Contribution ID: 61ba6d7c-4802-42eb-978e-bb713fb6055f
Date: 13/11/2022 11:03:33

Public consultation on potential measures for regulating the photovoltaic (PV) modules, inverters, and systems

Fields marked with * are mandatory.

Questionnaire for Ecodesign DG GROW Solar PV regulatory initiative

Introduction

In 2020, the EU adopted a new Circular Economy Action Plan to support the European Green Deal. The initiatives set out in the action plan cover a product's entire life cycle and aim to ensure that the resources used are kept in the EU economy for as long as possible. They include new rules on solar photovoltaic (PV) modules, inverters, and systems, for this products to become resource-efficient and contribute to a more circular economy.

The envisaged legislation will build on two EU pieces of legislation:

- Ecodesign Directive (2009/125/EC) - promoting the efficiency, durability, reparability, and recyclability of products.
- Energy labelling Regulation (EU) 2017/1369) setting a framework for energy labelling.

The two Commission initiatives 'Ecodesign – European Commission to examine need for new rules on environmental impact of photovoltaics' and 'Energy labelling – European Commission to examine need for new rules on environmental impact of photovoltaics' aim to make solar PV products more energy efficient, extend their lifetime (i.e. make them less prone to damage) and improve their material efficiency (i.e. making them more recyclable). This would make these devices less harmful to the environment, while ensuring they can still circulate freely in the single market. Only products satisfying these requirements would be able to be sold on the EU market. It would also provide accurate and comparable information to businesses and citizens when choosing solar PV products. The areas for potential regulation to be further assessed based on the outcome of this consultation and the Commission's impact assessment relate to:

- Reliable information about performance and energy yield taking into account local climate conditions.
- Durability, resilience and resistance to wear and climate hazards.
- Reparability and ability of the product to be disassembled.

- Recyclability.
- Availability of priority spare parts and product repair information.
- Availability of adequate product servicing by the manufacturer (maintenance, repairs).
- Availability of appropriate information for users/purchasers, installers, repairers, and recyclers.
- Carbon footprint of the manufacturing and shipment phases.
- Energy label to allow comparisons on the efficiencies of products.

About this public consultation

This public consultation offers Solar PV producers, installers and buyers, as well as other stakeholders involved in different segments of the value chain (original equipment manufacturers, component suppliers, users, repairers, recyclers, etc.) the opportunity to express their views on how to best address the policy challenges outlined above and to provide relevant information.

Your feedback, together with evidence from diverse sources including desk-research and other consultations, will contribute to the analysis of the possible policy responses.

The questionnaire first gathers information about you, the respondent (section A). Section B refers to the current situation while section C refers to the likely impacts of the new regulations. Each section should take around 15-20 minutes. You can also attach position papers/documents to support your views.

You can choose to fill-in the questionnaire either:

- **As a user**, including operators and owners, e.g. for business (company owning a solar PV power plant) or private purpose (e.g. homeowner with solar PV system)
- **As a producer of PV solutions** (manufacturer, installer, components or services supplier), or
- **With a perspective on the whole market** (answering all sections of the questionnaire).

If you have any questions about this consultation, please email them to GROW-ECODESIGN@ec.europa.eu indicating ‘public consultation – Solar PV’ in the subject line.

Thank you for your interest and cooperation.

A. INFORMATION ABOUT THE RESPONDENT

About you

* Language of my contribution

- Bulgarian
- Croatian
- Czech
- Danish

- Dutch
- English
- Estonian
- Finnish
- French
- German
- Greek
- Hungarian
- Irish
- Italian
- Latvian
- Lithuanian
- Maltese
- Polish
- Portuguese
- Romanian
- Slovak
- Slovenian
- Spanish
- Swedish

* I am giving my contribution as

- Academic/research institution
- Business association
- Company/business organisation
- Consumer organisation
- EU citizen
- Environmental organisation
- Non-EU citizen
- Non-governmental organisation (NGO)
- Public authority
- Trade union
- Other

* First name

Johan

* Surname

Lindahl

* Email (this won't be published)

lindahl@esmc.solar

* Organisation name

255 character(s) maximum

European Solar Manufacturing Council

* Organisation size

- (•) Micro (1 to 9 employees)
- ( ) Small (10 to 49 employees)
- ( ) Medium (50 to 249 employees)
- ( ) Large (250 or more)

Transparency register number

255 character(s) maximum

Check if your organisation is on the transparency register. It's a voluntary database for organisations seeking to influence EU decision-making.

421495541254-57

* Country of origin

Please add your country of origin, or that of your organisation.

This list does not represent the official position of the European institutions with regard to the legal status or policy of the entities mentioned. It is a harmonisation of often divergent lists and practices.

( ) Afghanistan	( ) Djibouti	( ) Libya	( ) Saint Martin
( ) Åland Islands	( ) Dominica	( ) Liechtenstein	( ) Saint Pierre and Miquelon
( ) Albania	( ) Dominican Republic	( ) Lithuania	( ) Saint Vincent and the Grenadines
( ) Algeria	( ) Ecuador	( ) Luxembourg	( ) Samoa

- American Samoa
- Andorra
- Angola
- Anguilla
- Antarctica
- Antigua and Barbuda
- Argentina
- Armenia
- Aruba
- Australia
- Austria
- Azerbaijan
- Bahamas
- Bahrain
- Bangladesh
- Barbados
- Belarus
- Belgium
- Belize
- Benin
- Bermuda
- Bhutan
- Bolivia
- Bonaire Saint Eustatius and Saba
- Bosnia and Herzegovina
- Botswana
- Egypt
- El Salvador
- Equatorial Guinea
- Eritrea
- Estonia
- Eswatini
- Ethiopia
- Falkland Islands
- Faroe Islands
- Fiji
- Finland
- France
- French Guiana
- French Polynesia
- French Southern and Antarctic Lands
- Gabon
- Georgia
- Germany
- Ghana
- Gibraltar
- Greece
- Greenland
- Grenada
- Guadeloupe
- Guam
- Guatemala
- Macau
- Madagascar
- Malawi
- Malaysia
- Maldives
- Mali
- Malta
- Marshall Islands
- Martinique
- Mauritania
- Mauritius
- Mayotte
- Mexico
- Micronesia
- Moldova
- Monaco
- Mongolia
- Montenegro
- Montserrat
- Morocco
- Mozambique
- Myanmar/Burma
- Namibia
- Nauru
- Nepal
- Netherlands
- San Marino
- São Tomé and Príncipe
- Saudi Arabia
- Senegal
- Serbia
- Seychelles
- Sierra Leone
- Singapore
- Sint Maarten
- Slovakia
- Slovenia
- Solomon Islands
- Somalia
- South Africa
- South Georgia and the South Sandwich Islands
- South Korea
- South Sudan
- Spain
- Sri Lanka
- Sudan
- Suriname
- Svalbard and Jan Mayen
- Sweden
- Switzerland
- Syria
- Taiwan

- Bouvet Island
- Brazil
- British Indian Ocean Territory
- British Virgin Islands
- Brunei
- Bulgaria
- Burkina Faso
- Burundi
- Cambodia
- Cameroon
- Canada
- Cape Verde
- Cayman Islands
- Central African Republic
- Chad
- Chile
- China
- Christmas Island
- Clipperton
- Cocos (Keeling) Islands
- Colombia
- Comoros
- Congo
- Cook Islands
- Costa Rica
- Guernsey
- Guinea
- Guinea-Bissau
- Guyana
- Haiti
- Heard Island and McDonald Islands
- Honduras
- Hong Kong
- Hungary
- Iceland
- India
- Indonesia
- Iran
- Iraq
- Ireland
- Isle of Man
- Israel
- Italy
- Jamaica
- Japan
- Jersey
- Jordan
- Kazakhstan
- Kenya
- Kiribati
- New Caledonia
- New Zealand
- Nicaragua
- Niger
- Nigeria
- Niue
- Norfolk Island
- Northern Mariana Islands
- North Korea
- North Macedonia
- Norway
- Oman
- Pakistan
- Palau
- Palestine
- Panama
- Papua New Guinea
- Paraguay
- Peru
- Philippines
- Pitcairn Islands
- Poland
- Portugal
- Puerto Rico
- Qatar
- Tajikistan
- Tanzania
- Thailand
- The Gambia
- Timor-Leste
- Togo
- Tokelau
- Tonga
- Trinidad and Tobago
- Tunisia
- Turkey
- Turkmenistan
- Turks and Caicos Islands
- Tuvalu
- Uganda
- Ukraine
- United Arab Emirates
- United Kingdom
- United States
- United States Minor Outlying Islands
- Uruguay
- US Virgin Islands
- Uzbekistan
- Vanuatu
- Vatican City

- Côte d'Ivoire
- Croatia
- Cuba
- Curaçao
- Cyprus
- Czechia
- Democratic Republic of the Congo
- Denmark
- Kosovo
- Kuwait
- Kyrgyzstan
- Laos
- Latvia
- Lebanon
- Lesotho
- Liberia
- Réunion
- Romania
- Russia
- Rwanda
- Saint Barthélemy
- Saint Helena Ascension and Tristan da Cunha
- Saint Kitts and Nevis
- Saint Lucia
- Venezuela
- Vietnam
- Wallis and Futuna
- Western Sahara
- Yemen
- Zambia
- Zimbabwe

The Commission will publish all contributions to this public consultation. You can choose whether you would prefer to have your details published or to remain anonymous when your contribution is published. **Fo r the purpose of transparency, the type of respondent (for example, 'business association, 'consumer association', 'EU citizen') country of origin, organisation name and size, and its transparency register number, are always published. Your e-mail address will never be published.** Opt in to select the privacy option that best suits you. Privacy options default based on the type of respondent selected

* **Contribution publication privacy settings**

The Commission will publish the responses to this public consultation. You can choose whether you would like your details to be made public or to remain anonymous.

- **Anonymous**
  Only organisation details are published: The type of respondent that you responded to this consultation as, the name of the organisation on whose behalf you reply as well as its transparency number, its size, its country of origin and your contribution will be published as received. Your name will not be published. Please do not include any personal data in the contribution itself if you want to remain anonymous.
- **Public**
  Organisation details and respondent details are published: The type of respondent that you responded to this consultation as, the name of the organisation on whose behalf you reply as well as its transparency number, its size, its country of origin and your contribution will be published. Your name will also be published.

☑ I agree with the personal data protection provisions

* Do you want to fill in the questionnaire:

only one reply possible

- ○ **As a user**; i.e. with questions based on your experience as user, such as *For how long do you plan to use your installation?*). If you do not have a solar PV installation at present, please fill in the questionnaire based on your understanding of the product/system
- ○ **As a producer of PV solutions** (manufacturer, components or services supplier).
- ◉ **With a perspective on the whole market** (i.e. questions related to *all aspects*)

Your involvement/the involvement of your organization within the PV value chain:

choose one

- ○ Supply side entity (manufacturer, provider of components or installation services, etc.)
- ○ Public authority/public sector entity operating PVs installations
- ○ Public authority/public sector entity regulating or monitoring regulation on PVs installations
- ○ Private operator of PV park installations
- ○ Residential/Individual/Very small operator of PV installation(s)
- ○ Construction enterprise/entrepreneur integrating PVs in construction projects
- ◉ Other
- ○ I do not want to answer

Please describe

Industry Assoication representing 49 companies within the European PV manufacturing industry

B.VIEWS ON THE CURRENT SITUATION

PROCUREMENT DECISIONS FACTORS ON LOW-COST PVs

Based on your knowledge and experience, would you say that some types of buyers tend to choose solar PV modules or systems with the lowest price, even

though somewhat higher priced alternatives would result in a better return on investment?

multiple answers possible

- [x] a. Yes, in public or private procurement, for instance in case there is an obligation to always select the lowest price option
- [x] b. Yes, when solar PV installations are part of a larger package (e.g. of a new building) and the final user (e.g. homeowner) is not involved in the construction phase
- [ ] c. Yes, in the following cases: [please describe briefly]
- [x] d. No, I would not say so in cases where the buyer is a company exploiting the solar PV installation over its lifetime for their own benefit (B2B market)
- [ ] e. Other, Please explain
- [ ] f. I do not know/ I do not wish to answer.

PRODUCT INFORMATION

Based on your knowledge and experience, would you say that buyers of solar PV modules and systems are given adequate and consistent pre-purchase information about products' features in terms of energy yield and long-term performance?

please tick one

- ( ) a. In most cases.
- (•) b. Often.
- ( ) c. Rarely.
- ( ) d. I do not know /I do not wish to reply.

PRICE AND QUALITY

Do you think that the higher prices asked for the products of some manufacturers reflect on average higher performance in terms of lifetime and quality?

please tick one

- (•) a. Yes, most often.
- ( ) b. Not always, but I know several cases of products with higher prices which are justified.
- ( ) c. Maybe, but it is difficult to know (Final prices depend on many factors, quality being only one of them).
- ( ) d. No, I don't think so.
- ( ) e. I can't tell/ I have no opinion.

END OF LIFE OF PV MODULES

According to your knowledge, what mostly happens with PV modules you bought, own, or operate in your activities at the end of their productive life?

multiple replies possible

- [ ] Landfilled
- [x] PV modules are crushed and down-cycled
- [x] PV modules are stockpiled.
- [x] PV modules are partially recycled (e.g. aluminium frame and glass), and partially landfilled.
- [ ] PV modules are fully recycled.
- [ ] PV modules are prepared for reuse
- [ ] PV modules are returned to the manufacturer
- [x] PV modules go to a second-hand market, for instance in other countries outside EU
- [ ] Other
- [ ] I don't know (yet)
- [ ] I do not wish to answer

What do you think are the main problems with PV end-of-life management in Europe?

multiple replies possible

- [ ] Waste accumulation
- [x] Expensive logistics
- [ ] Health risks (lead and other heavy metals released into environment)
- [x] Loss of resources (e.g. silver)
- [x] Unclear take-back / product stewardship / extended producer responsibility scheme
- [x] Unclear waste classification
- [ ] Proper recycling is too expensive
- [x] Lack of recycling infrastructure in the EU
- [x] Awareness training
- [ ] Lack of industry collaboration- Lack of integrated approach throughout the supply chain (i.e. between original equipments manufacturers and recyclers)
- [ ] Limited use of recycled materials
- [ ] It's not a problem

- [ ] Other
- [ ] None of the above
- [ ] No opinion.

As a percentage, what is your estimate about the recycling rate within the end-of-life PV panels you bought, own, or operate in your activities in the last year?(If you are unsure or do not know, you can skip this question).

	The range is '0-100%'
a.	*Only values of at most 100 are allowed* 50 %

C. IMPACT OF ECODESIGN AND ENERGY LABELLING POTENTIAL REGULATORY INTERVENTIONS

ECODESIGN INNOVATION

If an Ecodesign Regulation on PV modules, PV inverters and PV systems addressing aspects related to energy efficiency and circular economy were adopted in the EU, which (predominant) effects on the innovation in the sector would you expect to prevail?

multiple replies possible

- [ ] No significant effects (attributable to the regulatory changes).
- [ ] Innovations by suppliers of low efficiency products will be stimulated in order for them to fulfil the Ecodesign requirements.
- [x] Innovation by mid-range suppliers will be mostly strengthened as this group will benefit the most from the removal of the most low-performing products.
- [ ] Innovations by suppliers of high efficiency products will be stimulated in order for these suppliers to solidify their competitive advantage.
- [ ] Innovations by all suppliers will be stimulated.
- [x] The removal of low-end competitors will strengthen market shares (in a context of consistently increasing demand) and therefore decrease pressure to diversify through innovation as suppliers will be primarily preoccupied with capacity expansion rather than instilling innovation into the product range.
- [ ] Other effect.
- [ ] I do not know /I do not wish to answer.

INVESTMENT

If there were an Ecodesign regulatory initiative ensuring the quality and performance of solar PV modules and inverters, would you expect that this would trigger additional investments from manufacturers?

please choose one

- (●) Yes, an Ecodesign regulatory initiative would influence positively investments on solar PV modules and inverters.
- ( ) No additional investments would be induced.
- ( ) I do not know /I do not wish to answer.

DURABILITY

Regulatory requirements on the durability of PV modules and inverters could consist in a) ensuring compliance of the products with a testing procedure foreseeing minimum thresholds and b) requiring manufacturers to use a third-party verified system in order to assure the quality of the production process of PV modules and inverters. How would this affect the durability of these product groups?

Effect on enhancing durability	Very important	Somewhat important	Rather of minor importance	Other outcomes /specific comments	Do not know / Do not answer
Ensuring compliance of the products with a testing procedure foreseeing minimum thresholds	( )	(●)	( )	( )	( )
Obliging manufacturers to use a third-party verified system in order to assure the quality of the production process of PV modules and inverters	( )	( )	( )	( )	(●)
Other regulatory approaches	( )	( )	( )	( )	(●)

REPARABILITY OF INVERTERS

Which of the following regulatory provisions would, in your view, make it easier to repair PV inverters compared with the current situation?

You can choose more than one option. Tick one cell per line.

	Very important	Somewhat important	Rather of minor importance	Do not know /Do not answer
a)Ensuring that PV inverters are designed to be repaired	○	○	○	◉
b)The compulsory availability of critical spare parts for a minimum amount of time (e.g. 5 or 15 years)	○	○	○	◉
c)Ensuring that prices of spare parts are kept at reasonable levels	○	○	○	◉
d)Access to repair and maintenance information	○	○	○	◉
e)Possibility to make small reparations with commonly available tools	○	○	○	◉
f)Effective access to independent repairers	○	○	○	◉
g)Provision of binding contractual information on resistance to wear and durability	○	○	○	◉
h)standardisation of the design of critical spare parts	○	○	○	◉
i)Other factor(s)	○	○	○	◉

BUSINESS IMPACTS

If there were Ecodesign/Energy Labelling EU rules on solar PV modules/inverters /systems to ensure more information on the yield, longer product lifespans, higher availability of repair services, spare parts, and more information on the environmental friendliness of the product, how would this affect your PV operation (if at all)?

(please tick one box)

- ◉ a.Positively. It would make purchasing more affordable, repair decisions easier, and reliable information on yield and other aspects systematically available. As a consequence, a user of PVs would be more willing to invest in a solar PV installation
- ○ b.Positively for other reasons
- ○

- c.Neutral. It would not have any significant impact on purchasing and repair decisions
- d.Negatively. It would make purchasing more expensive and repair decisions more complex
- e.Negatively for other reasons
- f.I do not know/I do not wish to answer

Which negative impacts from an Ecodesign regulation of solar PV modules/systems /inverters on the market would you consider likely to occur?

(Please tick one box)

- a.None or very limited
- b.The following
- c.I do not know / I do not wish to answer

Please describe

It could lead to increased costs for manufacturers. But that depends on the details in the regulation.

CARBON FOOTPRINT OF PHOTOVOLTAIC MODULES

Potential requirements would be related to the carbon footprint of these products, i. e. to (a quantification of) the emissions released in particular during the manufacturing phase of the products themselves. Should the PV modules be accompanied by information on their carbon footprint?

(Please tick one)

- a.Yes.
- b.No.
- c.I would prefer to see other environmental impact categories.
- d.I do not know/ I do not wish to answer.

Should the accuracy of the carbon footprint mandatory information be checked by a third-party verifier before the PV module is put on the market or rather rely on self-declaration by the producer?

(Please tick one)

- a)Third party verifier.
- b)Self declaration.
- c)I do not know/ I do not wish to answer.

The carbon footprint of silicon-based photovoltaic modules is mainly affected by the silicon content, the energy mix of the electricity used in the manufacturing phase and the module yield. If there were requirements on a of such photovoltaic modules, what could be the effect in your view?

(Please tick one or several cases)

- [ ] a)I would not expect significant effects on the market
- [x] b) This footprint requirement could boost the development of innovative manufacturing processes that make use of a reduced quantity of silicon, as silicon is an energy intensive material, and/or leading to more efficient (PV modules
- [x] c) This footprint requirement could boost the development of innovative designs of PV modules with higher yield
- [ ] d) I think that the question is not appropriate, as I disagree that the carbon footprint of silicon-based photovoltaic modules is mainly affected
- [ ] e) This footprint requirement could create unnecessary market barriers
- [ ] f)The introduction of such measures could lead to supply disruptions, notably in solar panels supplied from third countries, which could jeopardize deployment of solar projects.
- [ ] g) The introduction of such measures could lead to a significant price increase for solar panels placed on the EU market.
- [x] h)This footprint requirement could cause other effects on the market
- [ ] i) I do not know/ I do not wish to answer.

Please describe

It could potentially attract new investments in PV manufacturing capacities in Europe, as the CO2 footprint of a module produced in Europe are about 40% lower than a module produced in China due to the energy mix in respective region.

COMPLIANCE COSTS

Do you expect the anticipated cost for businesses of compliance with potential future Ecodesign/Energy labelling Regulations on PV modules in the European Union would be offset/amortized by the business benefits and advantages/market opportunities created in the mid-term?

Please tick one

Costs lower than the benefits

- Costs higher than the benefits
- Costs roughly close to benefits
- I do not know /I do not wish to answer
- Other

MARKET DYNAMICS

Do you think that an EU Ecodesign regulatory intervention could lead to reallocation of market shares among manufacturers active in the EU market in the mid-term?

(Please tick one)

- Yes, favourable to upper-end producers
- Yes, unfavourable to upper-end producers
- No, there will be no substantial reallocation of market shares
- I do not know/I do not wish to answer.

According to your opinion/knowledge, to which extent will retaining in the market only PV products of average and high quality (and likely higher cost) squeeze out some demand for PVs (as some demand can be very price sensitive):

Please tick one box per line

	No effect on the growth of market demand at all	A bit /somewhat slower market demand growth will be recorded	In some markets there will be a significant reduction of the growth of market demand	The growth of the market demand will be even stronger (due to secondary effects such as, for instance, enhanced information and increased buyers' confidence could be recorded	I do not answer /I do not have on opinion
Ecodesign	◉	○	○	○	○
Energy Labelling	◉	○	○	○	○

EFFICIENCY AND EXTERNALITIES

Which are the main potential benefits from an EU Ecodesign/Energy labelling regulatory intervention?

please rank with 1 as the most significant benefit for each column and with 4 the less significant one

	Ecodesign	Energy labelling

a.Durability/longevity	1	2
b.Reparability (access to spare parts, independent servicing, mandatory support, etc.)	2	4
c.Reduction of carbon footprint	1	4
d.Enhanced market confidence due to reliable information on yield and other aspects	1	1
e.I do not know / I do not wish to answer	○ No answer	○ No answer

PRODUCT IMPROVEMENT

On what aspects do you think manufacturers can deliver improved cost-effective and competitive PV products due to an EU Ecodesign/Energy labelling regulatory intervention?

Please tick one box per line

Improvement potential: / Area:	Significantly	Quite a bit	No improvement	Deterioration	No answer
Durability/Longevity	○	◉	○	○	○
Reparability	○	○	○	○	◉
Energy yield	○	◉	○	○	○
Carbon footprint	◉	○	○	○	○

Would you like to attach a position paper/document to support your views?

- ◉ Yes
- ○ No

Please attach your document here

Only files of the type pdf,txt,doc,docx,odt,rtf are allowed

ac1e758f-d89d-4d53-864f-410fe3f6d788
/ESMC_feedback_for_Public_consultation_on_potential_measures_for_regulating_the_photovoltaic__PV_

Contact

GROW-I3@ec.europa.eu