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ESMC feedback on:

ANNEX to the COMMISSION IMPLEMENTING REGULATION EU…/… on laying down rules for the application of Regulation (EU) 2024/1735 of the European Parliament and of the Council as regards the list of net-zero technology final products and their main specific components for the purposes of assessing the contribution to resilience

AND

The delegated regulation on list of specific components used for net-zero technologies

General remarks

We are submitting comments on the two draft regulations mentioned above. For solar, we suggest the two regulations to be aligned so that their respective lists are identical. Regarding strategic projects, this alignment would help create demand for the primary used components originating from those projects. Without such a demand, the success of the strategic projects would be less likely.

In practice, we recommend replacing the list of main specific components with the list of list of primary used components. These are a crucial part of increasing the resilience of Europe's energy supply.

ESMC proposes:

We propose that the list in both regulations should be as follows

- PV grade silicon **or equivalent**
- PV grade silicon ingots or equivalent
- PV wafers or equivalent
- PV cells or equivalent
- Solar glass **or equivalent**
- **PV encapsulants**
- PV ribbons
- **PV connectors**
- **PV junction boxes**
- **PV cables**
- **PV sealants and adhesives**
- **PV backsheet materials or equivalent**
- PV modules
- PV inverters

- PV trackers for large-scale plants

Background

We propose to extend the scope of **'PV grade silicon'** to **'PV grade silicon or equivalent'** to improve the technology neutrality of the list.

We also propose **extending the scope of "solar glass" to "solar glass and equivalent"**, as innovative **transparent materials** are now commercially available. While not technically glass, these **durable transparent polymers** serve the same purpose as glass in a solar module.

All components in **bold** are used exclusively in solar modules or for the use of solar modules within a solar system.

PV encapsulant films are formulated for photovoltaic module encapsulant applications. They provide transparency and protection for the solar cells, while providing stability to the module even under harsh mechanical conditions (like stormy winds, snow loads, hail). PV encapsulants are designed for this specific application. To the best of our knowledge, they are rarely used in other applications.

PV connectors link solar modules together and to the inverter. They possess special characteristics compared to standard electrical connectors: They must maintain a secure electrical connection over the lifetime of a solar system, protecting the internal connector against moisture, as well as mechanical, chemical and thermal stresses. Additionally, they must be easy to install, often by untrained workers in the field, and safe for general use. To our knowledge, solar connectors are not used in any other electrical application.

PV junction boxes are designed to be mounted on the back or frame of a solar module. They contain special connectors to the cell arrays and include bypass diodes to prevent low-power areas (due to shade, dirt, etc.) from affecting overall module performance. To our knowledge, this type of junction box has not been used in any other application and the relevant patents are specifically focused on PV modules.

In addition, junction boxes for PV modules can be designed to allow automated assembly onto the modules. This also requires a special and unique design of PV module junction boxes.

PV cables are designed to transport DC power within a string of modules or from the string to inverters or junction boxes in field installations. They provide safety for system voltages up to 1,500 volts. Although PV cables are highly flexible, they can withstand chemical, mechanical and temperature stresses for decades. With these properties and certifications, they form a unique product class and are used almost exclusively in PV applications.

PV sealants and adhesives are designed and certified exclusively for use with solar PV modules. They are used to bond the laminate containing the array of solar cells to the frame, to mount and seal the junction box(es) on the back, and to seal the edges of the laminate to withstand environmental conditions for the lifetime of the solar module.

To our knowledge, sealants and adhesives certified for solar applications are not used in other electrical applications.

PV backsheet materials protect solar cells from environmental effects, particularly moisture and mechanical stress, for 30+ years. They also prevent electrical leakage from the module. Backsheets typically consist of multiple layers, each providing specific durability and electrical and mechanical insulation.

To our knowledge, solar PV backsheet materials are not used in any other application.