excluded from the scope.

b. Potential requirements for PV modules

GROW/JRC presented proposed Ecodesign requirements for modules – i.e., aspects related to energy yield, durability, quality, reparability, recyclability (slides 12-22)

- A participant asked for clarification regarding **the compliance testing**, namely:
 - Are changes in the bill of materials (>10%) a subject of new qualifications and retesting?
 - Is the sampling method based on sentence per module or series?
 - Is the selection of modules for testing random or picked by a factory?
 - Is the quality assurance system in line with the existing ISO/ICE 17011:2017 standard for conformity assessment?

GROW/JRC confirmed that for the Consultation Forum to be held in October, an annex with a detailed description of the market surveillance process will be prepared. However, the current assumptions foresee the qualification of 10 modules per produced model.

The Commission aims to consider the change in the bill of materials as per the existing IEC 62915 retest guideline. It requires however checking to which extent it can be imposed in practice. Concerning the requirement on ecological profile (see next section) the Commission aims to consider the change in the bill of materials (>10%), in line with the PEFCR for PV.

The conformity assessment standards proposed in the discussion paper is, in the Commission view, the most comprehensive and complete, especially for the design phase.

- A participant asked about **the verification process of the third-party bodies** and **consideration of warranties** as a safeguard instrument.

GROW explained the process in which the Member States accredit and notify the Commission and other Member States of the conformity assessments bodies that meet the conditions laid down in the regulation. The third-party assessment can only be performed by these notified bodies, which should be a safeguard of independence and competence (MS are responsible for checking continued adherence to the rules). The CE mark will have to include the ID number of the notified body (which links to a Commission database for notified bodies, called NANDO), and additional information will be included in the declaration of conformity and technical specifications. Under EU law, there is a general obligation for the notified bodies to share information on a request of the market surveillance authorities. It was emphasized that this approach is widely used in existing product legislation, and that Member States therefore already have extensive experience with these processes.

Regarding warranty consideration, the Commission will check and consider whether it would be needed and feasible.

- A participant questioned a method chosen for **the lifetime and degradation requirements**, as a time consuming and not reflecting the reality. A participant recommended to focus on testing procedure, instead of the PV technology used and asked if the life degradation is to be considered in the energy label.

JRC/GROW confirmed that the method chosen entails a long-term testing , but it is the best trade-off given the current availability of data on degradation rates and lack of a widely recognised accelerated test procedure for determining this. While there is evidence regarding the effects of specific module packaging (i.e. glass-glass, glass-backsheet, encapsulant, etc.), there is a lack of systematic information on lifetime degradation rates for a range of these combinations. The

Commission considers a dual approach (i.e., manufacturers' declaration or default values) not to exclude from the process those manufacturers who do not have data. However, the participant's comment has been noted and will be further considered.

Regarding the energy label, which will also be presented during the meeting, the Commission is currently proposing core information to be displayed on the energy label. Additional information is still to be determined, and the lifetime degradation rate will be considered.

- A participant asked about consideration of **the long-term degradation differences within climatic regions** can be large due to e.g., snow and temperature extremities at high altitude or latitude.

The suggested testing procedure currently does not contain specific provision on this. Commission services will analyse the relevance and feasibility of these aspects.

The module requirements refer to all modules placed on the EU market, and does not consider the location where the module may be installed as this is not known a priori. The EU has been resolved to a level of three climatic zones corresponding to 3 IEC reference climates. The transition method proposed to demonstrate reduced degradation require data from all 3 IEC reference climates relevant to the EU thus providing a representative value for the EU.

- A participant questioned the list of substances in **the manufacturers' declaration** in the context of the PV technologies that are lead- and cadmium-free, and not including aluminium that is relevant for recycling. Another participant asked for clarifications regarding the minimum thresholds for the critical raw materials and pointed out the Jointed Mission Group' recommendations regarding harmonisation with IEC 62747 standards on declarable substances groups.

GROW/JRC agreed to check again the list of materials and provided additional clarifications; there will be a threshold on the minimum content of each material above which the manufacturers would need to declare the values. Also, the weight ranges will be provided to help recyclers with a decision on dismantling.

- A participant asked for clarification regarding **recyclability requirements** and the obligation for the manufacturers to report on design measures to prevent breakage. It wasn't clear why "design", not "dismantling" measures are included.

GROW clarified that the measures proposed under Ecodesign can include on aspects that can be regulated /enforced once the product is placed on the market. In this regard, Ecodesign requirements will focus on the capability of the product to be dismantled, but not the dismantling process itself (which is covered under other relevant EU legislative acts). Targeted quantitative methods on recyclability aspects could be covered (in the medium term) by European standards; to this extent, the Commission will work on a draft standardisation request (to the EU standardisation organisations) to be developed in the upcoming months.

JRC added that there is evidence from the preparatory study that shows that manufacturers can make smart choices in the design phase to increase the feasibility of recycling. This information may be important for the procurers once choosing the PV module.

GROW/JRC presented potential Ecodesign requirements for modules – aspects related to ecological profile (slides 23-28)

- A participant asked if it is possible for the manufacture in the high emission-intensive region to declare **a company-specific energy mix**, including green electricity purchased or produced on-site.

GROW responded that the intention of the Commission is to enable company-specific data, upon certain conditions regarding the quality of data. The requirement is to be in line with PEF rules, thus information is still to be clarified and confirmed.

- A participant questioned **the carbon footprint methodology** and lack of consideration regarding energy efficiency (i.e., lifetime yield of the module) and end-of-life activities? Another participant asked for confirmation if distribution and transportation emissions are considered.

JRC/GROW clarified that the approach considers energy efficiency, but not the end-of-life activities. This is a very interesting comment but hard to implement in practical and legal terms. The Ecodesign measures need to be enforced and verified when the product is placed on the market. Also, the manufacturing phase has the highest impact in the whole life cycle. The commission welcomes any additional comments in writing, and is committed to analyse further these aspects.

Regarding the distribution and transportation phase, understood as sub-phases of manufacturing, these are included in calculations. The transport to customers is excluded. The Commission will clarify the harmonised calculation rules for ecological footprint.

- A participant asked about **the market surveillance checks** and specific processes if the company is located outside of the European Union.

GROW confirmed that the rules for conformity assessment are equal for the EU and the 3rd country manufacturers. All manufacturers will have to go through a verification process (incl. on-site checks) by the EU notified bodies. Market surveillance authorities will have access to conformity declaration, technical documentation, and additional information from notified bodies. In the case of the 3rd country producers, also custom authorities will perform checks, e.g., on the availability of required documentation.

The verified documentation generated by the pre-market conformity assessment will be the main basis for market surveillance checks, and in most cases is likely to be enough to check the conformity of the product. The MSAs remain free to make use of its existing investigative empowerments if deemed appropriate. The possibility to make use of those empowerments in third countries is limited (although cooperation with third country authorities is possible and we welcome written comments to this effect), which is one reason for ensuring effective pre-market verification of the relevant documentation.

- A participant asked about **the synergies between the review of MERP methodology and PFCR updates**.

GROW informed about a dedicated meeting on MERP review that is planned for June 2021. The Commission seeks harmonisation between the Ecoreport tool and PEF updates, especially regarding input data.

c. JRC potential Ecodesign requirements for inverters

GROW/JRC presented potential Ecodesign requirements for modules – aspects related to durability, material efficiency, smart readiness and reparability (slides 31-36).

- A participant requested the Commission for additional clarification on **cybersecurity** for the clarity of producers. JRC/GROW took the point and will provide additional justification.
- A participant asked for clarifications related to requirements of inverters efficiency, stating that “Allowances shall be provided for micro-inverters and hybrid inverters to offset for their other benefits.” It is not clear what the **other benefits** are.
JRC note that other benefits could include reduced losses from shading for arrays of modules with microinverters. As well as drawbacks like extra AC cabling.
- A participant asked if **the reparability requirement for inverters** include associated electronic components, such as communication equipment.
GROW/JRC confirmed that all sub-components of inverters should be considered in the regulation. The documents to be discussed at the Consultation Forum meeting will clarify in detail this aspect. DC DC convertors are considered in the overall system losses for simplicity.
- A participant asked if **the requirement on smart readiness** of inverters include grid services (e.g., reactive power management or frequency support) that are important to enhance PV penetration on the market.
JRC responded that aspects related to grid services are under consideration, but due to differences in the national requirements at the distribution level, it may be complicated to implement a common protocol; what seems to be more feasible to regulate for is a communication capability (i.e., harmonised protocol) within a building. The commission is also investigating the implications in relation to the foreseen requirements for building energy management systems under the Energy Performance of Buildings Directive.
- A participant asked if the recycled content is included under **the material efficiency requirement** for inverters.
GROW explained that a possible declaration of recycled content is currently considered in the Ecodesign requirement for smartphones. However, it is preliminary and will only be considered if evidence of impact is collected. The recycled content is currently not considered for the PV inverters, but the Commission welcomes additional information in this regard. As previously explained (see PV module section), the declaration of raw materials will include the minimum thresholds and weight ranges.

JRC/GROW presented potential Ecodesign requirements for inverters— ecological profile (slide 37)

- A participant asked for clarification regarding the process/guideline (e.g., simplified PEF) in case **the ecological profile requirement** is out for scope. This consideration is taking into account the potential demand from installers who may expect similar requirements both from PV modules and inverters.

GROW welcomes the comment. However, we can only propose the requirement if robust tools are available to support it. The Commission will further investigate what is feasible.

d. JRC potential Energy Labelling scheme for PV systems

JRC/GROW presented potential Energy labelling requirements for PV system and modules (slide 37-49)

- A participant suggested to consider in the process **lesson learned from the experience of other installers labels** already available on the market (e.g., for space heaters). GROW/JRC welcome the comment and is planning to reach out to installers in the scope of this project.
- A few participants asked about the possibility of integrating the tool provided by the Commission (for calculation of the energy label) into **commercial software**. Another participant asked about the tool maintenance strategy, as well as option to use any other software by the installer.

GROW/JRC confirmed that the tool will be developed in line with the procedure for the energy label calculations as specified in the scope of regulation. As such, until the regulation is revised, we would not expect to update the tool. The Commission pointed out that other tools would in any case need to be used, e.g. for a detailed calculation of the energy yield.

Regarding integration in commercial software, the Commission will investigate further, but there is in principle no restriction on programming the procedures specified in the regulation. However, the excel tool is meant to be free of charge tool to facilitate installers, but there is no limitation on companies offering a refined version commercially.

- A participant asked if the calculation of the energy label for the PV system will consider **inclination and orientation** (as it is done for location).

JRC confirmed that this is presently the proposal, following a simplified procedure. The intention is to make the calculations as detailed as possible without creating additional burdens for installers.

- A participant asked if the Commission is foreseeing any **mandatory certification for the installers**.

GROW confirmed that this is unlikely to happen but need to still be confirmed.

- A participant wanted to know **if the tool considers the size of the inverter**, including specific case of oversized and undersized equipment.

JRC confirmed that although DC/AC ratio is calculated in the tool, but there are no control checks in case of oversize and undersize equipment.

- A participant asked about the **consideration of losses in the calculations**, especially regarding a definition of cabling losses and available options to improve.

GROW/JRC pointed out the conclusions of the energy labelling that took place in March 2021 (see project website for [slides](#)), it was agreed to move away from the analytic approach to define exact measures. Instead, there is a set of [yes/no] queries for the installers, follow up with the specific questions e.g., *if there is any extensive cabling that would create losses?* More information can also be found in the discussion paper.

- A participant asked about **control measures** applied to make sure that installers chose options that is best represent reality.

GROW/JRC confirmed that one of the reasons to change the approach (to y/n questions) was to simplify the validation by the market surveillance authorities (in charge of control).

- A participant asked for clarification regarding **smart readiness** information to be displayed on the energy label. GROW/JRC clarified that information will be presented only if categorisation of smart readiness is available under EPBD. In no differentiation information will not be included.
- A participant questioned the **rationale for the energy level for the PV system**. Decision to install PV systems should be based on the business case, which maximise the generation of the green electricity in given conditions.

e. JRC potential Energy Labelling scheme for PV modules

- A participant asked if the energy label for modules would be **developed along with the energy label for windows**.

GROW confirmed that it these processes are NOT connected. The energy label for PV modules (and systems) is independent of the energy label for windows.

- A participant thanked the commission for taking on board stakeholders' recommendation to consider the energy label for modules and asked if **the lifetime degradation is to be considered** in the energy label for modules (as it is for systems).

GROW/JRC took a note from the comment. The energy label for other products on the market does not normally include lifetime degradation. Due to the similarities, it wasn't considered for the PV modules. The commission will investigate further.

DG GROW informed the stakeholders that written comments on the presented information are welcomed by 29 May 2021.

The Consultation Forum will take place indicatively in October 2021, where the draft working documents will be presented.

DG GROW and the JRC thanked all participants for their participation and closed the meeting.