ESIA European Solar PV Industry Alliance

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EUROPEAN SOLAR PV INDUSTRY ALLIANCE

RECOMMENDATIONS PAPER SERIES III

Effective and practical implementation of non-price criteria in specific public procurement, public auctions, and residential market segments for solar PV systems

1. EXECUTIVE SUMMARY

This paper presents the analysis of the European Solar PV Industry Alliance (ESIA) and its recommendations for an effective and practical implementation of non-price criteria (NPCs) for resilience and ESG in specific public procurement, public auctions, industrial, commercial and residential market segments for solar PV systems. ESIA suggests the application of NPC above legal minimum standards in accordance with article NZIA 19–21. Those NPC will remain limited to specific resilience segments for volumes commensurate with the EUs manufacturing capacity objectives for 2030 and leave the other segments free of NPCs in order not to impact the accelerating pace of cost-effective solar PV developments.

The ESIA calls for an EU regulatory environment that allows Member States to apply NPCs in specific solar PV "resilience auctions", "resilient renewable energy support schemes" (consumers), and "resilience procurement" in the shortest possible terms. The key design feature of these auctions and support schemes is that they apply, first and foremost, resilience NPC for key components of solar systems as qualification for resilience bonus payments. Those increase with the level of resilience content being used in a solar system. The bonus payments should compensate for the additional cost related to resilience products compared to the majority of non-European products. In this way, it is intended as OPEX-support for the European PV manufacturing industry.

Given the urgency of providing stable market conditions for the remaining EU solar manufacturers, ESIA suggests to focus on EU content in the beginning and proposes to add other non-pricing criteria such as environmental, sustainable, energy efficient, innovation, social, etc. as soon as they have been adopted by the EU Commission in accordance with EcoDesign and other regulations (2025–2027). Those non-financial criteria should then apply in addition to resilience criteria, and not substitute them.

The "landing zone" of the proposed regulation is the Net Zero Industry Act, which is currently (October 2023) being negotiated within the European Parliament and the European Council. For this reason, the proposed regulation at this stage needs to be very lean and compatible with the draft regulation. Section 2 outlines the minimum necessary changes to the NZIA.

The resilience segments should follow a staged approach in the next years, in reflection of the growing EU PV manufacturing capacities, which should amount to at least 40 GW by 2030 reflecting a 40% market share of EU manufactured components used for solar PV developments in the EU by

2030. The growth trajectory to 2030 should be defined by the capacity of the EU PV manufacturing industry as it is supported via the Temporary Crisis and Transition Framework (TCTF), EU Innovation fund and other public schemes.

2. RECOMMENDATIONS FOR NZIA

The concrete regulation will very much depend on the renewable energy support schemes in the individual EU Member States. However, the NZIA should provide a common European framework, in particular with respect to: (1) ensuring a technology-specific approach to non-price criteria (NPCs), and (2) embedding the principle of specific and limited application of NPCs to a small but growing segment of public auctions, public procurement and end customer PV implementation schemes.

From that point of view, we suggest the following amendments to the NZIA proposal:

Art. 19.1 (NEW): Attending to the market conditions of each (strategic) net zero technology, the implementing act or guidance document referred to in Article 22 shall allow the possibility for the Member States to apply the resilience and sustainability criteria of Article [19.2] exclusively in dedicated public procurement procedures, for a volume commensurate with the Union manufactured capacity objectives set out in Article 1 of the NZIA. The implementing act or guidance shall provide further guidance on the structure, yearly manufacturing objectives leading to 2030 targets, design and implementation of such dedicated public procurement processes. Member States shall not be obliged but can voluntarily assess the resilience and sustainability contribution in public procurement procedures exceeding the obligatory volume reserved and implemented through dedicated procedures.

Art 19.5 (NEW): The application of the sustainability and resilience contribution in public procurements needs to be technology-specific and fully tailored to the market conditions of each (strategic) net zero technology and should be further specified in the implementing act or guidance document referred to in Article 22.

Art. 20.1 (NEW): Attending to the market conditions of each (strategic) net zero technology, the implementing act or guidance document referred to in Article 22 shall allow the possibility for the Member States to apply the resilience and sustainability criteria of Article [19.2] exclusively in

dedicated auctions, for a volume commensurate with the Union manufactured capacity objectives set out in Article 1 of the NZIA. The implementing act or guidance shall provide further guidance on the structure, yearly manufacturing objectives leading to 2030 targets, design and implementation of such dedicated auctions. Member States shall not be obliged but can voluntarily assess the resilience and sustainability contribution in auctions exceeding the obligatory volume reserved and implemented through dedicated auctions.

Art 20.4 (NEW): The application of the sustainability and resilience contribution in public auctions needs to be technology-specific and fully tailored to the market conditions of each (strategic) net zero technology and should be further specified in the implementing act or guidance document referred to in Article 22.

Art 22.1 (NEW): By 6 months after the date of entry into force of this Regulation, the Commission shall adopt an implementing act or guidance specifying the application of non-price criteria to the market conditions of each (strategic) net zero technology.

The NZIA needs to be further defined in implementing act or guidance by a "PV annex" specifying:

- Components along the full supply chain independent of PV technology, i.e., for crystalline technologies; silicon metal, polysilicon, ingots, wafers, cells, glass, modules and respectively semiconductors, for thin-film technologies; glass and modules and inverters;
- A European funding gap methodology and its regular revision on EU level (could be done by JRC or ESIA platform) to specify the bonus for individual components on a standardized basis;
- Sustainability properties eligible for sustainability bonus based on EcoDesign regulation or alternative preliminary data, certified by a trusted, independent third party and respective share of a general, standardized sustainability bonus.
- The obligation of the individual Member States to translate the standardized bonuses to the appropriate needs of the individual Member States in terms of irradiation and their individual renewable energy support schemes.

3. OVERVIEW AND INTRODUCTION

Essential routes-to-market for solar PV include public auctions, tenders, and support schemes as they cover utility-scale, all rooftop segments, and public procurement. Applying a smart bonus system, based on clear NPCs, will therefore have a meaningful and positive impact on providing visibility for market offtake for domestically produced solar PV systems. Such visibility could not be overestimated in importance as it would substantially reduce upfront investment risks in solar PV supply chains in Europe, which is especially key in the first years of scaling-up the solar PV manufacturing industry.

At the same time, the NPC-based bonus system should not be seen as a silver bullet in its own right. As outlined in the ESIA Finance recommendation paper 1 "Recommendations on financial mechanisms to fill the cost gap and restore the PV industry in Europe", other recommendations are equally important to advance in parallel. In that sense, this paper complements the ESIA recommendation paper 1, and completes the picture on what a successful EU solar PV industrial strategy looks like.

On March 16th, 2023, the EU Commission proposed the Net-Zero Industry Act (NZIA) creating the regulatory environment for scaling up manufacturing of clean technologies in the EU. The ESIA takes this regulatory proposal, in particular Chapter IV Art. 19-21 related to sustainability and resilience contribution in public procurement procedures, auctions, and end consumers support schemes, as a starting point for its recommendations. In order to make the non-price criteria effective and practical, the ESIA has developed a proposal on what criteria and metrics could be used and how to relate this to bonus payments in specific resilience auctions and procurements. This proposal is being presented on the following pages. It shall be used to detail the changes to the NZIA described in section 2.

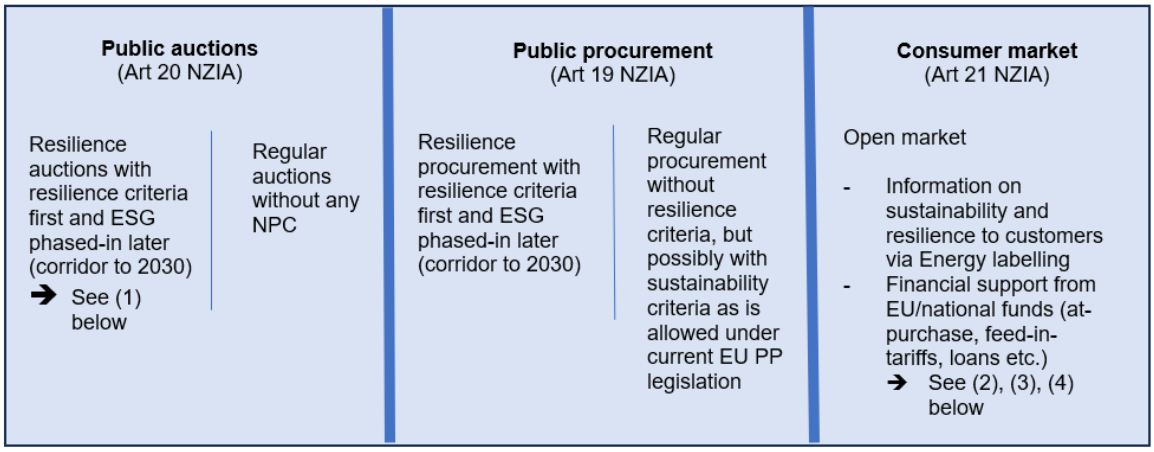
4. NON-PRICE CRITERIA AND BONUS SYSTEM: PRINCIPLES

The objective of defining bonus payments is to recognize and reward PV products which enhance the long-term resilience of the European energy system and all pillars of sustainability, economic, social and environmental. This is different from setting standards for market access, for example related to human rights or de minimis environmental requirements as set by EU EcoDesign legislation. For sake of clarity, the ESIA applies zero-tolerance to any human rights violations,

including child labour and forced labour, in the solar PV supply chain. Approved and proven ESG management systems by an acknowledged third-party certification system, that enable companies to manage their own supply chains according to ESG standards, may be considered as an additional — but not exclusive — source for demonstrating, that companies are committed to sustainability best practices in their own production.

- Non-price criteria should be based on ambitious thresholds, which should be periodically adjusted to market and industry developments. Once implemented, the dataset for EcoDesign could be used for product-level certification by a qualified body. Before the implementation of EcoDesign, comparable third-party certification can serve as a substitute to certify that all information is reliable, and claims are substantiated.
- As resilience is one of the major driving forces for the renaissance of solar PV manufacturing industry in Europe, the resilience criterion should be given higher weight than the sustainability criterion. Complying with a minimum number [2] of resilience criteria will grant access to sustainability bonuses, too.
- The implementation of NPCs needs to be technology-specific and fully adapted to the real market conditions for solar PV. The ESIA, therefore, strongly calls to use the Implementing Act as the place to develop such a tailored approach for solar PV market access rules under the NZIA Chapter IV. Such tailoring is important in several aspects:
    - The application of NPCs for solar PV must remain limited to specific tenders, procurement and consumer segments, in reflection of the growing EU production capacities towards at least 40 GW by 2030 (proxy to 40% EU-market share by 2030).
    - Cost proportionality clause: While the ESIA supports the principle of a cost proportionality clause, it highlights that any threshold should be determined by using a financing gap analysis specific to the solar PV sector, for example as provided by the ESIA through the recommendation paper “Recommendations on financial mechanisms to fill the cost gap and restore the PV industry in Europe”. To reflect dynamics in pricing and production costs, the financing gap analysis needs to be reviewed and adopted regularly.

5. NON-PRICE CRITERIA AND BONUS SYSTEM: DESIGN FEATURES



(1) Resilience auctions corridor of 5 GW in 2025, 10 GW in 2027 and 30 GW in 2030 across EU. This growth trajectory (including 3) is based on current production capacity and expected production capacities under the TCTF, Innovation Fund and other already established EU/EEA initiatives.

In case of undersubscription in resilience segments, the tendering agencies shall make sure that resilience volumes are not lost but that a substantial fraction is carried over to the next year. One feasible mechanism in the case of undersubscription in resilience segments is to carry over the undersubscribed volume x from resilience auction round 1 to resilience auction round 2. If round 2 sees undersubscribed volume y, only y-x volume is carried over to round 3 (if higher than 0). The rest goes to the regular segment, in order not to lose auctioned PV volumes.

Example 1: Resilience auction 1 calls for 1 GW solar PV but remains undersubscribed by 50% (500 MW). This 500 MW is added to the next resilience auction 2, which becomes 1.5 GW. If again undersubscribed by 50% (750 MW), only 250MW (750-500 MW) goes to resilience auction 3 and the rest (500 MW) moves to the regular segment.

Example 2: Resilience auction 1 calls for 1 GW solar PV but remains undersubscribed by 50% (500 MW). This 500 MW is added to the next resilience auction 2, which becomes 1.5 GW. If again undersubscribed but by only 25% (350 MW), no additional capacity goes to resilience auction 3 (as 350-500 is below 0). Still, the remaining unallocated 350MW moves to the regular segment.

(2) EU Energy Labelling provides B-2-C information on a products' energy and environmental performance. This is now in the making for solar PV modules in parallel to EcoDesign for adoption early next year and entry into force in two years. The ESIA proposes to extend the information on the label from sustainability only to also include resilience information via a percentage of EU content. Such information can be based on the product information sheet as will soon be required under the EcoDesign Directive for solar PV. The directive therefore should be requiring the product information sheet to contain a table indicating the origin of the main components along the full supply chain independent of PV technology, i.e., for crystalline technologies; silicon metal, polysilicon, ingots, wafers, cells, glass, modules and respectively semiconductors, for thin-film technologies; glass and modules and inverters.

(3) Consumers that choose PV systems with EU content will be compensated for the additional cost, either from a national or an EU fund. The benefit of an EU funding scheme is that consumers in lesser affluent Member States (that can't afford a national compensation scheme) can benefit as well. The compensation by default will be granted via the standard renewable energy support scheme in the respective member state which needs to be adjusted based on the overweight to be defined on EU level[1]. [The growth in the consumer segment can be deducted from the auctions and/or the public procurement segments].

(4) Standardized bonuses for resilience content will be calculated based on a funding gap analysis on the EU level which needs to be updated regularly. The member states will adjust the bonuses according to their national solar PV remuneration schemes and their irradiation conditions. In order to be able to compensate for a sufficient fraction of initial funding gaps, it is advisable to render the allowance for compensation in NZIA Art. 21, 2 technology-specific based on a funding gap analysis to up to 15% of the system costs for solar PV systems.

[1] Compensation should be implemented within national energy support schemes in a way that encompasses varying business models and varying PV system setups.

6. NON-PRICE CRITERIA ON RESILIENCE AND SUSTAINABILITY: SUGGESTIONS

The Table below presents the initial and most critical set of criteria suggested by the ESIA, including their respective proposed metrics, thresholds, and references for assessment. As this is just the starting point, the following NPC considerations are recommended to be examined in a second phase: Circularity of processes, Respect for the local environment and biodiversity, GES emissions and water/air/soil pollution, Profit distribution within the local community, and other Social and Governance aspects falling under EPEAT.

The sustainability bonuses are proposed to be calculated based on an EU funding gap analysis which assesses the cost of better than the legal minimum requirements — similar to the resilience bonuses.

Table 1: Non-price criteria on resilience and environmental categories

	Sub-category	**Application level**	**Metric / threshold**
Resilience	Concentration of supply (Dependence on main source of supply for more than 65%)	PV module level	Grant overweighting should be selectively employed for PV installations encompassing the following recommended (to start with) key general component categories, along with the associated materials and components required for these categories. However, it is important to note that these categories are not exhaustive, as the list of components should undergo routine resilience assessments and be updated periodically in response to the evolving landscape of the manufacturing industry. • Silicon Metal • Polysilicon • Ingot • Wafer • Cells • Module • Glass • Inverters • Primarily used components • Manufacturing Equipment • Frame The overweight will be calculated based on a funding gap analysis at the EU level and the funding gap, along with the resilience assessments, needs to be updated regularly.

	Sub-category	Application level	Metric / Threshold	Reference
Environmental	Carbon footprint	PV module level	Below 400 (as premium)/630 (minimum) g/kWh / g/kW. Carbon footprint is calculated using EPEAT methodologies to avoid greenwashing	EcoDesign
	Energy yield	PV module level	Equivalent to PV Energy Label class B or above under temperate coastal climate zone	EU EcoLabel
	Recycled content	PV module level	Recycled content of a given material is 10% above than industry average, based on default parameters used in PV EcoDesign Circular Footprint Formula	EU EcoLabel
	Recyclability and reparability	PV Module and Inverter level	PV Cycle certified, C2C certified on all products sold in the EU and the EcoDesign recyclability score.	EU EcoDesign
	Warranted lifetime	PV module level	[Performance/Product] warranty above 25 years awards minor bonus, [Performance/Product] warranty above 30 years additional bonus points	Manufacturer warranty sheet
	Zero tolerance on human rights abuses, including forced labour	PV module and all other components	Due Diligence verified by an approved Third Party + compliance with EU ban on forced labour when in place can be used as an additional source of information. Requires tracing and tracking.	EMS certification
	Energy efficiency	PV inverter level	Above 98.5% European efficiency	EcoDesign