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Guidance on the implementation of Article 28 of Regulation (EU) 2024/1735 establishing a framework of measures for strengthening Europe's net-zero technology manufacturing ecosystem and amending Regulation (EU) 2018/1724 (NZIA)

(C/2026/123)

The purpose of this Communication is to give practical guidance to Member States that set up new schemes or update existing schemes which incentivise the purchase of net-zero technology final products under Article 28 of the Net-Zero Industry Act (NZIA). It does not cover the public procurement and auctioning provisions under the NZIA. This guidance is not legally binding. While it occasionally paraphrases the provisions of EU legislation, it is not meant to alter in any way the rights and obligations set out in the NZIA or other binding instruments. This guidance is without prejudice to State aid rules and the subsidiarity principle.

LIST OF ABBREVIATIONS

CN	Combined Nomenclature
EEA	European Economic Area
EU	European Union
EV	Electric vehicle
EVSE	Electric vehicle supply equipment
GWP	Global warming potential
HS	Harmonised System
JRC	Joint Research Centre of the European Commission
NZIA	Net-Zero Industry Act
NZT	Net-zero technology
PV	Photovoltaic

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I. INTRODUCTION

Regulation (EU) 2024/1735 on establishing a framework of measures for strengthening Europe's net-zero technology manufacturing ecosystem and amending Regulation (EU) 2018/1724 (hereafter 'the Net-Zero Industry Act' or 'the NZIA') ([1]) establishes a legal framework aimed at strengthening the manufacturing ecosystem for net-zero technologies within the European Union (EU). In particular, to reduce the EU's strategic dependencies on net-zero technologies and their supply chains and to achieve the EU's climate and energy targets, Article 5 of the NZIA sets the Commission and Member States the objectives of reaching a manufacturing capacity of at least: 40 % of the EU's annual deployment needs for net-zero technologies by 2030; and 15 % of world production of net-zero technologies by 2040.

Households, businesses and consumers are an essential part of the EU's demand for net-zero technology final products. Public support schemes that incentivise the purchase of such products by households, businesses and consumers, in particular for vulnerable low- and lower middle-class income households (hereafter referred to as 'schemes'), are important tools to achieve the EU climate targets and climate neutrality objectives set out in Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law'). To ensure that the EU decarbonisation efforts are resilient, secure and capable of adapting to future challenges, it is crucial that these schemes not only facilitate access to net-zero technologies but also contribute to improving the sustainability and resilience of the supply of such technologies.

To this end, Article 28 of the NZIA lays down new obligations for public authorities that create new schemes or update existing schemes that benefit households, companies or consumers in the purchase of net-zero technology final products. These obligations aim to promote the purchase by beneficiaries of net-zero technology final products 'with a high sustainability and resilience contribution'.

The NZIA entered into force on 29 June 2024, and its Article 28 is applicable from 30 December 2025 ([2]). This Communication provides public authorities with guidance on the application of Article 28.

II. SCOPE OF ARTICLE 28 OF THE NZIA

Article 28 of the NZIA covers schemes that fulfil the following three conditions cumulatively:

(a) The scheme benefits households, companies or consumers (hereafter collectively referred to as 'consumers').

(b) The scheme is updated or created after the date on which Article 28 of the NZIA becomes applicable, i.e. after 30 December 2025 (in accordance with Article 49 of the NZIA).

A scheme is considered 'updated' for the purpose of Article 28 of the NZIA when it undergoes any modification that would require new approval of the scheme by an authority or legislator. This includes significant changes to the allocated budget, scope, eligibility criteria or application process. It also covers renewals, extensions or any changes significant enough to require new approval of the scheme by an authority or legislator.

(c) The scheme incentivises the purchase of the net-zero technology final products listed in Commission Implementing Regulation (EU) 2025/1178 on the list of net-zero technology final products and their main specific components ([3]).

While the purchase of net-zero technology final products should be among the main elements covered by the scheme, it does not have to be the sole element covered by the scheme. A scheme with a broader scope, extending beyond just incentivising the purchase of a net-zero technology final product, can still fall within the scope of Article 28 of the NZIA provided that the scope of the scheme explicitly includes a specific category of support for

([1]) Regulation (EU) 2024/1735 of the European Parliament and of the Council of 13 June 2024 on establishing a framework of measures for strengthening Europe's net-zero technology manufacturing ecosystem and amending Regulation (EU) 2018/1724, OJ L, 2024/1735, 28.6.2024, ELI: http://data.europa.eu/eli/reg/2024/1735/oj.

([2]) Article 49(4) of the NZIA.

([3]) Commission Implementing Regulation (EU) 2025/1178 of 23 May 2025 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.

the purchase of that net-zero technology final product. In such cases, Article 28 of the NZIA should exclusively pertain to the purchase of the net-zero technology final products. For instance, support to purchase a heat pump provided via an energy renovation support scheme that features dedicated support to heat pumps is covered under Article 28 of the NZIA.

Moreover, Article 28 of the NZIA covers only those schemes that target the purchase of net-zero technology final products, not their installation, use or operation. Hence, schemes aimed at alleviating operational expenditures (OpEx) related to the use of net-zero technology final products are not covered by Article 28. Similarly, schemes where the level of support is calculated based on a combination of both capital expenditures (CapEx) and OpEx are also not covered. In addition, schemes that target only the installation of net-zero technology final products are not covered by Article 28 of the NZIA. Similarly, in schemes targeting both the purchase and installation of net-zero technology final products, installation costs are not covered by Article 28, which means that installation costs can be supported even if the final product does not have a high contribution to sustainability and resilience.

Example 1:

Schemes that incentivise the purchase of solar photovoltaic (PV) systems – a net-zero technology final product within the meaning of the NZIA – by offering a one-off payment based on the system's rated power are covered by Article 28 of the NZIA. By contrast, schemes that reward the production of renewable energy through direct price support mechanisms are operating aid rather than investment aid. They are not covered by Article 28 of the NZIA.

Example 2:

Schemes that incentivise the production of renewable energy, such as feed-in tariffs, do not qualify as purchase aid and are therefore not covered by Article 28 of the NZIA. This is because they constitute direct price support mechanisms/ operating aid, since they reward the production of renewable energy itself rather than supporting the purchase of the net-zero technology final product that produces the energy.

Example 3:

Schemes that incentivise energy renovations and identify the purchase of heat pumps – which are a net-zero technology final product – as one of the cost items qualifying for support under the scheme are covered by Article 28 of the NZIA. Indeed, a scheme supporting energy renovations can identify several categories of costs supported under the scheme and sometimes provide maximum amounts of compensation for each of the identified cost items. Such a scheme would be covered by Article 28 of the NZIA provided that the purchase of a heat pump (or any other net-zero technology final product) is one of those cost categories.

Although the purchase of the heat pump is not the sole focus of the energy renovations, whenever the purchase of the heat pump is an explicit element of the renovation scheme, this allows to set dedicated conditions for the support to the purchase of the heat pump. In this case, the provisions of Article 28 would apply to the heat pump but not to any other equipment that, while it may contribute to improving the energy of the building, is not considered a net-zero technology in the context of the NZIA.

Example 4:

Schemes that incentivise the purchase of zero-emission vehicles are covered by Article 28 of the NZIA. Although zero-emission vehicles are not in themselves net-zero technology final products within the meaning of the NZIA, they are equipped with electric propulsion systems for road transport, which are a net-zero technology final products within the meaning of the NZIA. Moreover, the electric propulsion systems cannot be purchased separately from an electric vehicle (as a standalone product). Finally, the electric propulsion system accounts for a large share of the cost of an electric vehicle.

The schemes covered by Article 28 of the NZIA can take various forms, including – but not limited to – grants, rebates, soft loans (with below market interest rates), tax incentives (such as tax credits, tax deductions, tax exemptions and accelerated depreciation) and 'social leasing' schemes designed to facilitate access to net-zero technologies for low- and middle-income households. However, regardless of their form, all these schemes may constitute State aid. If they do so, they must comply with applicable State aid rules. Schemes should also comply with EU's international obligations. Moreover, schemes may apply reduced VAT rates only in accordance with of the VAT Directive ([4]).

III. ELIGIBILITY OF SCHEMES AND ADDITIONAL FINANCIAL COMPENSATION

To comply with the obligation laid down in Article 28 of the NZIA, which requires that schemes incentivising the purchase of net-zero technology final products be designed to promote products with a high sustainability and resilience contribution, Member States, regional or local authorities, bodies governed by public law or associations formed by one or more such authorities or by one or more such bodies governed by public law (hereafter referred to as 'public authorities') designing or updating a scheme have two options – which are illustrated in Figure 1. The public authorities can:

— **Make the eligibility** of net-zero technology final products under the **scheme conditional on their contribution to sustainability and resilience**; or

— **Grant additional proportionate financial compensation** for net-zero technology final products that demonstrate a high sustainability and resilience contribution. This amount would be provided in addition to the basic financial compensation provided under the scheme, thereby further reducing the cost of the net-zero technology final product for the consumer ([5]).

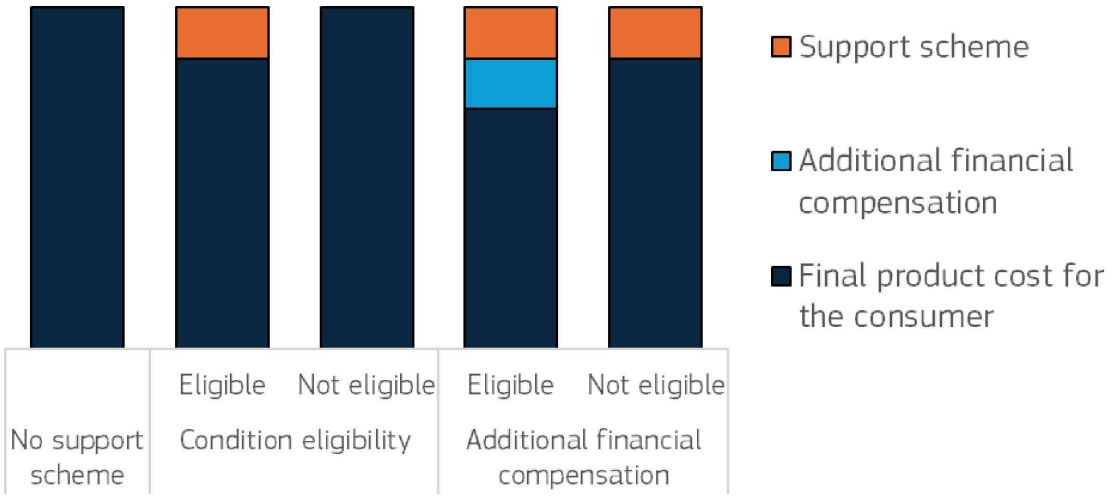

Figure 1 : Options to promote the purchase of net-zero technology final products with a high sustainability and resilience contribution (European Commission)

Note: 'Eligible' and 'not eligible' refer to the support scheme.

A. Making eligibility to the scheme subject to certain conditions

According to Article 28 of the NZIA, a public authority can decide to make the eligibility of net-zero technology final product schemes conditional on their sustainability and resilience contribution. This means that net-zero technology final products under a scheme covered by Article 28 of the NZIA (see Chapter II) would be eligible to benefit from the scheme only if they demonstrate a high sustainability and resilience contribution.

([4]) Council Directive 2006/112/EC of 28 November 2006 on the common system of value added tax; See in particular Article 98 and Annex III of the Directive.

([5]) The total support, including the additional proportionate financial compensation, must not exceed the maximum aid intensity allowed under State aid rules.

Article 28(1) further states that the accessibility of schemes to citizens living in energy poverty should be taken into consideration. Public authorities should therefore make sure that the conditions of eligibility of their schemes do not exclude vulnerable citizens from accessing sustainable and resilient net-zero technology final products.

B. **Providing additional financial compensation**

Public authorities can opt to provide additional proportionate financial compensation for the purchase of net-zero technology final products that have a high sustainability and resilience contribution. In this case, consumers are entitled to the benefits of the scheme regardless of the sustainability and resilience contribution of the net-zero technology final products they purchase. However, as part of the scheme, beneficiaries that purchase net-zero technology final products with a high sustainability and resilience contribution are entitled to additional financial compensation.

The following elements should be taken into account when deciding whether to grant additional financial compensation:

— It should be granted only to those net-zero technology final products that comply with the sustainability and resilience criteria in Article 28(4) of the NZIA.

— It should be provided in addition to the 'basic' financial compensation of the scheme.

— It should result in a further reduction in the cost of the final products to the consumers purchasing them.

— It should be granted only for net-zero technology final products. If the scheme covers a broader scope of products or services than the net-zero technology final product(s), the additional financial compensation should be strictly limited to the net-zero technology final product(s) (provided that they have a high sustainability and resilience contribution). For example, if a scheme incentivises energy renovations and explicitly includes a specific category of support for the purchase a heat pump, the basic benefits of the scheme relate to the whole renovation project (including heat pump, insulation, etc.), whereas the additional financial compensation should be linked to the heat pump and be calculated solely based on the cost of the heat pump to the consumer.

— If the project benefiting from the scheme includes several net-zero technology final products, additional financial compensation should be granted for each net-zero technology final product with a high sustainability and resilience contribution.

Public authorities have some flexibility when determining the amount of the additional financial compensation, but it should always be proportionate and take energy poverty into consideration. In addition, Article 28(2) of the NZIA sets out specific upper limits for the additional financial compensation in certain cases.

— As regards proportionality, the additional financial compensation should always be proportionate to the cost to the consumer of the net-zero technology final products. This means that the amount of the additional financial compensation may not be either negligible or excessive in comparison to the cost to the consumer of the net-zero technology final products. If the amount is too low, it might not provide a sufficient incentive to encourage beneficiaries to purchase net-zero technology final products with a high sustainability and resilience contribution. On the other hand, if the amount is excessive, it may lead to over-subsidisation, creating an uneven playing field and distorting the market.

— As regards energy poverty, public authorities may decide to grant higher additional financial compensation to citizens living in energy poverty, compared to other consumers. Nonetheless, that higher compensation should always comply with the proportionality requirement as referred to in the previous bullet point.

— As regards the upper limits, there are three possible scenarios:

  — **Scenario 1:** When the additional financial compensation is granted based on fulfilment of the resilience criterion and of either the innovation criterion or the energy system integration criterion, the additional financial compensation cannot exceed 5% of the cost of the net-zero technology final product to the consumer ([6]).

  — **Scenario 2:** When the additional financial compensation is granted based on fulfilment of the resilience criterion and of either the innovation criterion or the energy system integration criterion, and when such compensation is granted to citizens living in energy poverty, the additional financial compensation cannot exceed 15% of the cost of the net-zero technology final product for the consumer.

  — **Scenario 3:** When the additional financial compensation is granted based on fulfilment of the resilience criterion and of the environmental sustainability criterion, public authorities can determine the amount of the proportionate additional financial compensation freely.

Figure 2 provides an overview of the implications for the cost of the final product of the three options for granting additional financial compensation.

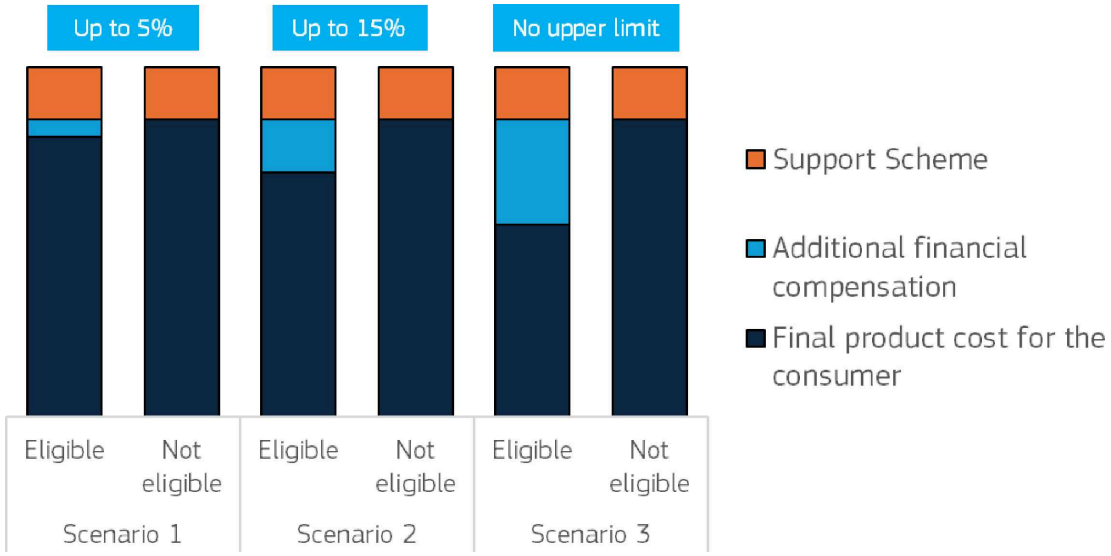

Figure 2 : Scenarios for the upper limits of the additional financial compensation (European Commission)

Note: ***'eligible' and 'not eligible' refer to whether the final product fulfils the criteria to be*** granted the additional financial compensation.

IV. ASSESSMENT OF THE SUSTAINABILITY AND RESILIENCE CONTRIBUTION OF NET-ZERO TECHNOLOGY FINAL PRODUCTS

As discussed in the previous chapter, consumers' eligibility to benefit from schemes or from additional financial compensation is conditional on the purchase of net-zero technology final products that have a high sustainability and resilience contribution. Article 28(4) of the NZIA states that this contribution *shall be based on their contribution to resilience …, and at least one of the following: (a) environmental sustainability …; (b) contribution to innovation …; (c) contribution to the energy system integration*. This chapter provides guidelines on how the sustainability and resilience contribution of net-zero technology final products could be marked (Section A) and how each of the criteria could be assessed (Section B). It also gives some examples (Section C).

([6]) The cost of the net-zero technology final product to the consumer may comprise only the cost of the equipment, or it may also include other costs (e.g. transportation and installation costs), depending on the scope of costs covered by the scheme.

A. **Marking of net-zero technology final products**

In order to assess the sustainability and resilience contribution of a net-zero technology final product, public authorities should establish a marking system and a pass mark. A pass mark is the minimum mark required for a final product to fulfil the criteria. This mark ensures that only final products making significant contributions to resilience and environmental sustainability, innovation or energy system integration are eligible under schemes or qualify for additional financial compensation.

1. Marking systems

As regards the marking system, public authorities retain flexibility in determining how net-zero technology final products are marked.

One possibility is to use a pass or fail system. When using this system, public authorities should set a pass mark for each criterion assessed and consumers should be eligible for the scheme or for additional financial compensation only if the net-zero technology final product purchased achieves a pass mark for each of the criteria assessed.

For instance, if a public authority decides to give additional financial compensation to PV systems based on the criteria of resilience and environmental sustainability, it will need to determine how to assess those criteria (see Section B) and to set a pass mark for each of those criteria. Only purchasers of PV systems that achieve a pass mark for the resilience criterion and for the environmental sustainability criterion will be entitled to the additional compensation.

This binary system is simple to implement and understand. Although it may not capture nuances in the varying levels of contribution to resilience, environmental sustainability, innovation or energy system integration, setting a separate pass mark for each criterion enables public authorities to consider the specifics of each criterion when assessing them. In addition, it ensures that a high contribution to sustainability and resilience is achieved – as required by Article 28(1) – and it avoids that an excellent performance in one of the criteria allows products to contribute poorly to other criteria. Moreover, setting a separate pass mark for each criterion contributes to making the marking process clear and transparent, as required by Article 28(3) of the NZIA. Public authorities are therefore encouraged to use the pass or fail marking system.

Nevertheless, other marking systems could be used. For instance, to take into account the extent to which final products meet the criteria assessed.

In any case, as further explained in Section V.A of this guidance document, the marking systems and pass marks should be established in a clear, transparent and objective way, creating a straightforward framework for stakeholders to understand and meet the scheme's requirements.

2. Several net-zero technologies covered by a single scheme

In some cases, a scheme covered by Article 28 of the NZIA can incentivise the purchase of several net-zero technology final products simultaneously. For instance, a scheme could support an energy renovation entailing the installation of a solar PV system with batteries and a heat pump. In such cases, the resilience and sustainability contribution should be assessed separately for each net-zero technology final product covered by the scheme, and eligibility for the scheme or the additional financial compensation will only be granted for the net-zero technology final products that fulfil the criteria and obtain the pass marks.

B. **Assessment of net-zero technology final products according to the four criteria**

According to Article 28(4) of the NZIA, the sustainability and resilience contribution of a net-zero technology final product should be evaluated based on the product's contribution to resilience (mandatory criterion) and to at least one of the following criteria: environmental sustainability, innovation and energy system integration. However, this does not prevent public authorities from using additional non-price criteria as a condition of eligibility under schemes or of the granting of additional financial compensation, in compliance with State aid rules.

This section provides detailed guidance on the assessment of each of the four criteria: resilience (mandatory criterion), environmental sustainability, innovation and energy system integration. To ensure that the assessment process remains relevant and effective in the face of evolving technological innovations and policy developments, public authorities are encouraged to regularly review and update it, looking, for instance, at which environmental features of the net-zero technology final products they want to assess, or which features should be considered innovative.

1. Resilience criterion

In accordance with Article 28(4) of the NZIA, the assessment of the contribution to resilience shall take into account *the proportion of the net-zero technology or its main specific components originating from a third country that accounts for more than 50 % of the supply of that specific net-zero technology within the Union*.

The Commission will issue a dedicated communication each year that gives updated information on the shares of the Union supply originating in different third (i.e. non-EU) countries for the most recent year available ([7]). Data on the shares of Union supply for a net-zero technology final product or main specific component provided in such Communication should serve as the sole reference point for the assessment of the resilience contribution under Article 28 of the NZIA.

For a given net-zero technology final product, the resilience contribution should be evaluated as follows:

— If the latest version of the Communication on the shares of Union supply **does not provide shares of Union supply** for the final product or any of its main specific components, the resilience contribution cannot be assessed. Therefore, the resilience criterion should be considered as fulfilled and the assessment of the final product should focus on the other criteria (environmental sustainability, innovation and/or energy system integration).

— If in the latest version of the Communication on the shares of Union supply **no third country accounts for more than 50% of the supply** of the final product or of any of its main specific components within the EU, then the resilience criterion should be considered as fulfilled and the assessment of the final product should focus on the other criteria (environmental sustainability, innovation and/or energy system integration).

— If in the latest version of the Communication on the shares of Union supply **a third country accounts for more than 50% of the supply of a final product** within the EU, then the mark awarded to the final product for its resilience contribution should reflect the proportion of main specific components originating from the third country in question. This can be done in several ways.

Approach A (based on non-price criteria in auctions). One possibility is to mirror the requirements for main specific components laid down in Article 7(1)(a)-(f) of the NZIA implementing act specifying the pre-qualification and award criteria for auctions for the deployment of energy from renewable sources ([8]). This approach is particularly suitable for pass or fail marking systems. For instance, the 2025 Communication on the shares of the Union supply identifies that 79% of the Union supply of solar PV systems is dependent on a single third country. Therefore, applying the approach outlined in the implementing act for auctions would mean that a solar PV system would only get a pass mark for the resilience criterion under Article 28 of the NZIA if the PV system is not assembled in that third country and at least four main specific components used, including mandatorily the PV cell, the PV module and the PV inverter, did not originate in that third country.

([7]) The Communication of 2025 can be found here: EUR-Lex - 52025XC03236 - EN - EUR-Lex.

([8]) Commission Implementing Regulation (EU) 2025/1176 of 23 May 2025 specifying the pre-qualification and award criteria for auctions for the deployment of energy from renewable sources, OJ L, 2025/1176, 18.6.2025, ELI: http://data.europa.eu/eli/reg_impl/2025/1176/oj.

Approach B (based on calculation). Another possibility is to calculate the resilience as explained in the bullet point below.

— If, in the latest version of the Communication on the shares of Union supply, no third country accounts for more than 50% of the supply of any final product, but **a third country accounts for more than 50% of the supply of any of its main specific components** within the EU, then the mark awarded to the final product for its resilience contribution should reflect the proportion of main specific components originating from that third country. For example, the resilience contribution could be calculated as follows:

$$Resilience\ Contribution = 1 - \frac{N_{3rd\ country,\ main\ spec.\ comp}}{N_{dep,\ main\ spec.\ comp}}$$

Where, for a given net-zero technology final product:

$N_{3rd\ country,\ main\ spec.\ comp}$	is the actual number of main specific components included in the net-zero technology final product being considered for inclusion under the scheme that originate in the third country that accounts for more than 50% of the supply within the Union, according to the latest version of the Communication on the shares of Union supply; and
$N_{dep,\ main\ spec.\ comp}$	is the number of main specific components included in the net-zero technology final product for which a third country accounts for more than 50% of the supply within the EU, according to the latest version of the Communication on the shares of Union supply.

Example of how the resilience contribution is calculated

To illustrate the practical application of the resilience contribution, consider the following three examples of solar thermal systems that are considered under a scheme. For the purpose of this example we will assume that all three solar thermal systems (i.e. the final product) originate in a third country that accounts for less than 50% of the supply of solar thermal systems within the EU, according to the latest version of the Communication on the shares of Union supply. We will also assume that the solar thermal systems contain three main specific components (solar thermal collector, solar thermal absorber and solar glass) ([9]) and that they exhibit the characteristics indicated in Table 1:

Table 1

Example of solar thermal systems with hypothetical characteristics

PV System	Characteristics
Solar thermal System A	Both solar thermal collectors and solar thermal absorbers originate in a third country that accounts for more than 50% of the supply within the Union of those components.
Solar thermal System B	Only solar glass originate in a third country that accounts for more than 50% of the supply of solar thermal absorbers within the Union.
Solar thermal System C	None of the main specific components originate in a third country that accounts for more than 50% of the supply of those components within the Union.

([9]) According to Commission Implementing Regulation (EU) 2025/1178, solar thermal technologies can feature four main specific components – namely solar thermal collectors, solar thermal absorbers, solar glass and solar thermal trackers. However, not all main specific components are used in every final product. The example assumes that thermal trackers are not used, thus the denominator of the equation in Table 3 is 3 and not 4.

Assuming that, according to the latest version of the Communication on the shares of Union supply, there are three main specific components for which a third country accounts for more than 50% of the supply – namely solar thermal collectors, solar thermal absorbers and solar glass – the resilience contribution could be calculated as shown in Table 2:

Table 2

Example of how the resilience contribution is calculated for three hypothetical solar thermal systems

	Solar thermal System A	Solar thermal System B	Solar thermal System C
Calculation of the resilience contribution	$1 - \frac{2}{3} = 33\%$	$1 - \frac{1}{3} = 67\%$	$1 - \frac{0}{3} = 100\%$

— For solar thermal System A, two main specific components (i.e. solar thermal collectors and solar thermal absorbers) originate in a third country that accounts for more than 50% of the supply within the Union of those components. The third main specific component (i.e. solar glass) originates in a third country that does not account for more than 50% of the supply within the Union (however another third country – that the solar glass does not originate from – does account for more than 50% of the supply within the Union).The resilience contribution is therefore 33%.

— For solar thermal System B, one main specific component originates in a third country that accounts for more than 50% of the supply within the Union. The other two components originate from another third country than the one that accounts for more than 50% of the supply within the Union. The resilience contribution is therefore 67%.

— For solar thermal System C, none of the main specific components originates in a third country that accounts for more than 50% of the supply within the Union. The resilience contribution is therefore 100%.

Determination and proof of the origin of net-zero technologies

Article 28(4), last subparagraph, of the NZIA provides that: *For the purposes of the contribution to resilience …, the country of origin shall be determined in accordance with Regulation (EU) No 952/2013*. This regulation establishes the rules and procedures for customs operations within the EU, which includes the concept of rules of origin to identify the place of origin of a product. The non-preferential rules of origin are indicated in the European Commission's 'Table of list rules conferring non-preferential origin on products (following the classification in the CN)' ([10]). Annex I illustrates the HS headings associated with the net-zero technologies that are most relevant for Article 28 of the NZIA. These headings can be cross-referenced with the European Commission's table to determine the applicable non-preferential rules of origin under the Union Customs Codes.

Economic operators, including manufacturers and sellers, should provide customs declarations as the main documentation to demonstrate compliance with the resilience criterion. For non-preferential origin, the principle of free evidence applies, which entails that a wide range of documents and reliable evidence can be used to proof the place of manufacture or assembly of a product as declared in the customs declarations. These documents could include invoices, product ID numbers, serial numbers or codes, nameplates, certificates of origin, bills of lading and other transport documents, bills of material, suppliers' declarations, delivery notes, contracts with suppliers, factory inspection certificates or manufacturing execution systems.

([10]) European Commission, Table of list rules conferring non-preferential origin on products (following the classification in the CN), https://taxation-customs.ec.europa.eu/table-list-rules-conferring-non-preferential-origin-products-following-classification-cn_en.

While the resilience contribution may need to be verified for each main specific component of a net-zero technology final product (across various tiers of its value chain), customs declarations only provide information on the origin of the main specific components imported into the EU, and not on other main specific components, for example those at a subsequent tier level of the value chain, or those produced in the EU. For this reason – and similarly to the requirement in Article 16(5) of the NZIA implementing act specifying the pre-qualification and award criteria for auctions – customs documentation should be provided where available and may be supplemented by other relevant documents demonstrating the origin or place of assembly of the net-zero technology final products and main specific components in accordance with their non-preferential rules of origin. For instance, in the case of a PV module the custom declaration provides information only on the origin of the PV module itself. To determine the origin of the underlying main specific components (i.e. solar glass, PV cells, PV wafers, PV grade silicon ingots and PV grade polysilicon) other documents among those listed above are necessary.

If a bidder fails to produce a relevant document demonstrating the origin or place of assembly of a final product or main specific component, Member States should automatically consider that those final products or main specific components originate in, or are assembled in, a country on which the EU has a high dependency.

2. Environmental sustainability criterion

According to Article 28(4)(a) of the NZIA, a net-zero technology final product fulfils the environmental sustainability criterion when it goes beyond the minimum requirements in applicable law.

To evaluate a final product's environmental sustainability it is advisable to use existing methodologies wherever possible. Using established approaches avoids the need for new tests and additional documentation, which can be time-consuming and resource-intensive, to be submitted to the public authorities. This pragmatic approach enables potential beneficiaries to apply for schemes without facing undue burdens that might otherwise discourage them from applying.

Annex II provides a non-exhaustive list of existing environmental sustainability requirements in EU law that can be used to assess the environmental sustainability criterion under Article 28 of the NZIA. Public authorities can choose to assess one or more of these requirements. Net-zero technology final products with environmental sustainability features going beyond these minimum requirements should be considered as meeting the environmental sustainability requirement under Article 28 of the NZIA. In practice, this means that public authorities can award a pass mark or a higher mark to net-zero technology final products with environmental sustainability features that are significantly better than those mandated by existing minimum requirements. So, for every environmental sustainability feature that a public authority wants to assess, it should set a threshold that defines what is 'significantly better' than the existing minimum requirements.

The list of existing environmental sustainability requirements provided in Annex II is not exhaustive, meaning that public authorities can also choose to assess other features based on other minimum environmental sustainability requirements in existing national and EU law. In the absence of relevant EU minimum environmental sustainability requirements, public authorities can use national minimum environmental sustainability requirements. In the absence of any relevant requirements, public authorities are encouraged to define requirements for the application of the environmental sustainability criterion based on existing methodologies such as the energy labelling framework laid down in Regulation (EU) 2017/1369 ([11]) or European standards. This will maximise harmonisation across the Member States.

3. Innovation criterion

According to Article 28(4)(b) of the NZIA, a net-zero technology final product that contributes to innovation is one that *provid[es] entirely new solutions or improv[es] comparable state-of-the-art solutions*. The application of this innovation criterion by public authorities aims to incentivise innovative net-zero technology final products that improve performance standards or introduce groundbreaking concepts, thereby delivering additional environmental, economic, and/or social benefits.

([11]) Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU, OJ L 198, 28.7.2017, pp. 1-23.

The use of the innovation criterion should introduce a requirement for the net-zero technology final products to either showcase a significant degree of novelty or to considerably enhance the performance of the technology compared to the state of the art. In both cases, the net-zero technology final product should demonstrate a level of improvement in key performance indicators that goes beyond the state of the art of technologies and solutions that are already available on the market. This can include advancements in materials, design, efficiency or functionality that lead to enhanced performance or a reduced environmental impact of the technology. Annex III provides a non-exhaustive list of innovative features that, at the time of the adoption of this guidance, public authorities could consider sufficient to fulfil the innovation criterion.

In addition, public authorities could also set requirements related to the maturity of the net-zero technology and require manufacturer of the technology to disseminate knowledge of the innovation or to offer licences for research results and development projects which are protected by intellectual property rights at a market price and on a non-exclusive and non-discriminatory basis for use by interested parties in the EEA. This is especially relevant for schemes that focus purely on promoting innovation – as opposed to schemes where innovation is not the main driver for the support but is part of the broader objective of the scheme.

For the assessment of the contribution to innovation of a net-zero technology final product, documentation should be provided to public authorities substantiating the innovation claims. This may include patents or intellectual property documentation, research and development reports, technical product specifications and performance test results to validate the technology's effectiveness.

The level of maturity of the net-zero technology final product should be assessed, where relevant, by means of credible and established methods such as the reference to a technology readiness level.

4. Energy system integration criterion

According to Article 3(30) of the NZIA, energy system integration means *solutions for the planning and operation of the energy system as a whole, across multiple energy carriers, infrastructures, and consumption sectors, by creating stronger links between them with the objective of delivering fossil-free, flexible, reliable and resource-efficient energy services, at the least possible cost for society, the economy and the environment*.

The assessment of the contribution of a net-zero technology final product to energy system integration should therefore consider aspects related to the planning and operation of the energy system, alongside features that enhance interoperability, temporal flexibility, grid services or storage capabilities.

Since net-zero technology final products purchased under Article 28 of the NZIA are used by households, companies or consumers, project-specific information such as location or connections across energy carriers may not be known at the point of sale. The assessment should therefore focus on product-side criteria.

For instance, a product's impact on the planning and operation of the electricity grid can be evaluated through metrics that measure demand-response functionalities, such as response time to fluctuating energy demands, peak shaving capabilities and integrated energy management systems that enhance overall energy system efficiency. In addition, interoperability with other technologies and devices, including the ability to easily connect to various energy carriers, should be assessed to determine the product's integration potential. Temporal flexibility and storage capabilities can be evaluated by examining the product's ability to adjust power output according to demand cycles and to respond to real-time grid signals. This assessment should, unless otherwise justified, include all technologies capable of addressing the energy system needs identified.

Annex IV provides a non-exhaustive list of product features that public authorities could deem sufficient to fulfil the energy system integration criterion.

For the **assessment of the contribution to energy system integration** of a net-zero technology final product, documentation should be provided to public authorities substantiating the energy system integration claim. This may include technical data sheets that outline the product's features, including specifications related to demand-response and peak shaving capabilities, interoperability and storage capacity. Independent lab tests or simulations could verify the functionality and performance metrics of the product.

C. **Illustrative examples of assessment of the sustainability and resilience contribution**

1. Example for solar PV systems

In this example we consider a scheme incentivising the purchase of solar PV systems. The public authority in charge of the scheme has decided to make the eligibility to the scheme conditional on the PV systems' high sustainability and resilience contribution, and to measure this contribution by assessing the resilience criterion, the innovation criterion and the energy system integration criterion. The public authority decides to use a pass or fail marking system. It also sets the assessment method indicated below:

— The resilience of the PV systems is assessed according to Approach A set out in Section IV.B.1 (based on non-price criteria in auctions). The 2025 Communication on the shares of Union supply identifies a high dependency on a single third country for solar PV systems (i.e. the final product) as well as for several of its main specific components (PV modules, PV cells, PV inverters and PV wafers). Solar PV systems will therefore get a pass mark only if the following conditions are met:

  — The final product is not assembled in the third country that accounts for more than 50% of the EU supply;

  — The PV inverter does not originate in that third country;

  — The PV cells or equivalent do not originate in that third country;

  — The PV modules are not assembled in that third country; and

  — At least one other main specific component used does not originate in that third country.

— The innovation of solar PV systems is assessed by reference to Annex III of this document. Solar PV systems will only get a pass mark if they feature at least one of the innovative features in Table 11.

— The energy system integration of solar PV systems is assessed by reference to Annex IV of this document. Solar PV systems will only get a pass mark if they feature at least one of the energy system integration features in Table 12.

Let's consider three solar PV systems, whose characteristics are illustrated in Table 3:

Table 3

List of PV systems with hypothetical characteristics

PV system A	— The PV system is not assembled in the third country that accounts for more than 50% of the EU supply; the PV inverter and PV cell do not originate in that third country. Other components used do. — The PV system is combined with power electronics enabling bidirectional capability
PV system B	— The PV system is assembled in the third country that accounts for more than 50% of the EU supply; the PV inverters, the PV cells and the solar glass do not originate in that third country; the PV module is not assembled in that third country. — The PV system is equipped with a smart inverter communicating with the grid
PV system C	— The PV system is not assembled in the third country that accounts for more than 50% of the EU supply; the PV inverters, the PV cells and the solar glass do not originate in that third country; the PV module is not assembled in that third country. — The PV inverter has enhanced features for PV system performance optimisation. — The PV system is combined with power electronics enabling bidirectional capability

Table 4 shows how the eligibility of those three solar PV systems to the scheme is assessed.

Table 4

Assessment of the eligibility of solar PV systems under a scheme

	PV System A	PV System B	PV System C
Resilience	Fail	Fail	Pass
Innovation	Fail	Fail	Pass
Energy system integration	Pass	Pass	Pass
Eligibility for the scheme	**Not eligible**	**Not eligible**	**Eligible**

2. Example for heat pumps

In this example we look at a scheme incentivising the purchase of heat pumps. The public authority in charge of the scheme has decided to grant additional financial compensation for the purchase of heat pumps that have a high sustainability and resilience contribution. This contribution is measured by assessing the resilience criterion and the environmental sustainability criterion. The public authority decides to use a 'pass or fail' marking system and sets the following assessment method and pass marks:

— The resilience of the heat pumps is assessed according to the calculation method provided in Section B.1 of this document. Since the 2025 Communication on the shares of Union supply does not identify a high dependency for either the heat pumps or their main specific components, all heat pumps get a pass mark for the resilience criterion.

— The environmental sustainability of the heat pumps is assessed based on their energy efficiency in accordance with the Energy Labelling Regulation ([12]). Article 7(2) of that Regulation provides that *where Member States provide incentives for a product specified in a delegated act, those incentives shall aim at the highest two significantly populated classes of energy efficiency, or at higher classes as laid down in that delegated act*. Assuming that the highest two significantly populated classes of energy efficiency for heat pumps are A++ and A+++, the pass mark is set at A++.

Let's consider three heat pumps, whose characteristics are illustrated in Table 5:

Table 5

List of heat pumps with hypothetical characteristics

Heat pump A	— The manufacturer demonstrates the heat pump is of class A.
Heat pump B	— The manufacturer demonstrates the heat pump is of class A++.
Heat pump C	— The manufacturer demonstrates the heat pump is of class A+++.

([12]) Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU.

Table 6 shows how the eligibility of those three heat pumps for additional financial compensation is assessed.

Table 6

Example of assessment of the eligibility for additional financial compensation for heat pumps

	System A	System B	System C
Resilience criterion	No dependencies → **Pass mark**	No dependencies → **Pass mark**	No dependencies → **Pass mark**
Environmental sustainability criterion	A < A++ → **Fail mark**	A++ = A++ → **Pass mark**	A+++ > A++ → **Pass mark**
Eligibility for additional financial compensation	**Not eligible**	**Eligible**	**Eligible**

3. Example for electric propulsion systems for road transport

In the third example we consider a scheme incentivising the purchase of electric propulsion systems for road transport. The public authority in charge of the scheme has decided to grant additional financial compensation for the purchase of electric propulsion systems that have a high sustainability and resilience contribution. This contribution is measured by assessing the resilience criterion and the environmental sustainability criterion. The public authority decides to use a pass or fail marking system and sets the assessment method and pass marks indicated below:

— The resilience of the electric propulsion systems is assessed according to the calculation-based approach set out in Section B.1 of this document. For this example, we assume that, according to the latest version of the Communication on the shares of Union supply, a single third country accounts for more than 50% of the supply within the EU of the electric propulsion systems and of four of its main specific components. The pass mark is set at 30%.

— The environmental sustainability of the electric propulsion systems is assessed based on the presence of hazardous substances in the transport battery pack. The public authority decides that electric propulsion systems get a pass mark if the percentage share of mercury is at least 30% lower than the maximum allowed under the Battery Regulation, i.e. maximum 0.00035%.

Let's consider three electric propulsion systems for road transport, whose characteristics are illustrated in Table 7:

Table 7

List of electric propulsion systems for road transport with hypothetical characteristics

System A	— The electric propulsion system, as well as three of its main specific components, originate in the third country that accounts for more than 50% of the supply within the EU of electric propulsion systems. — The manufacturer demonstrates that the transport battery pack contains 0.001% of mercury.
System B	— The electric propulsion system originates in the EU, but one main specific component originates in the third country that accounts for more than 50% of the supply of that component within the EU. — The manufacturer demonstrates that the transport battery pack contains 0.00025% of mercury.
System C	— The electric propulsion system and all its main specific components originate in the EU. — The manufacturer demonstrates that the transport battery pack contains 0.0005% of mercury.

Table 8 shows how the eligibility of those three electric propulsion systems for additional financial compensation is assessed:

Table 8

Example of assessment of the eligibility for additional financial compensation of electrical propulsion systems for road transport

	System A	System B	System C
Resilience criterion	$1 - \frac{3}{4} = 25\% < 30\%$ → **Fail mark**	$1 - \frac{1}{4} = 75\% > 30\%$ → **Pass mark**	$1 - \frac{0}{4} = 100\% > 30\%$ → **Pass mark**
Environmental sustainability criterion	0.001% > 0.00035% → **Fail mark**	0.00025% < 0.00035% → **Pass mark**	0.0005% > 0.00035% → **Fail mark**
Eligibility for additional financial compensation	**Not eligible**	**Eligible**	**Not eligible]**

V. TRANSPARENCY, NON-DISCRIMINATION AND ACCESS TO INFORMATION

Article 28(3) and (5) of the NZIA lay down requirements regarding transparency, non-discrimination and access to information. This chapter provides guidance on how to implement them.

In addition, public authorities are encouraged to consult stakeholders and to ensure good communication with them when applying Article 28 of the NZIA. For instance, to communicate which schemes they plan to create and/or update, how they will calculate the resilience contribution, which environmental sustainability, innovation or energy system integration features they will assess, and which marking systems and pass marks they aim to set. This will help increase legal certainty and maximise the potential of the provisions of Article 28 of the NZIA for making Europe's net-zero technologies more sustainable and resilient.

A. An open, non-discriminatory and transparent process

In accordance with Article 28(3) of the NZIA, public authorities *shall assess the resilience and sustainability contribution of available net-zero technology final products on the market on the basis of an open, non-discriminatory and transparent process*. The following guidelines apply to this assessment:

Openness

According to Article 28(3) of the NZIA *any net-zero technology final product shall be entitled to apply to join the scheme at any time*. Manufacturers of net-zero technologies or consumers purchasing them should be able to reach out to public authorities in charge of the schemes at any time to submit evidence that the net-zero technology final product meets the requirements of the scheme and should give access to the benefits from the scheme.

Non-discrimination

Public authorities should design and implement schemes under Article 28 of the NZIA using transparent and objective criteria and methodologies. Schemes should not be designed or implemented in such a manner that they benefit only specific companies, in particular national companies. All net-zero technology final products applying to join the scheme should get the same treatment and be assessed in the same way unless objectively justified.

Transparency

Public authorities in charge of a scheme should publish the assessment criteria and procedures when launching the scheme. This should include the following elements:

— Which criteria will be taken into consideration (i.e. resilience, environmental sustainability, innovation or energy system integration);

— Which final product features will be used to assess each of the criteria (e.g. energy efficiency could be used to assess the environmental sustainability criterion);

— Which marking system will be used (pass/fail or graded scale);

— Which pass marks will be used.

B. **Availability of information**

Article 28(5) of the NZIA, states that public authorities *shall publish on a single free access website all information relating to schemes […] for each relevant net-zero technology final product*. The website should ensure transparency and predictability by providing comprehensive information on the schemes, both for economic operators and for consumers.

— For economic operators, it should include a description of the scheme, the eligibility criteria and assessment procedure (as mentioned in Section V.A of this document), as well as information on how to submit evidence to demonstrate that their final product complies with the requirements under the scheme and should entitle purchasers to benefit from eligibility under the scheme or additional financial compensation. , . It could also include information to guide them on how to demonstrate that their products meet the requirements for.

— For consumers, the website should include the description of the scheme as well as an updated list of all the net-zero technology final products that grant them eligibility for the scheme or for additional financial compensation. This will ensure legal certainty and ease of use for the consumers. It should also allow consumers to submit evidence themselves in case the final product they intend to purchase is not (yet) on the list and provide information on how to do so.

The website should be freely accessible and provide contact information for further support to both economic operators and consumers.

ANNEX I

HS HEADINGS TO DETERMINE THE RULES OF ORIGIN FOR NET-ZERO TECHNOLOGIES RELEVANT TO ARTICLE 28 OF THE NZIA

Table 9 presents a comprehensive overview of the HS headings associated with the net-zero technologies that are most relevant for Article 28 of the NZIA, which once cross-referenced with the European Commission's 'Table of list rules conferring non-preferential origin on products (following the classification in the CN)' will provide the non-preferential rules of origin applicable to such net-zero technologies ([1]). This information serves as a crucial reference for stakeholders seeking to understand how to determine the origin of these technologies within the EU.

Table 9

HS headings associated to net-zero technology final products and main specific components relevant to Article 28 of the NZIA

Net-zero technology final product	Components	HS heading
Solar PV systems	PV grade polysilicon	2804
	PV grade silicon ingots or equivalent	2804
	PV wafers or equivalent	3818
	PV cells or equivalent	ex 8541 (a)
	Solar glass	7005
		ex7006(b)
		7007
	PV modules	ex 8541 (a)
	PV inverters	8504
	PV trackers and their specific mounting structures	8479
Solar thermal systems	Solar thermal collectors (including flat-plate, evacuated tube, concentrating systems and air collectors)	8419
	Solar thermal absorbers	8419
	Solar glass	7005
		ex7006(b)
		7007
	Solar thermal trackers and their specific mounting structures	8479

([1]) European Commission, Table of list rules conferring non-preferential origin on products (following the classification in the CN), https://taxation-customs.ec.europa.eu/table-list-rules-conferring-non-preferential-origin-products-following-classification-cn_en.

Net-zero technology final product	Components	HS heading
Batteries	Battery packs	8507
	Battery modules	8507
	Battery cells	8507
	Cathode active materials	2842
		2841
	Anode active materials	3801 10
	Electrolytes	2826
	Separators	8507
	Current collectors (including thin copper, aluminium, nickel and carbon foils)	7410
		7607 11
		7607 19
		ex7506(a)
	Battery management systems (BMS)	8537
Heat Pumps	Heat pumps	8418
	For way-valves	8481
	Scroll compressors/heat pump rotary compressors	8414
EV Supply Equipment	EV Supply Equipment	8504
		8537
Electric propulsion systems for road and off-road transport	Transport propulsion electric motors	ex 8501 (B)
	Permanent magnets of transport electric motors	8505
	Transport battery packs	8505
	Transport fuel cells	ex 8501 (B)
	Transport inverters	8504
	Onboard chargers	8504
		8537

Notes: ***The HS headings associated to the following main specific components have not been included because they are still under evaluation: Battery thermal management systems (BTMS), Electric propulsion high voltage power distribution units, Onboard hydrogen storage tanks.***

ANNEX II

EXAMPLES OF EXISTING ENVIRONMENTAL SUSTAINABILITY MINIMUM REQUIREMENTS

This Annex provides a non-exhaustive list of existing environmental sustainability requirements in EU law that could be used to implement the environmental sustainability criterion under Article 28 of the NZIA. In the future, it is very likely that further environmental sustainability requirements will be adopted, for instance under the Regulation establishing a framework for the setting of ecodesign requirements for sustainable products ([1]). These will impose additional minimum requirements and provide methodologies that can serve as references and tools for applying the environmental sustainability criterion under Article 28 of the NZIA.

PV systems

— To date, there are no minimum requirements on the environmental sustainability of PV modules and inverters in existing EU legislation. Therefore, public authorities should refer to national minimum requirements on environmental sustainability. In the absence of relevant requirements, public authorities are encouraged to define requirements for the application of Article 28 of the NZIA based on existing methodologies, with a view to ensuring harmonisation across the EU. For example, the circularity of products could be evaluated using the European standard EN 45554: General methods for the assessment of the ability to repair, reuse and upgrade energy-related products.

Solar thermal technologies

— The Ecodesign Directive and its implementing Commission Regulation (EU) 814/2013 ([2]) set minimum requirements on the energy efficiency of water heaters as well as maximum levels for the emissions of nitrogen oxides by water heaters (see Annex II to Commission Regulation (EU) 814/2013). These values can be used as minimum requirements under Article 28 of the NZIA. Therefore, public authorities can decide to give a pass mark/higher mark to solar thermal technologies with a significantly better energy efficiency or with significantly lower nitrogen oxide emissions.

Batteries

— The Batteries Regulation ([3]) restricts the use of hazardous substances in batteries (see Article 6 of and Annex I to that Regulation). It sets maximum percentage shares for the presence of mercury, cadmium and lead in batteries. These values can be used as minimum requirements under Article 28 of the NZIA. Public authorities can give a pass mark/higher mark to batteries containing less mercury, cadmium and lead than laid down in the Batteries Regulation.

— As of August 2026, the Batteries Regulation will set minimum requirements on recycled content in certain types of batteries (see Article 8 of the Regulation): it will lay down minimum percentage shares of cobalt, lead, lithium and nickel present in batteries that should be recycled, i.e. recovered from waste. Once they enter into force, these requirements can be used as a reference when applying the environmental sustainability criterion of Article 28 of the NZIA. For instance, public authorities may decide that batteries containing a share of recycled content exceeding the applicable minimum requirements get a pass mark or they can allocate marks to batteries based on the extent to which the share of recycled content exceeds those minimum requirements.

([1]) Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 establishing a framework for the setting of ecodesign requirements for sustainable products, amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and repealing Directive 2009/125/EC, OJ L, 2024/1781, 28.6.2024, ELI: https://eur-lex.europa.eu/eli/reg/2024/1781/oj/eng.

([2]) Commission Regulation (EU) No 814/2013 of 2 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for water heaters and hot water storage tanks, OJ L 239, 6.9.2013, p. 162.

([3]) Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC.

— As of 2027 and 2028, the Batteries Regulation and two of its delegated acts (still to be adopted – see Article 10 of and Annex IV to the Regulation) will set minimum requirements in terms of electromechanical performance and durability of batteries (such as the lifetime of batteries) for certain types of batteries. Once they enter into force, these requirements can also be used as minimum requirements under Article 28 of the NZIA. Therefore, public authorities can give a pass mark or allocate higher marks to batteries with an electromechanical performance or durability going significantly beyond those minimum requirements.

— In the future, the Batteries Regulation and its delegated acts (still to be adopted – see Article 7(3) of that Regulation) will set maximum thresholds for the life-cycle carbon footprint of certain types of batteries. Once they enter into force, these thresholds can also be used as minimum requirements under Article 28 of the NZIA. Therefore, public authorities can give a pass mark or allocate higher marks to batteries with a life-cycle carbon footprint that is significantly lower than the thresholds laid down in the delegated acts.

Heat pumps

— Two Ecodesign Regulations ([4]) set minimum energy efficiency requirements for different kinds of heat pumps (see Annex II to the Regulations). Article 7(2) of the Energy Labelling Regulation ([5]) goes beyond those minimum requirements by conditioning Member State incentives for certain products to more ambitious energy efficiency requirements: *where Member States provide incentives for a product specified in a delegated act, those incentives shall aim at the highest two significantly populated classes of energy efficiency, or at higher classes as laid down in that delegated act*. For heat pumps, relevant delegated acts include Commission Delegated Regulation (EU) No 811/2013 ([6]) and Commission Delegated Regulation (EU) No 812/2013 ([7]). Therefore, public authorities can allocate higher marks to heat pumps meeting the requirements laid down in those delegated acts.

— The F-gas Regulation ([8]) sets requirements relating to the global warming potential (GWP) of refrigerants used in heat pumps, air conditioning and refrigeration systems (see Annex IV to the F-gas Regulation). It prohibits the placing on the market of equipment with a certain level of GWP. Depending on the type of equipment and the gas in use, the prohibitions will enter into force at different dates. Therefore:

  — Before the prohibitions enter into force, public authorities can allocate higher marks to equipment that already now meets the future thresholds laid down in Annex IV to the F-gas Regulation, including those which require equipment not to contain fluorinated greenhouse gases at all.

  — Before and after the prohibitions enter into force, public authorities can allocate higher marks to equipment being placed on the market that goes significantly beyond the minimum required thresholds laid down in Annex IV to the F-gas Regulation, be it in relation to the GWP of the refrigerant in use, or to the presence or absence of fluorinated greenhouse gases in the equipment.

([4]) Commission Regulation (EU) No 813/2013 of 2 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters; and Commission Regulation (EU) 2016/2281 of 30 November 2016 implementing Directive 2009/125/EC of the European Parliament and of the Council establishing a framework for the setting of ecodesign requirements for energy-related products, with regard to ecodesign requirements for air heating products, cooling products, high temperature process chillers and fan coil units.

([5]) Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU.

([6]) Commission Delegated Regulation (EU) No 811/2013 of 18 February 2013 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to the energy labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control and solar device (OJ L 239, 6.9.2013).

([7]) Commission Delegated Regulation (EU) No 812/2013 of 18 February 2013 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to the energy labelling of water heaters, hot water storage tanks and packages of water heater and solar device (OJ L 239, 6.9.2013).

([8]) Regulation (EU) 2024/573 of the European Parliament and of the Council of 7 February 2024 on fluorinated greenhouse gases, amending Directive (EU) 2019/1937 and repealing Regulation (EU) No 517/2014.

Electric vehicles supply equipment (EVSE)

— The Restriction of Hazardous Substances Directive ([9]) sets maximum concentration values for the presence of hazardous substances in electrical and electronic equipment (see Article 4 of and Annex II to the Directive). These requirements apply to certain components of EVSE such as cables, plastic enclosures and printed circuit boards. They can be used as minimum requirements under Article 28 of the NZIA. Public authorities can therefore give a pass mark or allocate higher marks to EVSE that contain significantly less hazardous substances than the thresholds set in the Directive.

Electric propulsion systems for road transport

— The Batteries Regulation ([10]) restricts the use of hazardous substances in batteries (see Article 6 of and Annex I to the Regulation). It sets a maximum percentage share (0.0005%) for the presence of mercury in electric vehicle batteries. This can be used as a minimum requirement under Article 28 of the NZIA. Public authorities can decide to give a pass mark/higher mark to electric propulsion systems with batteries containing significantly less mercury than laid down in the Batteries Regulation.

— As of August 2026, the Batteries Regulation ([11]) will set minimum requirements on recycled content in electric vehicle batteries (see Article 8 of the Regulation): it will lay down minimum percentage shares of cobalt, lead, lithium and nickel present in batteries that should be recycled, i.e. recovered from waste. Once they enter into force, these requirements can be used as a reference for applying the environmental sustainability criterion of Article 28 of the NZIA. For instance, public authorities can decide that electric propulsion systems with a battery containing a share of recycled content significantly exceeding the applicable minimum requirements get a pass mark or they can allocate marks to electric propulsion systems based on the extent to which the share of recycled content in their batteries exceeds those minimum requirements.

— As of August 2026, the Batteries Regulation and one of its delegated acts (still to be adopted – see Article 7(3) of that Regulation) will set minimum requirements for the carbon footprint of electric vehicle batteries. Once they enter into force, these requirements can also be used as minimum requirements under Article 28 of the NZIA. Therefore, public authorities can give a pass mark or allocate higher marks to electric propulsion systems for road transport that have a battery with a carbon footprint which is significantly lower than the minimum requirement.

— Regulation (EU) 2024/1257 ([12]) sets minimum battery durability requirements (see Article 6 of and Annex II to the Regulation) that can be used as minimum requirements under Article 28 of the NZIA. Public authorities can decide to give a pass mark/higher mark to electric propulsion systems with a battery durability that is significantly better than the minimum requirement.

([9]) Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (recast).

([10]) Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC.

([11]) Ibid.

([12]) Regulation (EU) 2024/1257 of the European Parliament and of the Council of 24 April 2024 on type-approval of motor vehicles and engines and of systems, components and separate technical units intended for such vehicles, with respect to their emissions and battery durability (Euro 7), amending Regulation (EU) 2018/858 of the European Parliament and of the Council and repealing Regulations (EC) No 715/2007 and (EC) No 595/2009 of the European Parliament and of the Council, Commission Regulation (EU) No 582/2011, Commission Regulation (EU) 2017/1151, Commission Regulation (EU) 2017/2400 and Commission Implementing Regulation (EU) 2022/1362, OJ L, 2024/1257, 8.5.2024, ELI: http://data.europa.eu/eli/reg/2024/1257/oj.

ANNEX III

EXAMPLES OF INNOVATIVE FEATURES

Table 10 provides a non-exhaustive list of innovative features that public authorities might consider sufficient to fulfil the innovation criterion when assessing the sustainability and resilience contribution of net-zero technology final products. It covers the net-zero technology final products that are the most relevant for Article 28 of the NZIA. This list reflects the state of the art of net-zero technology final products at the end of 2025. However, what is considered innovative is bound to evolve over time, as new advancements and technological solutions are developed. Up to date information on innovative features and technology maturity can be found in databases such as the International Energy Agency's Clean Energy Technology Guide ([1]).

Table 10

Examples of innovative features deemed sufficient to fulfil the innovation criterion in 2025

Net-zero technology final product	Innovative feature *(based on state of the art in 2025)*
Solar PV systems	PV modules based on perovskite and perovskite c-Si tandem PV cells
	PV modules based on multi-junction PV cells
	Agrivoltaic and building integrated PV systems
	PV modules with integrated back contact and heterojunction PV cells
	PV modules with increased or controlled transparency
	Inverters with enhanced features for PV system performance optimisation, energy system integration or cybersecurity
Solar thermal systems	Building integrated solar thermal systems
Batteries	Solid-state batteries (including with hybrid/semi-solid electrolyte)
	Lithium-sulphur batteries
	Highly durable batteries for stationary applications
	High energy density batteries
	Critical Raw Minerals-free batteries
Heat pumps	Thermoacoustic heating and cooling
	High-temperature heat pumps
	Solid-state cooling
	Technologies that are not vapour compression and not absorption-based
EV supply equipment	Inductive charging
	Designs equipped with diagnostics for predictive maintenance
	Compact designs
	Modular designs, where components can be easily replaced or upgraded
	Designs eliminating the need for trenching or foundations

([1]) International Energy Agency, ETP Clean Energy Technology Guide, https://www.iea.org/data-and-statistics/data-tools/etp-clean-energy-technology-guide.

Net-zero technology final product	Innovative feature *(based on state of the art in 2025)*
Electric propulsion systems for road transport	Modular electric powertrains, where components can be easily replaced or upgraded
	Solid-state batteries
	Lithium-sulphur batteries
	Axial flux motors
	Switched reluctance motors
	Induction motors
	Synchronous reluctance motors
	Advanced ferrite-based motors
	Advanced silicon carbide gallium nitride inverters

ANNEX IV

EXAMPLES OF ENERGY SYSTEM INTEGRATION

Table 11 provides a non-exhaustive list of the features that public authorities might consider sufficient to fulfil the energy system integration contribution when assessing the sustainability and resilience contribution of net-zero technology final products. This list considers the capacity of products to enable high connectivity and active grid integration and to support better planning and efficient operation of the energy system. It also considers the capacity of products to enhance the grid's flexibility by integrating storage capacity and peak shaving functionalities, as well as their interoperability.

Table 11

Examples of technical features deemed sufficient to fulfil the energy system integration criterion

Net-zero technology final product	Condition for fulfilling the energy system integration criterion
Solar PV systems	Grid feed-in flexibility ([1])
	Integrated with battery storage
	Combined with EV supply equipment
	Equipped with a smart inverter communicating with the grid (e.g. for demand response and frequency regulation)
Solar thermal systems	Combined with heat pumps or district heating
Batteries	Combined with power electronics enabling bidirectional capability
	Frequency regulation capability
	Fast response time capability
	Grid services capability
	Black start capability ([2])
Heat pumps	Heat pumps with a PV-ready label
	Compliance with the code of conduct on energy smart appliances developed by JRC ([3])
	Absorption or adsorption heat pumps combined with waste heat recovery or with solar thermal systems
	Equipped with smart control capabilities (e.g. capacity to switch off in case of underfrequency in the electricity grid)
EV supply equipment	Demand-side response capability
	Equipped with bidirectional capability (e.g. vehicle-to-grid, vehicle-to-home, vehicle-to-load)
	Combined with a solar PV system
Electric propulsion systems for road transport	Equipped with bidirectional capability
	Integrated with equipment enabling demand-side response capability
	Equipped with connectivity and internet of things features to communicate with smart grids
	Frequency regulation capability

([1]) PV system equipped with a smart inverter control to assist voltage/frequency regulation.
([2]) 'Black start capability' refers to the ability to provide initial power in the event of a grid outage to support the restoration of grid power without requiring an external power source.
([3]) Code of Conduct on energy management related interoperability of Energy Smart Appliances (Version 1.0) (https://ses.jrc.ec.europa.eu/development-of-policy-proposals-for-energy-smart-appliances).