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Guidance to Member States on auction design for renewable energy

Accompanying the document

Commission Recommendation

on auction design for renewable energy

{C(2024) 2650 final}

Contents

INTRODUCTION

Renewable energy is rapidly expanding, facilitated largely by auctions run by Member States. In 2022, the European Union (EU) had 16 GW of offshore wind power capacity, 187 GW of onshore wind power and 203 GW of solar photovoltaic generation capacity[1]. The rapid expansion has also been facilitated inter alia by falling costs of renewable sources, notably solar and wind.[2] Furthermore, electricity generated from wind and solar represented 16% and 7% of the electricity mix, respectively, leading to a total of 23%[3]. The installed capacity of these two technologies will need to more than double by 2030 in order to reach the EU's binding target of a 42.5% share of renewable energy in gross final energy consumption.

Even though market-based deployment of renewable energy is on the rise, it continues to be mostly driven by support schemes[4]. By 2024, 25 Member States[5] were implementing or were in the process of implementing auctions to determine the level of financial support for renewable energy technologies in a competitive manner[6]. Auctions have been instrumental in optimising the level of public support[7]. The graph below shows the distribution of auctions by technology, including unawarded capacities, across a selection of Member States and the UK over the last 3 years[8].

1 Eurostat, Electricity production capacities for renewables and wastes.

2 Irena (2023): Renewable Power Generation Costs in 2022. According to Irena, in Europe LCOE for on-shore wind decreased from 2010 to 2022 by 67% and for utility scale solar PV the weighted average cost of electricity decreased by 80% in Germany, 85% in France, Italy by 85%.

3 Fraunhofer based on ENTSO-E Transparency Platform data.

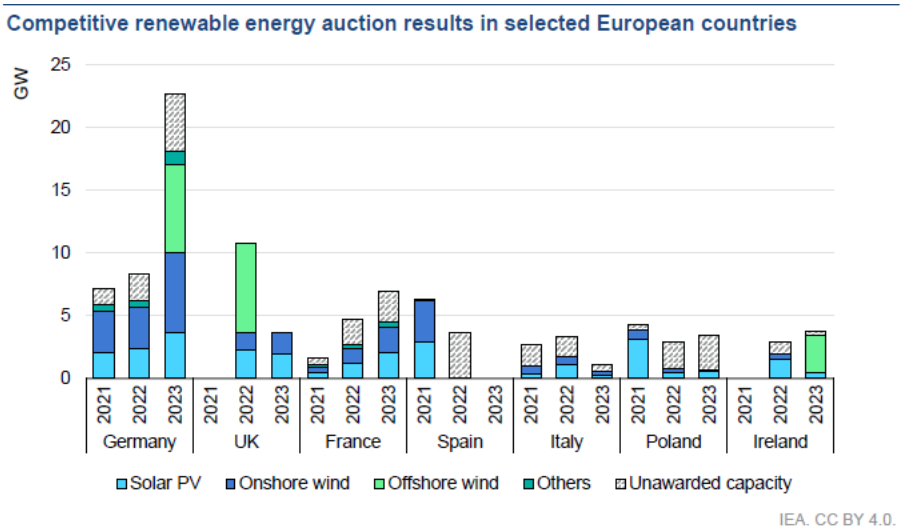
4 Renewable energy projects are constructed with and without public support. When they involve public support, it is mostly allocated through auctions. However, auctions can also be used to allocate projects which do not require support, in line with the Commission Notice on the Notion of Aid as referred to in Article 107(1) of the Treaty on the Functioning of the European Union, (OJ C 262/1 19.7.2016) , and are financed on a purely commercial basis, either through power purchase agreements and/or through sales to the wholesale electricity markets. This has been the case for some offshore wind projects where the use of seabed, a public resource, is also allocated through the auction. PV and onshore wind projects are also built on a purely commercial basis without the need of an auction organised by the Member State since those are built on private properties.

5 Currently CY and SE have not implemented auctions.

6 CEER Report 'Status Review of Renewable Support Schemes in Europe for 2020 and 2021', C22-RES-80-04 28 September 2023, and Commission analysis.

7 European Commission, Directorate-General for Energy (2022), Chema Zabala, Alfa Diallo: "Study on the performance of support for electricity from renewable sources granted by means of tendering procedures in the Union 2022".

8 International Energy Agency (2024) Renewables 2023: Analysis and forecasts to 2028.



Source: IEA (2024)[9]

Auctions[10] (or tenders) to deploy renewable sources include procedures to allocate public support for the building of the renewable installations (e.g. taking the form of two-way contracts for difference or investment grants) and/or the rights to develop a project to a developer through a competitive process (e.g. awarding scarce resources such as seabed or grid connection). Auctions for renewable sources can involve State aid or not[11]. The International Energy Agency estimates that competitive auctions will account for 70% of Europe's renewable capacity growth between 2023 and 2028 (see graph below) [12].

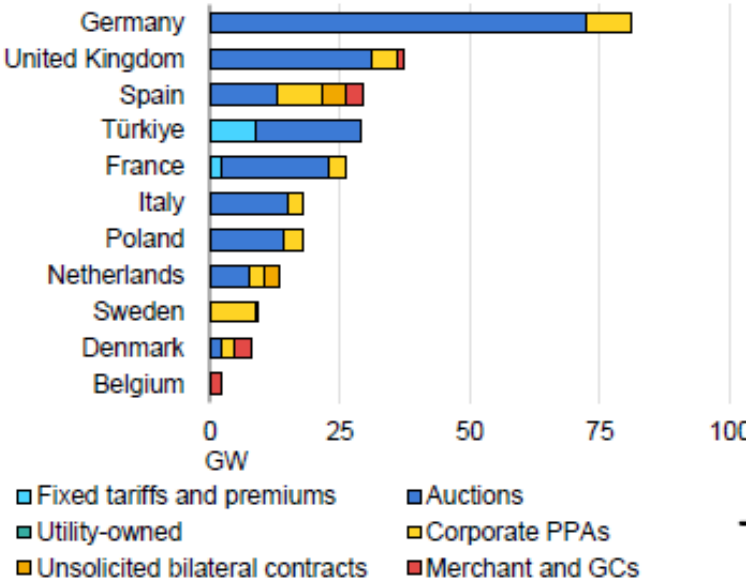
9 Unawarded capacity represents capacity which was auctioned but finally not awarded.

10 An auction (or tender) is a market mechanism which aims to allocate goods in case of excess supply and price discovery for goods with unknown market prices from an auctioneer's perspective. The allocation is based solely on the bids submitted by the participating bidders according to transparent awarding rules. (Aures2 available http://aures2project.eu/glossary-terms/tender/). Renewable energy auction design options differ across Member States, and the different setups may lead to completely different performances. According to IRENA, auction design elements can be classified into four main categories: (i) auction demand (i.e. defining the auction volume and how it is divided between different technologies and project sizes), (ii) qualification requirements (i.e. minimum requirements for participation in the auction), (iii) winner selection process (i.e. how the eligible bids are ranked), and (iv) risk allocation and remuneration (i.e. rules to ensure the timely and complete implementation of the awarded projects) (see IRENA, Renewable energy auctions: Status and trends beyond price, IRENA, Abu Dhabi, 2019). While these categories are relevant for all technologies, certain aspects within each category are specific for the wind technology.

11 Commission Notice on the Notion of Aid as referred to in Article 107(1) of the Treaty on the Functioning of the European Union, (OJ C 262/1 19.7.2016), see paragraphs 74, 94, 95 and 96.

12 International Energy Agency (2024) Renewables 2023: Analysis and forecasts to 2028.

European renewable electricity capacity procurement by type (2023-2028)



IEA, CC by 4.0

Source: IEA (2024)

Most auctions in the EU have been solely based on price aiming to minimise the support required to deploy renewable energy sources[13]. However, there are other policy aspects that cannot be captured solely based on the price dimension. Some auctions have so far included objectives such as system integration of renewable energy, environmental protection, social benefits for the local communities or fostering innovative solutions, amongst others. In that respect, the Climate, energy and environmental aid guidelines (the "CEEAG")[14] and the Temporary Crisis and Transition Framework (the "TCTF")[15] allow the use of non-price criteria to pursue different objectives when granting State aid[16].

This guidance implements Action 4 of the Wind power action plan of 24 October 2023[17], according to which Member States should include in their auctions objective, transparent and non-discriminatory qualitative criteria and measures to maximise the execution rate of the projects. In doing so, this guidance suggests standard elements to auctions in accordance with Union legislation on establishing a framework of measures for strengthening Europe's net-zero technology manufacturing ecosystem. This guidance builds upon existing auction experience, focuses on key elements of the auctions for renewable energy technologies, some of which have particular importance for wind projects, both onshore and offshore, and suggests options for those elements that make auction design more uniform and efficient.

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13 See European Commission, Directorate-General for Energy (2022), Chema Zabala, Alfa Diallo: "Study on the performance of support for electricity from renewable sources granted by means of tendering procedures in the Union 2022", and Report from the Commission on the performance of support for electricity from renewable sources granted by means of tendering procedures in the Union, COM(2022) 638 final.

14 Communication from the Commission - Guidelines on State aid for climate, environmental protection and energy 2022 (OJ C 80, 18.2.2022)

15 Communication from the Commission Temporary Crisis Framework for State Aid measures to support the economy following the aggression against Ukraine by Russia (OJ C 101/3, 17.3.2023)

16 CEEAG on points 49 and 50 and TCTF points 77.f.(i) and 78.f.(i).

17 COM(2023) 669 final.

This guidance is structured as follows. First, it describes a number of general principles that apply to renewable energy auctions. Second, it describes specific aspects of auction design. These include the use of non-price criteria in auction design, either as pre-qualification or as award criteria, measures aimed at incentivising the full and timely project competition, the use of negative bidding and bid ceilings. Third, the guidance describes measures on levelling the playing field for renewable energy communities and SMEs.

GENERAL PRINCIPLES BEHIND THE GUIDANCE ON AUCTION DESIGN

This section describes general principles that are common to all renewable energy auctions and should be considered in their design.

1. Contribute to rapid, efficient and sustainable renewables deployment and provide value for the sector

Whatever the choice of auction design is, it should promote the rapid, efficient and sustainable deployment of renewable energy across the EU. The renewables deployment contributes directly to the EU's ambitious decarbonisation goals. Renewable deployment can be achieved either through publicly or privately supported projects. Auctions should be designed so as not to crowd out the latter, since the market will need to deliver the bulk of the investments needed to achieve the EU's objectives. For example, for offshore wind, Member States auction out the right to exploit the seabed and projects can either receive public support or be financed through power purchase agreements and direct sales to the electricity markets. The complementarities between both avenues for deployment are necessary to maximise renewable deployment.

To ensure visibility of the auction pipeline which is necessary for the sector, including developers and the whole value chain to prepare well for the tenders and make the necessary investments, it is essential that Member States announce the long-term schedule of expected allocation of support for renewable energy sources. The schedule should cover at least the next 5 years, including indicative timing, the frequency of tendering procedures, the expected capacity and budget or maximum unitary support expected to be allocated and the expected eligible technologies[18]. These announcements should be as committal as possible to provide the right signals to investors to shape their investment plans and to the supply chain to make the necessary investments to meet the needs resulting from these tenders. A good way of increasing transparency, harmonisation and certainty to the market actors across the Union and facilitating the necessary investments to meet their deployment needs would be for the Member States to publish information on their auction schedule in the dedicated Union interactive platform set up by the Commission.

Furthermore, the implementation deadline for projects must be set taking into account the risk of delays linked to the auction's own objectives. For example, in France, the implementation

[18] Article 6.3 of Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources as amended by Directive (EU) 2023/2413. In case of budgetary constraints this announcement can be limited to the next 3 years.

deadline for photovoltaic ('PV') projects had to be extended from 24 to 30 months because suppliers needed more time to procure PV components with the required characteristics[19].

Allocating support to renewables through competitive auctions can also strengthen the competitiveness of the sector, including the manufacturing segment. This can result in efficiencies and innovation which lower the cost of production[20]. It is commonly recognized that the effect of competition on innovation depends on whether the market is contestable, in the sense that innovators can temporarily escape competition, and whether the innovation is appropriable, meaning that successful innovators can capture the benefit from innovation, at least temporarily[21]. In this sense, auctions and in particular the inclusion of non-price criteria rewarding quality can support an innovative and competitive industry and at the same time keep the costs for the public support in check.

2. Ensure the auction design guarantees a competitive bidding process

For an efficient auction outcome, it is essential that it is designed to ensure a competitive bidding process. In line with the Renewable Energy Directive (RED)[22], support for electricity from renewable sources should be granted in an open, transparent, competitive, non-discriminatory and cost-effective manner. This is further developed in the CEEAG and in Union legislation on the electricity market design[23].

The bidding process is considered competitive[24] when it is open, clear, transparent and non-discriminatory, based on objective criteria that are pre-defined in line with the objective of the measure and minimising the risk of strategic bidding[25]. The criteria must be published ahead of the deadline for submissions of applications to enable effective competition. While 6 weeks should usually be sufficient, more complex and novel processes may need a longer time-period. The budget or volume related to the bidding process is a binding constraint, meaning that, if the process is successful, not all bidders are going to win, and the expected number of bidders is sufficient to ensure effective competition. If auctions are undersubscribed the

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19 German Energy Agency (DENA) (2023): Demand for 'Made in Europe': Use of qualitative tender criteria for : Onshore wind and PV

20 OECD (2023): Competition and Innovation a Theoretical Perspective and European Commission, Directorate-General for Energy (2022), Chema Zabala, Alfa Diallo: "Study on the performance of support for electricity from renewable sources granted by means of tendering procedures in the Union 2022". The latter article shows a positive but limited impact of auctions on innovation. However, the study does not assess the impact on innovation of auctions including specific non-price criteria promoting innovation and knowledge sharing.

21 See for instance, ibid OECD (2023) and Shapiro, C. (2011) "Competition and Innovation: Did Arrow Hit the Bull's Eye?" NBER Chapters, in: The Rate and Direction of Inventive Activity Revisited, pages 361-404, National Bureau of Economic Research, Inc.

22 See Article 4.4 of the Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources as amended by Directive 2023/2413.

23 The text of the provisional agreement between the European Parliament and the European Council is available here https://www.consilium.europa.eu/en/press/press-releases/2023/12/14/reform-of-electricity-market-design-council-and-parliament-reach-deal/

24 See paragraph 49 of the CEEAG.

25 Strategic bidding in this context refers to a behaviour by one or more bidders aimed at exercising market power to affect the outcome of the auction to obtain higher revenues.

design should be corrected to restore effective competition in subsequent bidding processes. Adjustment made after the bidding process outcome should be avoided as it may limit its efficiency and increases the risk of legal challenges.

The competitive nature of the auctions must be preserved when designing the rules of the tender. Excessively stringent pre-qualification requirements or very low bid ceilings may limit the competitive nature and efficiency of the auction. The objectives pursued when including non-price criteria either as pre-qualification requirements or award criteria or deciding the level of the bid ceiling need to be carefully selected and designed to ensure the competitive nature of the auction.

3. Ensure legal certainty

The legal certainty of the auction is fundamental to ensure that the objective pursued is delivered. Lack of legal certainty is likely to result in legal challenges, bringing in possible delays and reduced investor certainty. Ultimately, it may jeopardise the deployment of renewable energy sources.

Tender rules must be clear to guarantee the objective, transparent and non-discriminatory nature of the process. For instance, when using non price award criteria which assess the quality of the different bids, they should be assessed against quantitative indicators which should be transparent and wellknown to all bidders ahead of the auction. More qualitative assessments parameters can be accepted for non-price award criteria. For instance to encourage some type of innovation and knowledge sharing when no quantitative parameters can be applied. Their use needs to be considered carefully in order to avoid potential legal risks.

To rank the contribution towards environmental or sustainability objectives of certain non-price criteria such as circularity or in particular recyclability of components, the criteria should be designed using a widely accepted and solid methodology, guaranteeing the objective, transparent and non-discriminatory nature of the process. Similar considerations apply when using other types of non-price criteria.

It is also crucial to establish upfront a clear and transparent scoring method leading to an efficient and objective auctions criteria evaluation. Failing to do so creates a risk of legal challenges that could delay the implementation of the successful projects and may lead to reviews and a reassessment of the tender results.

4. Align the complexity of tender design with market maturity

Simplicity of the tender design reduces the pressure and implementation challenges for the tendering authority, but also for project developers and the supply chain. It avoids the risk of excluding less experienced project developers and as a consequence, reducing competition. Also, simple tender rules and their clear application lower the risks for legal challenges and therefore reduce public administrative costs. This is relevant for situations where tenders are newly introduced or the market is not yet mature.

Experience is key to achieving good results from more complex auction criteria[26]. Member States that lack experience with non-price criteria in their tender design, may prefer to start by introducing simple, easy-to-measure non-price criteria, and gradually build up based on lessons learned. Less mature markets may also benefit from more ambitious non-price criteria to enhance the likelihood of successful implementation and achievement of the policies pursued and such criteria may also play an important role for less mature technologies in need of technological development and reduction of risk and costs. However, imposing too strict requirements to the projects through non-price criteria may increase the financial and technological burden on project developers, which in turn could limit the competition and increase the risks for project realisation.

5. Involve market participants and experts early and during the auction design process

Successful implementation of an auction requires design elements that are in line with the actual market situation and result from a correct reading of market signals and trends. This requires a proper and effective involvement of market participants and experts in the process of drafting the auction specifications. For instance to ensure that the objectives pursued by the auction in terms of project realisation, use of non-price criteria or bid ceilings are realistic and will lead to a competitive bidding process.

This can be done by means of a wide market dialogue involving all relevant stakeholders or in the form of an exchange and public consultation, including with industry and project developers. Often, this consultation occurs when a new set of auctions is designed (e.g. in Spain and Germany). Once the auction is launched it is also important that Member States are responsive to questions from potential bidders and share this information with all potential participants[27]. Regardless of its format, proper and timely communication with market participants significantly increases the chances of a successful auction result. Another advantage of such a dialogue is the increased trust by participants in the tender process, which reduces the risks for legal challenges against the results. In any event, when State aid is at stake, a broad public consultation on the measure, including the detailed pre-qualification and award criteria, is generally required[28].

6. Harmonise the auction design to reduce transaction costs

The wide variety of auction design features across the different Member States increases transaction costs for the development of renewables deployment, resulting in more costly

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[26] Collaboration between Member States to share best practices and harmonise auction design could take place through high level groups such as the North Sea Energy Cooperation, Interconnections for South-West Europe, Baltic Energy Market Interconnection Plan or the Central and South Eastern Europe Energy Connectivity

[27] See for instance the questions and answers sections for the recent offshore wind auction in the IJmuiden Ver Wind Farm Zone https://english.rvo.nl/subsidies-financing/offshore-wind-energy/ijmuiden-ver or in the German offshore wind https://www.bundesnetzagentur.de/DE/Beschlusskammern/BK06/BK6_72_Offshore/Ausschr_vorunters_Flaechen/start.html

[28] See point 99 of the CEEAG.

products and projects. These differences may also hinder achieving the objectives pursued by the auction.

The differences in auction design across Member States make it harder for developers and the supply chain to participate in each auction, which ultimately limits competition. This is particularly the case when the auction includes non-price criteria, which can vary more across auctions.

Developers in general incur additional costs in finding the companies in the supply chain able to provide the appropriate products or services for each auction. The supply chain will also need to adapt the production to the different objectives pursued by each auction. This does not mean that Member States should refrain from including specific incentives to promote innovation[29] or should not have flexibility in pursuing different objectives in the auction to adapt for specific needs and challenges of the Member States' deployment targets and renewable energy sector, including technology specific challenges.

However, a higher degree of harmonisation is desirable at least for Member States sharing the same seabed or land territory. With the support of the Commission, the existing structured dialogue fora[30] related to renewable energy can be used to exchange best practices and harmonise auction design when appropriate. The Union legislation on the electricity market design aims to harmonise the design of direct price support schemes in the form of two-way contracts for difference[31].

Situations in which one country pursues certain objectives in the auction, such as preventing bird and bat casualties by the offshore windmills, while the neighbouring Member States do not include such objective or requirement, should be avoided. Such differences may render the objective or requirement ineffective and increase the cost of supply for Member States and developers, without reducing the environmental damage. A certain level of harmonisation is even more important for non-price criteria. This will allow for a higher degree of scalability of the supply chain, reduce transaction costs and make it easier to achieve the objectives pursued by the auction. This harmonisation should also include the use, whenever possible, of common methodologies to measure the specific non-price criteria. This type of harmonisation will make it easier for companies to provide the required information in the different auctions.

SPECIFIC CONSIDERATIONS ON CERTAIN ASPECTS OF AUCTION DESIGN

Following the general considerations described above, this section deals with a number of topics aiming to improve, simplify and provide consistency in the design of renewable energy auctions, as highlighted in Action 4 of the Wind power action plan. Note that this selection is

[29] Innovation at all levels is crucial for the green transition and economic growth in general

[30] These include the Concerted Action CA-RES or the regional High-level Groups such as North Sea Energy Cooperation (NSEC), Interconnections for South-West Europe, Baltic Energy Market Interconnection Plan (BEMIP) or the Central and South Eastern Europe Energy Connectivity (CESEC).

[31] The text of the provisional agreement between the European Parliament and the European Council is available here https://www.consilium.europa.eu/en/press/press-releases/2023/12/14/reform-of-electricity-market-design-council-and-parliament-reach-deal/

not covering the entirety of the auction design process[32]. It relates to specific aspects that have a particular bearing in incentivising the full and timely deployment of renewables, covering aspects such as ensuring that a competitive and innovative renewable industry is able to deliver on these objectives.

This section will therefore cover: the use of certain non-price criteria, whether as pre-qualification or as award criteria; the use of price indexation and penalties to incentivise full and timely completion of the projects, the use of negative bidding; and the use of bid ceilings. The guidance examines how to level the playing field for renewable energy communities and SMEs in auctions.

7. Non-price criteria

The inclusion of non-price criteria in auctions, either as award criteria or pre-qualification criteria, aims to pursue additional policy objectives next to sourcing of electricity at the lowest cost. They intend to value desirable project characteristics that cannot be measured and not necessarily delivered based on pure price considerations. They relate, among others, to environmental, sustainability, energy system integration objectives or the ability of the developer to complete the project. The possibility to use these types of non-price criteria when there is State aid is explicitly recognised in the State aid rules (CEEAG and TCTF).[33] Member States had already started making use of non-price criteria in auctions for renewable energy sources before this explicit recognition.

For support schemes approved under the CEEAG,[34] "*the selection criteria used for ranking bids when State aid is provided and, ultimately, for allocating the aid in the competitive bidding process should as a general rule put the contribution to the main objectives of the measure in direct or indirect relation with the aid amount requested by the applicant. This may be expressed, for example, in terms of aid per unit of environmental protection or aid per unit of energy. It may also be appropriate to include other selection criteria that are not directly or indirectly related to the main objectives of the measure. In such cases, these other criteria must account for not more than 30 % of the weighting of all the selection criteria. The Member State must provide reasons for the proposed approach and ensure it is appropriate to the objectives pursued"*. In addition, for support schemes approved under the TCTF[35], "*at least 70 % in the total selection criteria used for ranking bids must be defined in terms of aid per unit of environmental protection (such as EUR per tonne of CO2 reduced) or aid per unit of energy output or capacity"*. This is without prejudice of the possibility to give a higher weighting to the non-price criteria, if there is no State aid involved.[36]

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[32] For a more general guide to auction design for renewables energy see for instance Irena (2015) : Renewable Energy Auctions, A Guide to Design available at https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2015/Jun/IRENA_Renewable_Energy_Auctions_A_Guide_to_Design_2015.pdf

[33] CEEAG points 49 and 50 and TCTF points 77.f.(i) and 78.f.(i)

[34] CEEAG point 50.

[35] TCTF point (78) f (i).

[36] This is only possible if the inclusion of this higher weighting for non-price criteria does not lead to requalification of a no aid measure into a State aid measure in line with the Commission Notice on the Notion of Aid as referred to in Article 107(1) of the Treaty on the Functioning of the European Union, (OJ C 262/1 19.7.2016)

Non-price criteria can be implemented as **pre-qualification requirements**, meaning that the criteria serve as minimum that bidders must meet to qualify for the auction, as a matter of eligibility (across Member States these are referred to as minimum criteria or eligibility criteria). They can also be implemented as **award criteria** (across Member States these are referred to as selection or evaluation criteria) and come into play when the bidders have met the eligibility criteria. Award criteria aim to incentivise higher performance (e.g. delivering higher quality at lower price/with less support or providing innovative solutions). They should allow to rank the eligible projects. There are also cases where a non-price criterion can serve both as pre-qualification and award critera as in the Dunkerque offshore wind auction in France (see box below).

In the Dunkerque offshore wind auction in **France**, some of the non-price criteria were used both as pre-qualification and award criteria. For instance, bidders needed to allocate at least EUR 10 million for environmental measures and the monitoring of the project (excluding dismantling). In the award process, the scoring rewarded the bidders proportionately going beyond the EUR 10 million threshold and up to EUR 40 million.[37]

Non-price criteria became relevant in the context of zero-cent bids (i.e. bidders do not require subsidies in their bids) in the auctions for offshore wind where a right to use the seabed is also awarded. Zero-cent bids first emerged in the German offshore wind auctions in 2017 and 2018 and continued in the 2021 and 2022 offshore wind auctions. Zero-cent bids recently occurred in the Thor offshore wind auction in Denmark, where such results had not been expected due to past auction results, which led to the successful bidders having to be selected by drawing lots (see box below). In such cases, non-price criteria could help differentiate among bids to ensure that the project achieves multiple policy objectives and is awarded to the best bid.

In the **Danish** auction **Thor** for a 1-GW offshore wind park in the North Sea in 2021[38], several bidders met the pre-qualification requirements. In the second stage they were bidding for support in the form of a two-way contract for difference ("two-way CfD"). Several bidders offered to build the offshore wind farm with the largest possible capacity and at a minimum price of only 0.01 øre/kWh, indicating that they did not require support. The tender was ultimately decided by drawing lots in the absence of other criteria that could have differentiated between the equal-price bids[39].

Currently, non-price criteria are mostly relevant for the wind and PV sectors[40]. The inclusion of non-price criteria allows to pursue objectives that cannot be captured solely based on a

[37] See https://www.cre.fr/documents/Appels-d-offres/dialogue-concurrentiel-n-1-2016-portant-sur-des-installations-eoliennes-de-production-d-electricite-en-mer-dans-une-zone-au-large-de-dunkerque

[38] Subsidy scheme and other financial issues for Thor OWF available at https://ens.dk/sites/ens.dk/files/Vindenergi/subsidy_scheme_and_other_financial_issues_31march2020.pdf

[39] https://ens.dk/en/press/thor-wind-farm-build-thor-offshore-wind-farm-following-historically-low-bid-price

[40] In Spain, a recent auction for innovation electricity storage projects included non-price criteria https://sede.idae.gob.es/lang/extras/tramites-servicios/2023/ALMACENAMIENTO_INNOVA/(359)_Convocatoria_ayudas_proyectos_almacenamiento_standalone.pdf.

price dimension and that are not directly or indirectly related to the main objectives of the measure. More and more Member States are making use of the possibility to apply non-price criteria to pursue additional policy objectives. Germany, for instance, has introduced a dual model using non-price criteria for some of their offshore wind auctions and pure price criteria for others. This reflects the diverse market context and attempts to capture the benefits of both systems (see box below).

The recently amended **German** Offshore Wind Law [41] introduced a dual auction model, for centrally pre-investigated sites[42], which included non-price award criteria. It also included non pre-investigated sites, which was solely awarded on a price basis. When participating in auctions for centrally pre-investigated sites, bidders save time and costs, while awarded projects do not receive support from the State and have to be fully financed on a private basis (i.e. power purchase agreements ('PPA') and direct market sales). The auction included both price and non-price award criteria. On the price component, bidders had to offer a payment per kWh produced (i.e. negative bidding component). The following non-price award criteria were included in the auction: (i) decarbonisation efforts in the context of offshore wind development; (ii) percentage of electricity sold via PPAs; (iii) technology used for the foundations with respect to noise levels and sealing of the seabed; and (iv) contribution to securing skilled workers in the offshore wind industry[43].

Germany has just launched 5.5 GW at three centrally pre-investigated sites under the same conditions[44].

The inclusion of non-price criteria in auctions allow pursuing several objectives to be carried out in parallel. For instance, in the **Dutch** offshore auction Hollandse Kust West VI and VII, in addition to offshore wind generation, the national authorities pursued both the protection of the environment[45] and energy system integration. The developer will therefore provide a bundled product: the wind farm will be built to maximise energy generation at the cheapest possible cost while achieving the additional policy objective, captured by the non-price criteria. This limits transaction costs for the administration, which would otherwise need to intervene separately to pursue the additional policy objective.

It is important to clearly define the policy objectives and to have consultations with stakeholders and experts to outline how best to pursue this goal. In doing so, Member States should ensure that the inclusion of these criteria is compatible with a competitive bidding process.

Furthermore, Member States should also consider how many objectives they pursue in each auction and should prioritise their relative weighing. Different policy objectives may interact with each other and it is therefore necessary to ensure coherence between objectives. The offshore wind auction Hollande Kust West VI in the **Netherlands** used non-price criteria related to the protection of the environment, while in the Hollande Kust West VII system

41 Windenergie-auf-See-Gesetz vom 13. Oktober 2016 (BGBl. I S. 2258, 2310), das zuletzt durch Artikel 14 des Gesetzes vom 22. März 2023 (BGBl. 2023 I Nr. 88) geändert worden ist

42 Refers to auctions where the sites had been pre-investigated the site before the auction,

43 Ibid. see Part. 3 Section 5. Tenders for centrally pre-investigated areas.

44 https://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/EN/2024/20240227_Offshore.html

45 For a description of the environmental protection criteria included in this auction see the section below on sustainability and environment considerations.

integration was used instead (see box below). Pursuing these additional objectives was possible thanks to the inclusion of non-price criteria.

As discussed above, to guarantee legal certainty, policy objectives which are pursued by non-price criteria must be translated into specific indicators that should be quantifiable, measurable, and observable, ensuring fairness and comparability and allow to track the effectiveness and success of the criterion in the awarded and for the project that has been completed.

When the auctioneer defines the methodology to assess the bids against a certain set of criteria, it can do so either in a quantitative or measurable qualitative manner. Examples of quantitative assessments include (this list is non-exhaustive):

- the ratio of trainees to staff;
- technology readiness;
- level of innovation used;
- percentage of recyclability;
- carbon footprint of the project;
- in the case of contribution to resilience, proportion of the net-zero technology or their main specific components that originate from a non-EU countries from which the EU is highly dependent for the supply of a renewable energy technology or one of its main components.

Examples of possible qualitative assessments include (this list is non-exhaustive):

- the quality of bird collision avoidance measures;
- the promotion of positive effects on the conservation of the (marine) habitat;
- quality of the proposed citizen involvement measures.

There may be ways to introduce quantitative assessment to measure more qualitative aspects. For instance, measures going beyond the legal requirements related to the conservation of habitats could be measured through hectares of habitat restored or the quantitative assessment of habitat enhancing measures for the conservation or targeted species. The measurement of bird mortality could be used as proxy for bird and bat collision measures. If qualitative criteria are used, it is necessary to design them so that they are objectively measurable.

While the quantitative assessment of non-price criteria allows for greater transparency, simplicity and predictability of the assessment, the qualitative assessment of non-price criteria may be useful to incentivise project developers to provide very innovative and creative solutions[46]. However, this should be done in a way that mitigates both administrative burden and the risk of legal challenges[47]. Nevertheless, there are many aspects to innovation that can be captured through a quantitative assessment. For instance, a higher level of blade or PV panel recyclability or lower noise levels can be quantified. Therefore, the use of quantifiable, objective, transparent and measurable non-price criteria should be prioritised. Qualitative assessment of non-price criteria may be considered if justified by the objectives pursued and

[46] Note that innovation can also be fostered through quantitative assessment. However, a more qualitative assessment, if well designed, may serve to incentivise disruptive innovations to solve existing problems for which there may be multiple possible solutions or possible approaches.

[47] The first offshore auctions in the Netherlands using qualitative criteria were perceived as non-transparent and difficult to understand because the criteria were too vague. This example shows the need for careful and detailed- instructions and numerous stakeholder consultations on the introduction of quality criteria (See German Energy Agency (DENA) (2023): Demand for 'Made in Europe': Use of qualitative tender criteria for Onshore wind and PV, para 3.3.4)

if a quantitative assessment is not possible. In any case, these criteria need to be objective, transparent and non-discriminatory and Member States should provide sufficient transparency on how the scoring will be carried out ahead of the auction.

The offshore wind auction Hollandse Kust West VI and VII in the **Netherlands**, pursued respectively the protection of the environment and system integration as the main non-price objective[48]. In particular, the auction focused on advancing innovations and providing solutions to environment and system integration considerations. These aspects included a qualitative assessment and had to be in part assessed by a committee with expertise in the field of environment and system integration respectively[49]. The assessment took 6- 7 months after the deadline to submit bids for the Dutch authorities to award the tender[50]. Instead, the upcoming auction Ijmuiden Ver Alpha and Beta includes a quantitative approach and the objectives pursued by the auction are focused on delivering particular investment. The scoring for these investments is set out in the Ministerial Order.

In **Spain**, the award of the auction for the 400 kV Mudéjar node to the install PV and wind projects included award criteria associated with the generation technologies included in the bid, the socio-economic impact for the area, the maturity of the project and the minimisation of environmental impact[51]. The award of this auction took about 1 year, with the associated risks for the bidders.

As discussed above, it is important to keep in mind the criteria's impact on the level of competition in the auction. In this respect, particular attention should be paid to non-price criteria used as pre-qualification criteria, as on the one hand they can ensure that the policy objectives are met to the required standard, and, on the other hand, if not well-designed they may incur a higher risk in terms of limiting competition than the award criteria.

When using non-price criteria as pre-qualification criteria the auctioneer needs to determine the minimum level to be met. When using them as award criteria, a graduation that allows to rank bids should be established. The simplest way is to set specific scoring points upfront for each aspect valued in the auction (exogenous scoring), where the bidders know in advance how many points they will receive if they for instance submit a bid using wind blades which are 80% or 100% re-usable or recyclable. This type of scoring reduces the scope for strategic bidding. The scoring for a given aspect can also be set by reference to the highest bidder for that particular non-price criterion. This means that the highest bidder for a given criterion scores the maximum points and the other bids are ranked proportionately. In this case there is a higher risk of strategic bidding since bidders can submit several bids to artificially affect the ranking of the different bids for that particular criterion.[52] Measures should be put in place to limit strategic bidding, like limiting the number of bid that can be submitted by each bidder.

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48 For a description of the environmental protection and system integration criteria included in the auction see the corresponding sections below on sustainability, environment and system integration considerations

49 See https://english.rvo.nl/topics/offshore-wind-energy/wind-farm-zone

50 The assessment was much longer also because of delays caused by irregularities in some bids. In general, a longer decision period increases the costs for developers (financial costs of guarantees that need to be submitted, potential inflation changes which make their bid no longer reflect their willingness to pay

51 See https://www.transicionjusta.gob.es/es-es/Paginas/Adjudicaci%C3%B3n-del-Nudo-Mud%C3%A9jar-de-Transici%C3%B3n-Justa-.aspx

52 For instance, in a hypothetical scenario in an auction process a bidder may submit two bids. A first bid artificially claiming that its blades will be 100% recyclable and a second bid claiming that its blades will be

The introduction of some non-price criteria, as pre-qualification or award criteria, should take into account the specificities of the technologies concerned by the tender. While some non-price criteria may apply to all technologies, others will be technology specific. For instance, in the recent offshore floating wind auction in the Golfe du Lion in **France**[53], the tender requirements included a maximum carbon footprint of 1 800 kg CO2/kWc while the PV tender PPE2 included a lower maximum carbon threshold[54]. Similarly, there is a different level of circularity between wind blades and PV panels.

When including non-price criteria, certain potential challenges need to be considered. In this respect, a policy objective pursued by the non-price criteria may be better reached by other processes. For instance, the environmental impact assessment already covers several aspects related to the environmental preservation. Therefore, if environmental non-price criteria are included, they should capture aspects linked to the subject matter of the auction, which can not be reflected in the permit-granting procedures.

Furthermore, the introduction of non-price criteria in an auction tends to result in higher short-term costs or lower revenues for the Member State compared to those purely based on price. On the other hand, if well designed, they can deliver higher quality and can spur innovation which lowers costs overtime (dynamic efficiencies).

The use of non-price criteria may not be ideally suited for smaller projects, or auctions with a significant number of bidders where the inclusion of non-price considerations may increase the costs for developers and the administration in a suboptimal way. Instead, auctions for bigger projects, such as for offshore wind, have used both non-price criteria as pre-qualification and award criteria with, according to the Member States concerned, positive results.[55] However, tendering rules should be designed in a manner that avoids situations where a large scale installation is artificially separated in many small ones, to avoid complying with the non-price criteria. Therefore, Member States should carefully consider how to use more effectively non-price criteria in a way that does not negatively impact on the competitive process. They should assess the cost and benefits between the inclusion or not of non-price criteria and whether to use them as pre-qualification and/or award criteria.

80% recyclable. The bid with 100% recyclability will receive the maximum level of points. Another company, which is in possession of the best blade recycling technology, may submit a bid that offer blades with the maximum possible level of recyclability, say 90%. Even though this company offered the best blade recycling technology it would receive less points for this aspect compared to a situation where the bid with the artificial quote was not there. This would disadvantage the bid with 90% recyclability and may end up favouring the bid offering an 80% recyclability target, which is unable to meet the 90% recyclability level offered by the competing bid, and which may be designed to score more points for other aspects of the auction.

53 https://www.cre.fr/documents/Appels-d-offres/dialogue-concurrentiel-n-1-2022-portant-sur-deux-installations-eoliennes-flottantes-de-production-d-electricite-en-mer-mediterranee

54 https://www.cre.fr/documents/Appels-d-offres/appel-d-offres-portant-sur-la-realisation-et-l-exploitation-d-installations-de-production-d-electricite-a-partir-de-l-energie-solaire-centrales-a2

55 See, https://english.rvo.nl/sites/default/files/2023-07/Letter%20to%20Parliament%20winner%20HKW%20site%20VI.pdf and https://english.rvo.nl/sites/default/files/2023-07/Letter%20to%20parliament%20announcement%20winner%20Hollandse%20Kust%20west%20site%20VII.pdf

7.1. Non-price criteria used as pre-qualification criteria

Pre-qualification criteria must be met by bidders' projects in order to participate in the auction. They are ways to ensure that all projects competing in an auction meet certain minimum standards, related to increasing the probability of realisation of the projects. Pre-qualification criteria pursue the objective to ensure the capability of bidders to execute the project on time (e.g. technical and financial capability) as well as certain minimum characteristics of the project design. Non-price criteria should not purely duplicate the existing concrete requirements in the applicable Union or national legislation. In some cases, criteria specifying general legal provision with regard to concrete tender can be justified. The inclusion of non-price criteria should add value to what is already required under existing legislation. For some non-price criteria used as pre-qualification criteria, such as responsible business conduct, cybersecurity and data security, requiring compliance by the concrete bidder with the applicable legislation may be appropriate.

Non-price criteria can be integrated in the tender as part of the pre-qualification requirements, in addition to the standard requirements which ensure that the applicant can deliver the project. In these cases, pre-qualification criteria contribute to ensuring higher project performance or higher standards. When applied as pre-qualification requirement, the non-price criteria can take the form of either a requirement to be complied with by the bidders before submitting their application, or as a requirement which is announced in the tender rules, but needs to be complied with only after the project is awarded, as part of the contractual agreement with the auctioning authority (this has been done in **Spain**, **Ireland, France** and the **Netherlands**). The latter relieves the pressure on the bidders to incur costs related to meeting the pre-qualification requirement in the early phase of the auction process and limits the exclusion of bidders from the bidding process, which may result in less legal challenges that prevent the auction from taking place. Furthermore, this makes sense in auctions where the project location is not yet identified or the project details are not sufficiently defined at the time of the award, as could be the case in solar and onshore wind. Compliance is checked when the different project milestones are met (**Spain, France**) where the bidders may be asked to identify the site where the project will be executed or must present the construction permit. The auction should include appropriate penalties in case these pre-qualification criteria are not met to limit the risks of non-completion of the projects fully and timely.

In the offshore wind **Irish** ORESS 1 auction round, bidders were purely selected based on their submitted two-way CfD strike prices, but successful bidders were then required to establish a "Community Benefit Fund" to ensure community participation. In particular, successful projects were required to make payments to local marine and coastal communities hosting offshore renewable energy projects. These communities will benefit of these payments, beginning before construction and continuing for up to 20 years after a project begins to produce renewable energy. If a generator fails to comply with this obligation the Letter of Offer may be withdrawn by the auctioneer[56].

When setting pre-qualification criteria there needs to be a balance between setting strict conditions that ensure meeting appropriate standards, but might exclude competitors, and

[56] https://www.gov.ie/pdf/?file=https://assets.gov.ie/252215/7eacfb9c-6702-4e72-9499-5bea86aa9d96.pdf#page=null

defining very lenient conditions that do not bring value added to the objective pursued with these criteria and only create administrative burden.

7.2. Non-price award criteria

Award criteria aim to evaluate the different bids. They come into play when the bidders or projects have already successfully passed the pre-qualification stage. Award criteria aim to incentivise higher performance, e.g. delivering higher quality, providing a net positive contribution in terms of environmental protection or promoting innovation. Award criteria, whether price or non-price, must allow ranking the projects and serve to determine the winner of the auction.

Non-price criteria that are too general and/or too easy to meet are not suitable as award criteria since they lack the capacity to adequately rank between bids, although still ensure a minimum standard. One way to avoid this is a scenario where standards have already been set, or they are mature enough, in which case they should no longer serve as award criteria but instead should be used as prequalification criteria.

Some of the non-price criteria would require administrative resources to check that the objectives have been met[57]. For instance, certification may be necessary to prove compliance in relation to innovation or environmental restoration/protection of a given area. This has to be addressed by an early preparation by the auctioning authority in close collaboration with independent experts. To avoid that all relevant experts are employed by the potential bidders, the auctioneer should select their experts as soon as possible and ensure that no conflicts of interest arise.

Non-price criteria can be implemented as award criteria without a minimum requirement. For example, the **German** offshore wind auctions for centrally pre-developed sites integrate a criterion on apprenticeship which rewards the bidders with the highest share of apprentices in their total workforce, and lower scores are assigned linearly[58]. As with other non-price criteria, it is important to be able to correctly quantify the fulfilment of this objective.

7.3. Balance between the use of pre-qualification criteria and non-price award criteria

The use of non-price criteria as pre-qualification or as award criteria needs to be decided in a consistent way bearing in mind that the former sets a minimum standard while award criteria allow to rank the different bids.

Member States have used them simultaneously or as alternatives. For instance, in its future offshore wind auctions Denmark aims to use non-price criteria only as pre-qualification criteria and award the auction solely on a price basis. This is without prejudice of the possibility to give a higher weighting to the non-price criteria, if there is no State aid

[57] Similar consideration apply to pre-qualification criteria which can be met as the project is constructed.

[58] See Article 17.2 of the WindSeeG which limits to one bid per area tendered and must correspond to the tender volume for the area.

involved[59]. Or like in the recent offshore wind auctions in France, non-price criteria can be used as pre-qualification criteria, and the award decided based mostly on price and less on non-price award criteria.

Non-price criteria can be introduced gradually as award criteria to incentivise their application. As more experience is acquired and these criteria become standardised, they can be incorporated as pre-qualification criteria. However, if a certain minimum requirement is pursued by the Member State, they should in principle be introduced as pre-qualification criteria if a consultation has taken place with stakeholders and experts which guarantee that these requirements can be met and the auction will be competitive.

7.4. Analysis of particular non-price criteria

The following subsection discusses the individual criteria described in Section 4 of the Wind power action plan. Some of those criteria can be used either as pre-qualification or as award criteria, or a combination of both. The text identifies whether any of these criteria is suitable as award or pre-qualification criteria. Note that all the general considerations explained above regarding the auction design and the use of non-price criteria as pre-qualification or award criteria are also applicable to the particular variables explained below and will not be discussed further in these subsections.

7.4.1. Sustainability and environment considerations

Sustainability and environmental considerations are among the non-price criteria that have been most used in auctions for renewable energy to date. These non-price criteria covered aspects such as mitigating bird collisions with wind installations, conservation of the marine habitat, noise reduction of wind installations, greenhouse gas ("GHG") footprint of the project/installation and meet the circular economy principles through different measures related to longer lifetime, re-used or recycled materials, or recyclability or reusability of the products[60].

The **Netherlands** has included sustainability and environmental considerations to mitigate bird collision and protect marine habitat as award criteria in their recent and upcoming offshore wind auctions, which is described in the box below.

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[59] This is only possible if the inclusion of this higher weighting for non-price criteria does not lead to requalification of a no aid measure into a State aid measure in line with the Commission Notice on the Notion of Aid as referred to in Article 107(1) of the Treaty on the Functioning of the European Union, (OJ C 262/1 19.7.2016)

[60] The European Commission has published a study in 2021 providing the basis for possible Green Public Procurement criteria for solar photovoltaic modules, inverters and systems that offer valid examples of sustainability and environmental considerations. See Dodd, N., Espinosa, N., Solar photovoltaic modules, inverters and systems: options and feasibility of EU Ecolabel and Green Public Procurement criteria, Preliminary report, EUR 30474 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-26819-2, doi:10.2760/29743, JRC122430.

In the offshore wind tender Hollandse Kust West VI in the **Netherlands**[61], non-price criteria contribute to the North Sea's ecology pursued investments that would benefit naturally occurring biodiversity (species, populations and habitats) in the Dutch North Sea. They also pursued innovation and solutions to benefit naturally occurring biodiversity in the Dutch North Sea resulting from the wind farm at Site VI and future Dutch offshore wind farms.

The Dutch ecology criteria awarded the points based on the investments, the dissemination of knowledge and experience from these investments, stimulation of innovation and developments of solutions and the sharing of knowledge and experience from this innovation. Note that the auction criteria rewarded innovative solutions to address the problems identified. The scope of the investment and innovation was linked to the:

i) conservation of species and populations protected under the EU Birds Directive[62] and the Habitats Directive[63];

ii) conservation of marine habitats under the Habitats Directive; and

iii) promotion of positive effects on the environmental status (Marine Strategy Framework Directive[64]) in the Dutch part of the North Sea for the 'fish community' and/or the 'benthic habitat'.

These projects should be operational within 5 years following the date on which the permit becomes irrevocable.

The upcoming offshore wind tender Ijmuiden Ver Alpha[65] will award points based on how the projects contribute to the ecosystem of the Dutch North Sea.

Similarly, in its recent renewable auctions[66], **France** has used environmental and sustainability criteria as award criteria. For instance, the auction for PV[67] included award criteria to minimise the environmental impact of the installations in such a way that they could only be placed in a certain type of terrain. The French offshore wind auction in Dunkerque allocated points for environmental considerations such as maximum physical

61 https://english.rvo.nl/information/offshore-wind-energy/hollandse-kust-west-wind-farm-zone

62 Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds

63 Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

64 Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) (Text with EEA relevance)

65 https://english.rvo.nl/subsidies-financing/offshore-wind-energy/ijmuiden-ver

66 Similar award criteria based on environmental protection have also been included in in the floating offshore wind auction in Brittany. Available here https://www.cre.fr/documents/Appels-d-offres/dialogue-concurrentiel-n-1-2021-portant-sur-des-installations-eoliennes-flottantes-de-production-d-electricite-en-mer-dans-une-zone-au-large-du-sud

67 Cahier des charges de l'appel d'offres portant sur la réalisation et l'exploitation d'Installations de production d'électricité à partir de l'énergie solaire « Centrales au sol ». AO PPE2 PV Sol of November 2023

footprint of the installation[68], distance from the coast, maximum number of wind turbines in the installation, and minimum amount allocated to environmental measures and monitoring of the project excluding dismantling[69].

In its planned 6 GW offshore auctions, **Denmark** plans to use environmental and sustainability criteria which must be met as pre-qualification criteria. For two (out of the total six) tendered offshore wind farms, Denmark has also included a requirement to construct the offshore-wind farms that take care of nature[70].

Other types of environmental and sustainability criteria refer to compliance with the circular economy principles aimed at maximising resource efficiency, inclusion of reused or recycled materials and ensuring product reuse and recyclability, which have been used as pre-qualification and award criteria and are described in the box below.

In the recent **French** offshore wind auction in Normandy[71] the recyclability or reusability of the blades was set at a minimum of 80%. In the award criteria, the bidders could get additional points if they were entirely recyclable or reusable.

The upcoming offshore wind tender Ijmuiden Ver Alpha and Beta[72] in the **Netherlands** will award points to circularity (maximum reuse of raw materials), environmental impact and value retention taken into account in the design, construction, operation and disposal of the wind farm. The Dutch government pursues transparency about the circularity aspect related to the projects. If the bidders provide full transparency, they will score maximum points for this criteria, regardless of how they perform on circularity.

In its planned offshore auction, **Denmark** intends to impose as a pre-qualification using reusable blades unless the market analysis of the Danish energy Agency determines that the requirement will hinder the establishment of one or more of the 6 GW offshore wind before the end of 2030. In that case the requirement would instead for the blades to be reused for other purposes at the time of decommissioning[73].

Other tenders have also included non-price criteria related to the project's carbon footprint. The **Netherlands** has recently included it in their offshore wind Ijmuiden Ver Alpha and Beta tender the GHG footprint as part of wider circularity award criterion. Given the difficulties to

68 In the auction the footprint of the installation is defined from the centre of the foundations, the exact surface being determined from the coordinates in the WGS 84 system and defined as the smallest convex polygon containing all these coordinate points, this surface being calculated in the RGF93 system. The calculation must be duly justified by the applicant. The part of the convex polygon located outside the perimeter shall not be taken into account.

69 https://www.cre.fr/Lettres-d-information/Appel-d-offres-eolien-en-mer-Dunkerque

70 https://eu.eu-supply.com/ctm/Supplier/PublicPurchase/372020/0/0?returnUrl=&b=

71 https://www.cre.fr/documents/Appels-d-offres/dialogue-concurrentiel-n-1-2020-portant-sur-des-installations-eoliennes-de-production-d-electricite-en-mer-dans-une-zone-au-large-de-la-normandie

72 https://english.rvo.nl/subsidies-financing/offshore-wind-energy/ijmuiden-ver

73 https://eu.eu-supply.com/ctm/Supplier/PublicPurchase/372020/0/0?returnUrl=&b=

set a standard, the Netherlands has focused on the transparency of companies' strategies and has requested the use of a Circular Product Passport[74].

France has included carbon footprint requirements in auctions for different technologies, including PV and wind as pre-qualification and award criterion, which are described in the box below.

In the PV tenders in **France**, the projects' carbon footprint serves as a pre-qualification criterion and award criterion[75].

In the recent French offshore wind auction in Normandy[76], the tender included a pre-qualification requirement of a maximum carbon footprint for the installation set at 2 000 kgCO2eq/kW. The threshold was lowered to 1 800 kgCO2eq/kW in the floating offshore wind auction in the Golfe du Lion[77].

In the **Netherlands**, the upcoming offshore wind tender Ijmuiden Ver Alpha and Beta[78] will award points for assessing circularity. As part of this, points will be awarded according to the GHG footprint of the wind turbine over the whole life cycle (production and construction phase, operating phase and dismantling of the wind farm).

Member States' practice shows that this type of non-price criteria can be used as pre-qualification, award criteria or as a combination of both. In determining the most suitable implementation mode, the auctioneer should ensure that a competitive bidding process is ensured and that non-price criteria are defined in an objective, transparent and non-discriminatory way.

7.4.2. Innovation

Another potential non-price criterion is innovation, which may encompass aspects like research and development activities, the adoption of novel technologies and approaches, or the facilitation of knowledge dissemination. Innovation can be measured in a quantitative manner (e.g. higher percentage of circularity, or generation output compared to standards in the market) or in a qualitative criteria (e.g. knowledge dissemination or certain features related to innovation).

74 Reference (circulair productpas-poort maakindustrie), https://www.circonl.nl/kennis/materialenpaspoort-inhoud-gebruik-en-voorwaarden/#:~:text=Circulair%20Product%20Paspoort%20(CPP),op%20productniveau%20te%20vinden%20is

75 See https://www.cre.fr/documents/Appels-d-offres/appel-d-offres-portant-sur-la-realisation-et-l-exploitation-d-installations-de-production-d-electricite-a-partir-de-l-energie-solaire-centrales-a2

76 https://www.cre.fr/documents/Appels-d-offres/dialogue-concurrentiel-n-1-2020-portant-sur-des-installations-eoliennes-de-production-d-electricite-en-mer-dans-une-zone-au-large-de-la-normandie

77 https://www.cre.fr/documents/Appels-d-offres/dialogue-concurrentiel-n-1-2022-portant-sur-deux-installations-eoliennes-flottantes-de-production-d-electricite-en-mer-mediterranee

78 https://english.rvo.nl/subsidies-financing/offshore-wind-energy/ijmuiden-ver

In the **Dutch** auction Hollandse Kust West Site VI and VII auctions[79], innovation is included as award criterion. In the case of Hollandse Kust West VI, innovation contributing to the ecology of the North Sea[80]. In particular, it awarded points for stimulating innovation and developing solutions and for the sharing of knowledge and experience. This related both to the extent of knowledge sharing and coordination with existing research to close knowledge gaps as well as the quality of knowledge sharing and communication plan, including a description of the knowledge that will be shared in specific and measurable terms and timelines, as well as target groups.

The assessment of these criteria in the Dutch auction required an expert committee to evaluate the different projects submitted with each bid. This required a more qualitative assessment but resulted in an array of innovative solutions.

Several parameters related to innovation can be captured by the product specificities and simply be driven by the competition dynamics. For instance, the award criteria related to higher product recyclability, rewarding the lower number of windmills used, or rewarding higher quality products will push manufacturers to develop more performing products. Even the pure price competition may stir the supply chain to lower costs through more innovative products. This type of criteria has the advantage of being quantifiable and therefore ensure the objectivity, transparency and the legal robustness of the process.

7.4.3. Energy system integration

To meet energy system and market integration criteria projects must show how they will integrate electricity into the system while minimising the potential negative impact, in particular in terms of network congestion. This must to be planned in coordination with national grid operators and planners. To this end, renewable energy project developers must ensure they have the capacity to react to market signals by injecting electricity into the grid when prices are relatively high and avoid injecting it when there is excess renewable supply and electricity prices are very low. This could be done, for instance, by rewarding participation to ancillary/balancing services or contributing to grid congestion reduction.

In the Hollandse Kust West VII, the **Netherlands**[81] points were awarded for contributing to the integration of wind farm energy into the Dutch energy system. The award criteria included in the auction valued investments that contribute to increasing scalable flexible demand to match the supply profile of the wind farm and the stimulation of innovation to promote the integration of existing and future offshore wind farms, into the Dutch energy system. In this particular case, the winner offered to invest in new electrolyser capacity, e-boilers and EV-charging solutions and is developing an innovative project pertaining to offshore floating solar, a subsea lithium-ion battery, LiDAR power forecasting system and a subsea hydro storage power plant off-site[82].

[79] Hollandse Kust West VII is explained in the next subsection dealing with energy system integration below
[80] See Innovations - Ecowende Wind Farm Hollandse Kust West
[81] https://english.rvo.nl/topics/offshore-wind-energy/wind-farm-zone
[82] See Offshore wind farm OranjeWind (rwe.com)

In the future, in Ijmuiden Ver wind Wind Farm Beta, points will also reward energy system integration[83].

The project's location could have a positive impact on energy system integration with the development of offshore bidding zones (e.g. **Denmark**). For instance, **Germany** has implemented legislation to get wind projects spread out across the country. This is very relevant in larger countries with varied wind conditions. The system works by providing low wind sites a bonus in the auctions, while high wind sites receive a malus. This is computed based on a pre-defined reference site[84]. This system is pursuing increasing the amount of wind energy in Germany. Spreading the wind turbines across a large area means that the feed-in of wind power into the grid is more constant, and makes it easier to predict the future feed-in. Moreover, the optimal location of renewable project within the European electricity grid is paramount to reap the benefits of such technologies in delivering both lower energy prices and energy security, all while achieving the EU decarbonisation targets [85].

Furthermore, when it comes to storage investments, energy system integration objectives can be achieved through hybrid auctions combining renewable generation with storage solutions.

7.4.4. Cybersecurity and international data transfer

Cybersecurity risks and potential issues related to international data transfer have to be well managed to enhance resilience of the EU's energy system. These criteria must relate to the compliance with the Directive on measures for a high common level of cybersecurity across the EU (NIS2 Directive)[86] and relevant EU and international legislation on international data transfer, reinforcing the cyberresilience of the installations and infrastructure to which they are connected[87]. There is little experience, whether in the wind power sector or other energy industries, of including pre-qualification criteria related to cybersecurity, beyond references to compliance with existing legislation. The use of cybersecurity as award criterion is less suitable because of several reasons, for example, lack of harmonised standards and evaluation criteria which may lead to non-transparent award decisions. If used as award criterion they should be a complement to a certain level of cybersecurity guaranteed through pre-qualification requirements or legal requirements. Member States are are encouraged to have robust cybersecurity provisions to ensure that the weakest links in the EU are not exploited.

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83 https://english.rvo.nl/subsidies-financing/offshore-wind-energy/ijmuiden-ver

84 See https://www.bmwk-energiewende.de/EWD/Redaktion/EN/Newsletter/2016/04/Meldung/direkt-answers.html and Kröger, Mats; Neuhoff, Karsten; Richstein, Jörn C. (2022) : Contracts for difference support the expansion of renewable energy sources while reducing electricity price risks, DIW Weekly Report, ISSN 2568-7697, Deutsches Institut für Wirtschaftsforschung (DIW), Berlin, Vol. 12, Iss. 35/36, pp. 205-213, https://doi.org/10.18723/diw_dwr:2022-35-1

85 Thomassen, G., Chondrogiannis, S., Flego, G. and Vitiello, S., Redesigning the European electricity market, Publications Office of the European Union, Luxembourg, 2023, doi:10.2760/26141, JRC130696

86 Directive (EU) 2022/2555 of the European Parliament and of the Council of 14 December 2022 on measures for a high common level of cybersecurity across the Union, amending Regulation (EU) No 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (NIS 2 Directive) (OJ L 333, 27.12.2022, p. 80)

87 https://www.europarl.europa.eu/news/en/press-room/20231106IPR09007/cyber-resilience-act-agreement-with-council-to-boost-digital-products-security

This is in full complementarity with Union legislation on establishing a framework of measures for strengthening Europe's net-zero technology manufacturing ecosystem[88].

Any pre-qualification criteria in relation to cybersecurity should contribute to the objectives of the NIS2 Directive, namely a high common level of cybersecurity in the EU. The starting point for a cost-efficient approach is the identification of cybersecurity risks to be considered when designing the auction, as described in the table below.

I - Risk scenarios related to insufficient security measures	**R1-**Misconfiguration of networks **R2-**Lack of access controls
II - Risk scenarios related to Wind infrastructure supply chain	**R3-**Low product quality **R4-**Dependency on any single supplier within individual installations or lack of diversity on nation-wide basis
III - Risk scenarios related to *modus operandi* of main threat actors	**R5-** Unlawful or malicious acts exploitating wind infrastructure networks malicious actors targeting end-users **R6-** Data handling and storage in jurisdictions that cannot ensure an equivalent level of security
IV - Risk scenarios related to interdependencies between Wind Infrastructure networks and other critical infrastructure (i.e. Grid)	**R7-** Significant disruption of critical infrastructures or services **R8-**Massive failure of other sectorial services due to interruption of electricity supply or other support systems

As a pre-requisite to include such pre-qualification criteria, Member States may consider updating the national security recommendations and the national risk management methods applied to the renewable installations and to the infrastructure to which they are connected.

The auction design would complement the national recommendations with more specific, objective, transparent and non-discriminatory criteria, both at strategic and technical level, following well-known and established EU and international standards. These could include, but are not limited to, the security-by-design of the digital networks in the wind installations, measures to mitigate supply chain risks and control on the data being stored and processed. Whenever available and appropriate, European certification schemes adopted pursuant to Regulation (EU) 2019/881 of the European Parliament and of the Council[89] should be promoted during the deployment and operation of the installations. When drawing up pre-qualification criteria in relation to cyber security, it should be done in line with Union

[88] The compromise final text in view to an agreement is available here https://www.consilium.europa.eu/en/press/press-releases/2024/02/06/net-zero-industry-act-council-and-parliament-strike-a-deal-to-boost-eu-s-green-industry/#:~:text=The%20Council%20and%20the%20European,industry%20act'%20(NZIA).

[89] Regulation (EU) 2019/881 of the European Parliament and of the Council of 17 April 2019 on ENISA (the European Union Agency for Cybersecurity) and on information and communications technology cybersecurity certification and repealing Regulation (EU) No 526/2013 (Cybersecurity Act) (OJ L 151, 7.6.2019, p. 15).

legislation on horizontal cybersecurity requirements for products with digital elements which introduces security-by-design requirements for hardware and software manufacturers at the product level for products with digital elements[90].

7.4.5. Contribution to resilience

Currently there is very limited experience in auctions with the use of non-price criteria to contribute to resilience. In full complementarity with Union legislation on establishing a framework of measures for strengthening Europe's net-zero technology manufacturing ecosystem[91], the contribution to the resilience is essential to ensure that there is no excessive dependency from a single supplier. Diversification or multi sourcing strategy is a rational decision by investors with a long-term perspective. Overreliance on a single supplier may expose the EU to supply constraints that may jeopardise the deployment of renewable energy. If supply constraints arise, alternative sources of supply may take time to develop to meet the demand. Therefore, the inclusion of pre-qualification or award criteria to incentivise this diversification are essential in guaranteing a stable supply to deploy renewable energy.

In full complementarity with Union legislation on establishing a framework of measures for strengthening Europe's net-zero technology manufacturing ecosystem[92] the contribution to resilience should take into account the proportion of the relevant product or its main components that originate from a non-EU country that accounts for more than 50% of the EU's supply.

The use of the other non-price criteria presented in this guidance may also indirectly promote a more resilient supply chain through diversification.

7.4.6. Endorsement of a responsible business conduct code

Another type of non-price criteria relates to responsible business conducts. The relevant principles for human rights and business have been spelled out by the United Nations in their Guiding Principles (UNGP)[93] and by the Organisation for Economic Co-operation and Development in the Guidelines for Multinational Enterprises (OECD Guidelines)[94]. They cover key areas of business responsibility, including human rights, labour rights, environment, bribery, consumer interests, disclosure, science and technology, competition, and taxation, as well as the approach how to address these.

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90 The text is available https://www.europarl.europa.eu/doceo/document/TA-9-2024-0130_EN.html

91 The compromise final text in view to an agreement is available here https://www.consilium.europa.eu/en/press/press-releases/2024/02/06/net-zero-industry-act-council-and-parliament-strike-a-deal-to-boost-eu-s-green-industry/#:~:text=The%20Council%20and%20the%20European,industry%20act'%20(NZIA).

92 The compromise final text in view to an agreement is available here https://www.consilium.europa.eu/en/press/press-releases/2024/02/06/net-zero-industry-act-council-and-parliament-strike-a-deal-to-boost-eu-s-green-industry/#:~:text=The%20Council%20and%20the%20European,industry%20act'%20(NZIA).

93 United Nations (2008) The Protect, Respect and Remedy Framework and United Nations (2011) Guiding Principles on Business and Human Rights

94 OECD (2023), OECD Guidelines for Multinational Enterprises on Responsible Business Conduct, OECD Publishing, Paris,

There is a role of the business code in promoting ethical and sustainable practices, ensuring that the awarded projects will promote sustainable commercial practices, as done in the **Netherlands.** The Netherlands developed the International Responsible Business Conduct Agreement (IRBC) for the Renewable Energy Sector[95] in a multistakeholder process and refers to it in its offshore wind auctions (see the box below). While stakeholders can join this or other national business code of conducts in the future, a European responsible business conduct code could also be used for the same purpose.

In Union law, a number of pieces of legislation exist that regulate responsible business conduct. These include those that require companies to carry out corporate sustainability due diligence with regard to deforestation[96], so-called conflict minerals[97], and batteries[98], as well as those that require the disclosures of sustainability-related information to investors, consumers, and to other stakeholders[99].

At Member State level, a number Member States have adopted horizontal laws that require conducting corporate sustainability due diligence (France, Germany, Hungary). These laws oblige all domestic companies over a certain size to conduct sustainability due diligence. Therefore, those Member States might not need to include further criteria in its renewable energy auctions since they are required by law for some companies registered in the said Member States, depending on the scope of the auction.

In full complementarity with Union legislation on establishing a framework of measures for strengthening Europe's net-zero technology manufacturing ecosystem[100] the endorsement of responsible business conducts should be used as pre-qualification criterion.

In March 2023, the International Responsible Business Conduct Agreement for the Renewable Energy Sector was signed including a broad coalition of solar and wind energy companies, industry associations, the Dutch government, knowledge institutions, NGOs and trade unions committed to the Agreement. The Agreement aims to assist the wind and

95 International Responsible Business Conduct Agreement for the Renewable Energy Sector Integrating sustainability and human rights in the energy transition, 2023.

96 Regulation (EU) 2023/1115 of the European Parliament and of the Council of 31 May 2023 on the making available on the Union market and the export from the Union of certain commodities and products associated with deforestation and forest degradation and repealing Regulation (EU) No 995/2010

97 Regulation (EU) 2017/821 of the European Parliament and of the Council of 17 May 2017 laying down supply chain due diligence obligations for Union importers of tin, tantalum and tungsten, their ores, and gold originating from conflict-affected and high-risk areas

98 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

99 Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting

100 The compromise final text in view to an agreement is available here https://www.consilium.europa.eu/en/press/press-releases/2024/02/06/net-zero-industry-act-council-and-parliament-strike-a-deal-to-boost-eu-s-green-industry/#:~:text=The%20Council%20and%20the%20European,industry%20act'%20(NZIA).

solar energy companies to improve their human rights and environmental due diligence practices. With its large number of signatories, the Agreement plays a pivotal role in promoting ethical and sustainable practices within the renewable energy industry. The companies that are part of the Agreement commit to implementing the OECD Guidelines for Multinational Enterprises and the United Nations Guiding Principles on Business and Human Rights in their operations and throughout their supply chains. All the participants in the process aim to explore, identify and address the risks and impacts for people and the environment in the operations and supply chains of the renewable energy sector.

The upcoming IJmuiden Ver Alpha and Beta tenders in the **Netherlands** rewards the applicant with points for exercising due diligence compliance with the OECD Guidelines and United Nations Guiding Principles.

Germany adopted on 1 January 2023 an Act on Corporate Due Diligence Obligations in Supply Chains ("Supply Chain Act") which applies to all companies of a certain size with a branch in Germany. The law governs the responsibility of German companies and foreign companies with a branch in Germany which will be required to address human rights-related and environment-related due diligence obligations in their supply chains in an appropriate way.

7.4.7. Benefits for local communities

Another category of non-price criteria relates to broadening access to renewables to more consumers. It can favour projects that reach out to renewable energy communities, citizen energy communities or other social entities or more generally allowing consumers to purchase a stake in the project and benefit directly from the project (**France**). The auction may also be designed to include requirements benefitting local communities (**Ireland**).

ORESS 1 is the first offshore wind auction in **Ireland**, allocating support to four projects with total capacity of 3 074 MW[101]. The auction was based on price-only criterion (bidders submitted a strike price), resulting in weighted average strike price of EUR 86.05/MWh. However, the auction included a requirement for the successful projects to make payments to local marine and coastal communities hosting offshore renewable energy projects. These communities will benefit from over EUR 24 million each year, beginning before construction and continuing for up to 20 years after a project begins to produce renewable energy[102].

The grouping of municipalities in the Strasbourg area in **France** (Strasbourg Eurométropole) used criteria related to citizen participation in a tender procedure to allocate concessions to develop solar PV on public roofs tops. It awarded points for the strategy to mobilise citizens to finance the project and for the governance mechanism to manage citizen participation to implement the project[103].

[101] https://www.eirgridgroup.com/site-files/library/EirGrid/ORESS-1-Final-Auction-Results-(OR1FAR).pdf

[102] https://www.offshorewind.biz/2023/05/11/ireland-awards-3-1-gw-offshore-wind-capacity-in-first-oress-1-auction/

[103] Energy Communities Repository, Report: Barriers and action drivers for the development of energy communities & their activities, 29 January 2024, available at https://energy-communities-

Furthermore, in the recent offshore wind auctions in **Germany** for centrally pre-investigated sites has included as non-price award criteria the contribution to securing skilled workers in the offshore wind industry[104].

The incorporation of this type of non-price criteria enables consumers to further benefit from the deployment of renewable energy sources. Furthermore, it can help to promote a stronger engagement from local communities in deploying renewable energy sources.

8. Measures to incentivise the full completion of projects in a timely manner

Tender rules should be drafted in such a way to promote a high project realisation rate. To this effect, they should attract applications that are serious, realistic and, if awarded, will be implemented in time and in line with the tender specifications.

This objective can be achieved through the auction design. However, two aspects are particularly important, namely penalties and price indexation. Penalties reduce the risk of delays or lack of completion of the project in form and time, and price indexation is an instrument to manage the risk of project failure due to unexpected cost shifts after the award of the auction.

8.1. Penalties

Most auctions for renewable energy sources include some form of penalty clause. They are a standard feature with essential functions and there is ample evidence showing that they help to achieve a high project completion rate[105]. While penalties increase bidders' risk and lead to higher prices[106] they also ensure more serious bids, excluding too inexperienced bidders. To this effect, the event triggering the penalty should be identified in a clear and measurable way to minimise the risk of litigation.

The analysis of penalties in this section is limited to the level of the penalties and the execution models. This section looks at penalties in a broad manner, including all types of liabilities which the project promoter bears in case of performance below the requirements set in the auction. This can include financial pre-qualification requirements in the form of bid bonds and bid guarantees (provided as part of the application before or during the auction) or the reduction or cancellation of the support payments (after the auction is closed).

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repository.ec.europa.eu/report-barriers-and-action-drivers-development-energy-communities-their-activities_en

104 See section 7 above for a description of the auction.

105 See for instance Matthäus, D. (2020): "Designing effective auctions for renewable energy support" *Energy Policy*, vol 142, July 2020; 2. Kreiss, J.; Ehrhart, K.-M.; Haufe, M.-C. (2017): "Appropriate design of auctions for renewable energy support – Prequalifications and penalties", *Energy Policy*, volume 101, February 2017, pages 512-520; 3. Anatolitis, V.; Azanbayev, A.; Fleck, A (2022): "How to design efficient renewable energy auctions? Empirical insights from Europe" *Energy Policy*, volume 166, July 2022.

106 Del Río, P. and Linares, P. (2014): "Back to the future? Rethinking auctions for renewable electricity support" *Renewable and Sustainable Energy Reviews*, Vol 35, 2014, pages 42-56, Gephart, M., Klessmann, C., & Wigand, F. (2017). Renewable energy auctions – When are they (cost-)effective? *Energy & Environment*, 28(1-2), 145-165

Most EU countries using auctions for renewable energy require financial guarantees in the form of bid and performance bond as financial pre-qualification requirement. Bidders will not get back their bond unless they comply with the contract. In many countries these guarantees are returned as milestones are met, as shown in the box below.

In 2020 Spain set out rules governing a new mechanism for renewable energy auctions, introducing a two-way contract for differences ('two-way CfD') in which installed capacity is auctioned with a commitment to provide a certain amount of electricity[107]. Bidders need to submit a guarantee of EUR 60/kW of installed capacity. The guarantee is released in tranches as the different construction milestones are met. 6 months following winning the bid, the project developer needs to identify which specific project will be linked to its offer. At that moment in time, EUR 12/kW of the guarantee are reimbursed. Twelve months after the bid, the developer needs to have the construction permit, which will only be granted if the administrative permit has also been previously granted. At that moment in time EUR 18/kW of the guarantee are reimbursed. The remaining EUR 30 /kW are given back when the project starts generating.

Not delivering the installation on time results in a loss of the guarantee. Further delays will also trigger the loss of the two-way CfD support.

Furthermore, if the committed electricity is not delivered as agreed, a penalty of EUR 5/ MWh not delivered is imposed. This amount is subsequently deducted from the future remunerations of the two-way CfD.

On the structure of the penalties, there are models that can lower the financial burden of obtaining a guarantee by the applicants at the time of application. This will increase participation in the tender process but creates a certain risk that the winner will pull out if it cannot obtain full guarantees. For instance, **Germany** does not require an upfront payment of the whole guarantee, but just 25% at the time of the bid while the remaining 75% must be submitted within 3 months following the award[108] (see box below).

On the penalty level, it should be sufficiently strict to dissuade companies from treating the tender as a call option, but at the same time not too strict to exclude companies from the auction because it represents a very high financial burden. This exclusion is particularly important for smaller companies like SMEs or renewable energy communities which may not be able to face the financial costs of the guarantees. Setting the penalty levels requires a detailed assessment, including by consultation with stakeholders.

Furthermore, in the case of offshore auctions, whether the site is pre-investigated or not has a bearing in the level of penalties. When the sites auctioned are pre-investigated, the risks associated to the project profitability are lower, together with the risk of non-execution and delays, because better information is available to the project developer before making the bid. Therefore, it is justified that the fines for non-completion are higher. This has been the case in Germany, which differentiates between pre-investigated and non-pre-investigated sites.

[107] Orden TED/1161/2020, de 4 de diciembre, por la que se regula el primer mecanismo de subasta para el otorgamiento del régimen económico de energías renovables y se establece el calendario indicativo para el periodo 2020-2025.

[108] Articles 18 and 52 of the WindSeeG. In case of non-compliance to meet the remaining part of the guarantee the successful tenderer must pay the Federal Budget a penalty equal to 25 % of the guarantee. The guarantee already deposited can be used for this.

In **Germany**, the WindSeeG requires a guarantee of EUR 200 000/MW of installed capacity for the centrally pre-investigated sites, while it requires a guarantee of EUR 100 000/MW for not centrally pre-investigated sites. This guarantee secures compliance by the successful bidder with various development milestones set out in the WindSeeG and ultimately the timely commissioning of the offshore wind farm. If the successful bidder fails to comply with these milestones, different penalties apply. If the bidder does not pay these penalties, the authority may enforce the bond. The bidder is not obliged to pay penalties if it can prove that the project is delayed due to circumstances beyond its control.

In the planned offshore wind auctions in **Denmark**, the sites to be auctioned will be pre-investigated. The auctioneer is contemplating penalties of up to 20% of the expected CAPEX for the non-completion of the project, and up to 12% of estimated CAPEX for delays in achieving the completion milestones[109]. The dialogue with stakeholders has shown significant interest on the projects despite the level of fines.

Several Member States have considered providing incentives for early project completion before the deadline. However, experience in Spain and Denmark has shown that this has not been well received by stakeholders and therefore it has not been considered further. As projects are already under time constraints, increasing the speed of delivery is likely to increase significantly the costs for the developers.

8.2. Price indexation

Price indexation is a means to mitigate or cover the risk of the project developer related to increases in the prices of components and to ensure that the price pressure on the developer is not of such magnitude that it fails or abandons the project.

Project developers seek a certain level of security against future price fluctuations, the question is how to balance the responsibility of such fluctuations between the project promoter (e.g. by hedging) and between the auctioneer and society as a whole (e.g. by price indexation), taking into account the distribution of the costs for such de-risking, as well as the practical availability of the different de-risking options.

As in any market, hedging should be a central part of the commercial strategy of a project developer. This is valid in particular for costs components for which there is an established hedging market. This includes steel as a commodity (main component of offshore and onshore wind projects).

However, hedging is not always available for every component, for instance because there may be a lack of market indices. Also, in some cases the costs of hedging might be disproportionately high so that the developer does not have a sufficient incentive to incur them, or the auctioneer does not have the incentive to require hedging because this will reflect in the bids and will increase the support cost or reduce the payments in the case of negative bidding.

Both hedging costs and price indexation will be factored in the bids by the bidders. If it has hedging costs, the bidder will increase its bid, while with price indexation, it will be able to decrease its bid.

[109] https://eu.eu-supply.com/ctm/Supplier/PublicPurchase/372020/0/0?returnUrl=&b=

Price indexation is relevant for two phases of the project implementation. The first is from submission of the bid until project completion and the second covers the operation phase. The risk in the construction phase relates mostly to cost evolution in the CAPEX while for the operation phase it is mostly about the OPEX cost evolution, including general inflation and cost of labour.

For renewable energy technologies, such as wind and PV, the CAPEX risk is much more significant than the OPEX risk, and the risk mitigation measures are most relevant to secure the objective of ensuring project completion fully and timely. Once the project is constructed, given the low variable costs of production, the risks for the developer are limited.

Another consideration is how this indexation should be implemented. One approach would be to include price indexation for specific project components in the tender design, however it might be challenging for the public authorities to define a benchmark to index against. Another approach would be to apply price indexation that is related to the general inflation rate (for example using Consumer Price Index), which does not properly reflect the possible cost fluctuations related to the product, but reduces evenly the risk. In the offshore wind auctions in Normandy, **France** used a composite index to cover possible cost fluctuations. For the construction phase, the index is related to the industrial production price index in France, the labour costs, price of steel, copper and civil engineering works.[110] For the operation phase, the index covers fluctuations in costs related to operation and maintenance and includes the labour cost index and the industrial product price index in France.

Whenever there are competing technologies in the tender, such as in the case of PV panels, which use different technologies it may be harder to identify the relevant cost to avoid favouring one technology over another. In that case, it may be preferable to use more aggregated indices such as the price of industrial products.

Direct indexation is possible for those auctions where there is public support. In auctions which allocate concession rights e.g. for a seabed to offshore wind projects and allow for negative bidding, direct price indexation is not possible. For these cases, an alternative to price indexation is to structure the payment by the project developer in instalments, with no adjustment for inflation in the payment. Such a solution provides a natural hedge against inflation. This has been the approach adopted by **Germany** in their recent offshore wind auctions, where payments are spread over 20 years from the beginning of operations of the wind farm. Similarly in the **Netherlands**, the upcoming offshore wind auction Ijmuiden Ver Alpha and Beta requires yearly payments over 40 years, without indexation.

In the case where support is provided, indexation clauses are easier to incorporate. **Ireland**[111] and **France** included indexation clauses for both the construction and the operation phase in their recent auctions, while other Member States, had indexation clauses back in 2007 but no longer include them because of difficulties to identify the adequate index.

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110 Article 5.2.7 and 5.2.8 of the Cahier des Charges : procédure de mise en concurrence avec dialogue concurrentiel Nº 1/2020 portant sur les installations éoliennes de production d'électricité en mer dans une zone au large de la Normandie

111 Terms and Conditions for the First Offshore Wind RESS Competition ORESS 1, pages 31 and 32: https://www.gov.ie/pdf/?file=https://assets.gov.ie/252215/7eacfb9c-6702-4e72-9499-5bea86aa9d96.pdf#page=null

In a case where the auction allows for price indexation, a higher level of penalties is justified and should be applied because the public authority is sharing the financial risk with the project developer, therefore the developer's responsibility to complete the project can be increased.

Furthermore, the more mature the project is, the less uncertainty there is during the construction phase. In this respect, in the case of offshore wind, pre-investigated sites are exposed to less risks of cost variations during the construction phase than non-pre-investigated sites where more time is needed between the initial bid and the completion of the project.

Furthermore, the lack of indexation clauses in contracts between manufacturers and developers or the lack of hedging strategies in recent years when costs have increased very much, have put a number of projects in danger. This is an aspect of private nature between manufacturer and developer which is not covered and cannot be covered in the auction design. It is essential that developers and manufacturers put in place adequate hedging strategies in view of the uncertainty and given the fact that this will not be covered in the auction design.

Inflation index clauses can also have a significant impact on public finances in times of high inflation. In this context, it is important that public authorities take into account different inflation scenarios when planning the long-term schedule of expected allocation of support for renewable energy sources.

9. Negative bidding

In an auction for renewables, negative bidding refers to situations where bidders offer to pay to the State for the project to be awarded a concession. A properly designed competitive process, which allows for negative bidding, should reflect the willingness to pay of each bidder for the right to develop a given project under given conditions, therefore reflecting its market value.

Negative bidding has occurred in the case of offshore wind because these auctions also award the use of a scarce resource, the seabed, which is allocated to the wind farm operator. The award of a seabed concession grants the auction winner the exclusive right to extract the rents resulting from the renewable generation in this location owned by the Member State for a given period of time. In offshore wind the only possibility to develop a project on the site is dependent on a positive decision by the Member State awarding this right. Instead, in the case of PV or onshore wind the developer oversees finding the locations (rooftop/land) to develop the renewable project. This additional cost is borne by the developer outside the auction.

Some Member States include in their auctions the costs of the network connection or the pre-investigation of the sites which have to be paid by the developer while other Member States bear these costs. These costs, incurred or not by the State, will be reflected in the bids. The higher the share of costs included in the auction the less likely is that developers will bid negatively. The Thor offshore wind farm in **Denmark** included the grid connection costs to

the onshore substation which had to be constructed by the project developer.[112] In a similar way, the **UK** also requires the developer to bear the connection costs and in addition pay for the lease of the seabed[113]. In the case of the Dutch offshore wind auctions in Hollandse Kust West VI and VII, the winner of the auction had to reimburse the site development costs[114].

The level of the bid, whether negative or not, will be influenced by the expected net present value of the project. For those sites which are not pre-investigated before the auction takes place, there are additional risks. These additional risks will be factored in the developers' bid and will impact the level of the bid. If these risks materialise, they may undermine full and timely project development. A good pre-investigation of the site by the Member State would limit the risks further for the developer and the whole industry and make it more likely that the project is developed as due. This is particularly relevant for offshore wind since the sites where they can be deployed are scarce and require auctioning by the State as done in Germany, Denmark and the Netherlands (see box below). While the developer may do an even more in-depth pre-investigation of the site, a good pre-investigation by the State would limit the risks that the project is not completed.[115] The quality of the pre-investigation done by the state is essential. In Member States with less experience in offshore wind, lack of knowledge of the Member State could delay the process and there is a need to climb the learning curve. It is therefore essential that they collaborate with investigation companies with good expertise on site pre-investigations and with Member States with more experience.

When a site is well pre-investigated the risks for the developer not completing the project decrease. This can be factored in when establishing the penalties as explained in the previous section.

In the **Netherlands** in 2013 there was a switch from a system where all responsibilities were with the developer to the current system. In the new system the Dutch government decided which areas should be developed for offshore wind. They have performed site studies of much higher level. The Dutch government considered that investing in this high-

[112] Danish Energy Agency (2020): Subsidy Scheme and other financial issues for Thor OWF. https://ens.dk/sites/ens.dk/files/Vindenergi/subsidy_scheme_and_other_financial_issues_31march2020.pdf
The establishment costs of Energinet's nearshore substation at the point of connection and the land cables forward to the point of connection to the transmission grid at Idomlund are to be paid by the concession winner. The cost of site-investigations (geo-technique and geo-physics, MetOcean and environmental surveys) undertaken by Energinet are to be paid by the concession winner. In total the winner had to pay about EUR 375 million for these costs.

[113] The UK system first requires acquiring the seabed lease which are awarded by the Crown Estate. It launched a Round 4 of its Offshore Wind Leasing in 2019 for six offshore wind projects with a potential 8GW capacity. The Round 4 pre-qualification phase (financial strength and technical competence) was followed by a two-part invitation to tender (ITT) phase. ITT Stage 1 assessed the specific project financial and technical assessments. Bidders then proposed their best Agreement for Lease (AfL) fee price (in £/MW/year) in ITT Stage 2. The result of this Round 4 resulted in around £1 billion in option fees payable per year until the leases are signed (that being £879 million plus £150 million of indexation). These options fees are payable for a minimum of 3 years and up to 10 years depending on when the project will be ready for signing a lease, when developers will start paying rent. Then developers participate in an auction for two-sided contract for differences.

[114] See Article 9 of the Ministerial Order Hollandse Kust (west) Wind Farm Site VI and Article 9 of Ministerial Order Hollandse Kust (west) Wind Farm Site VII.

[115] See also Commission Staff Working Document "Guidance to Member States on good practices to speed up permit-granting procedures for renewable energy projects and on facilitating Power Purchase Agreements", SWD (2022) 149 final, p. 25

quality site studies resulted in better bids by all developers.

Negative bidding should, as a general rule, be uncapped, in such a way that the State does not forego revenues. The bid reflects the willingness of the project developer to pay for the project. Under EU State aid rules, capping of the financial component can be envisaged in exceptional situations where the renewable operator contributes to regulatory functions of the State in compensation for the foregone revenues resulting from the capping and where no advantage is involved[116].

In situations where negative bidding would be capped to a maximum amount, this may result in all or several bidders submitting the same maximum bid. This not only prevents eliciting the market value of the project, but may also lead to a sub-optimal way of choosing the winner if no other criteria, such as non-price criteria, are in place to select the best bidder in case of equal price bid. It may also lead to State aid issues, linked to incorrect valuation of allocating a seabed concession to an undertaking[117,118].

Overreliance on the price criteria in cases of negative bidding, notably for offshore wind, should be gradually limited by the inclusion of non-price criteria that pursue multiple public policy objectives as part of the tender scope. For instance, this could include promotion of system integration of the energy produced by the offshore wind farm or the conservation of the ecosystem in the relevant area. Such tender design may require additional spending by the bidders on top of the financial bid.

For instance, the upcoming offshore wind auction IJmuiden Ver Wind Farm Alpha and Beta, in the **Netherlands**, uses comparative assessment with financial bid. In that auction the award is based on who scores best on a combination of non-price criteria and financial bid to allow ranking between the bids in case all bidders score the same for the non-price criteria. Such auction design rewards contributions to other policy objectives by the different bidders in addition to the price criteria. The resources generated from negative bidding can be accrued to the general budget or used for a specific objective, such as acceleration of the deployment of renewables e.g. support schemes or grid reinforcement and expansion. Such use of revenues from negative bidding for the acceleration of the renewables deployment would allow the Member State to carry out such public investments without seeking resources elsewhere, e.g. through increasing taxes, tariffs, etc. In a recent auction, **Germany** earmarked almost all of the revenues from negative bidding to finance the grid connection costs which would otherwise be borne by taxpayers. The remaining percentage was split between 5% for seabed conservation and 5% to support sustainable fishing activities.

[116] Commission Notice on the Notion of Aid as referred to in Article 107(1) of the Treaty on the Functioning of the European Union, (OJ C 262/1 19.7.2016). See paragraphs 74, 94, 95 and 96

[117] See the Commission Notice on the Notion of Aid, paragraphs 74, 94, 95 and 96

[118] If, following a formal investigation procedure, the Commission considers the State aid measure incompatible with the internal market, it will require the Member State to recover the aid from the beneficiary.

In 2023, **Germany** auctioned out four offshore sites, three in the North Sea and one in the Baltic Sea, with a combined value of 7GW.[119] These sites were not centrally pre-investigated and the winner of auction was selected solely based on the price component in line with the German law (WindSeeG).[120] The grid connection costs are paid by Germany. The auction accepted bids requesting market premiums but, if several bidders submitted EUR 0.00 cent bids per kW/h, the winners entered into a dynamic bidding process (i.e. several auction rounds until there was only a winner)[121] and were invited to submit a payment per MW of tendered volume (i.e. negative bidding). The highest bid was awarded the project. The auction received eight zero-cent bids for each of the sites in the North Sea and nine zero-cent bids for the site in the Baltic Sea, which then entered into the dynamic bidding process. The winning bids for the sites ranged between EUR 1.56 million/MW to EUR 2.07 million/MW, which together amounted to EUR 12.6 billion.

The WindSeeG earmarks the revenues resulting from the auction and establishes that the successful tenderer must submit the payment as follows: 90% as an electricity cost reduction component to the transmission system operator subject to the obligation to provide the connection, 5% is assigned to the federal budget to finance seabed conservation, and 5% to support sustainable fishing activities, both of which are directly affected by the siting of offshore wind turbines. The contributions for sustainable marine conservation from each of the successful bids must be paid to the federal budget within a year. The contributions for lowering electricity costs must be paid in equal annual instalments, to the transmission system operators required to connect the offshore wind farms, over 20 years beginning when the wind farm becomes operational.

Germany has just launched another tender for 2.5 GW offshore under the same conditions[122].

Requiring the payment of the financial component of the bid upfront may limit the competition, affect the financial situation of the company and the execution of the project. Alternatively, the payments of the award bids can be due in instalments over a long period, as was the case in Germany where it was spread over 20 years from the beginning of operations of the wind farm. Such a solution makes it easier for the bidder to settle the financial burden and provides a hedge against inflation while still ensuring public revenues.

During the consultations with stakeholders some concerns were expressed concerning negative bidding[123]. An argument was made that negative bidding creates additional costs for

[119] https://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/EN/2023/20230712_OffshoreResults.html

[120] See Part 3, Section 2 of Windenergie-auf-See-Gesetz vom 13. Oktober 2016 (BGBl. I S. 2258, 2310).

[121] Bids were made by ascending online auction in a succession of hourly sessions. Bidders had to offer a minimum of 30,000 euros per MW in the first round, and then, in each subsequent round, increase their bid by the same amount until the first recorded abandonment. From the first withdrawal onwards, bids were made in increments of €15,000/MW. Depending on the site, it took between 55 and 72 sessions to close the market.

[122] https://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/EN/2024/20240129_Offshore.html

[123] See for instance, WindEurope: German Offshore auctions award 7GW of new wind; future auctions must avoid negative bidding available at https://windeurope.org/newsroom/press-releases/german-offshore-auctions-award-7-gw-of-new-wind-future-auctions-must-avoid-negative-

offshore wind developers and these costs must be passed on to consumers or to the supply chain.

It has been argued that negative bidding could result in higher costs to consumers by means of higher wholesale electricity prices or by higher PPA prices. However, the high bids resulting from negative bidding are unlikely to be passed on to electricity customers. Wholesale electricity prices are determined by the short run marginal cost of the last unit in the system following the merit order (generally natural gas). The winner of an auction using negative bidding incurs an additional fixed cost but does not see its short run marginal cost of production affected. Similarly, PPA prices are linked to the expected wholesale electricity prices and their value and not to the payment in the auction.

Another set of arguments point to the fact that negative bidding may have negative effects down the value chain on equipment manufacturers. However, this argument is not straightforward[124]. Such an argument can also apply to other price-based renewable auctions which do not allow for negative bidding. Also, the negotiating position between developers and the supply chain is not affected by the auction, and no auction obliges the bidder to pass on a given amount to the manufacturer. To avoid a potential negative effect for the manufacturers, other practices, such as those described in this guidance, could be used to ensure the existence of a competitive bidding, reward sustainability, supply chain resilience, innovation, and quality of the project, full and timely execution of the project while allowing the bids to include all the relevant project costs. The auctions which have included negative bidding components, such as in Germany and the Netherlands have been oversubscribed and the cause of the negative effects for the manufacturers is not evident.

10. Bid ceilings

In principle, in a situation of perfect competition there is no need for bid ceilings as the auction will deliver the optimal outcome. However, the use of bid ceilings (or bid caps) is relevant for those situations where there is some kind of financial support provided by the State through the auction. The bid ceiling is a guarantee for the Member State that it will not spend more than necessary.

From the bidder's perspective, no project should be constructed if it leads to a funding gap (i.e. a negative net present value of the project), and in practice no bidder will bid below the level which ensures a normal profitability of the project. The individual profitability will depend on the revenues, costs and costs of capital (WACC) the developer incurs to build and

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bidding/#:~:text=7%20GW%20of%20new%20capacity,chain%20which%20is%20already%20struggling and Crampes and Ambec: Auctions for offshore wind power, *La Tribune* 6 September 2023 for a commentary on some of the arguments related to negative bidding in the context of the recent German offshore wind auction. Available at https://www.tse-fr.eu/debate-auctions-offshore and Rabobank (2023) "Offshore wind tenders design in need of overhaul to meet climate ambitions" available at https://www.rabobank.com/knowledge/d011389995-offshore-wind-tender-design-in-need-of-overhaul-to-meet-climate-ambitions

[124] Similar claims were made when Member States auctioned their 3G mobile spectrum. See Klemperer, P. (2022) The wrong culprit for telecom trouble. Financial Times 5 (November 26), 21 or Binmore, K. and Klemperer, P. (2002): "The biggest auction ever: the sale of the British 3G telecom licenses" *The Economic Journal*, 112 (March) C74-C96.

operate the project in the specific location in which it is (will be) located. Furthermore, the profitability will be related to the specific technology employed.

From the Member State's perspective, the bid ceiling should reflect its willingness to pay for the project. In other words, the Member State needs to decide how much it is prepared to pay for the given project and decide what volume of electricity will receive support in such a way that a competitive bidding process remains. If the Member State would decide to pay less than the amount needed to cover the funding gap of the reference project it could result in undersubscription in the bidding process.

The bid ceilings should be justified with a quantification for the reference project.[125] In doing so, Member States may justify their calculation by estimating the expected revenues, costs and costs of capital (WACC) for the reference project and determine the bid ceiling to ensure that the net present value is equal to zero. These estimates may be based on previous comparable projects and corrected where necessary to reflect changed market circumstances. Furthermore, Member States may also use in their assessment of the bid ceiling the levelized cost of energy ('LCOE') of the different projects that have been recently awarded, the prevailing and expected interest rates and inflation. **Germany**, for instance, has conducted a study reviewing the bid ceilings. The study reviewed the LCOEs of many different projects and reviewed its bid ceilings in such a way that 80% of surveyed projects would be below the bid ceiling.[126] For the ORESS1 offshore wind auction Ireland commissioned a LCOE study together with professional judgment to set the bid ceiling.

For the reasons described in this section, when Member States introduce bid ceilings it is essential to ensure that they are properly set. This is particularly important for projects for non-mature technologies which would not be constructed on a pure market basis. If the bid ceiling is set below the funding gap there is no possibility that these projects will be constructed. Furthermore, this is also very relevant for projects like offshore wind parks, which require an auction to enable the project to be constructed contrary to other renewable technologies (as solar and onshore wind).

11. Levelling the playing field for renewable energy communities and SMEs (including citizen energy communities)

Article 22 (7) of the Renewable Energy Directive requires Member States to take into account specificities of renewable energy communities (RECs) when designing support schemes in order to allow them to compete for support on an equal footing with other market participants.

It should be noted that the CEEAG[127] and the Renewable Energy Directive[128] grant for exceptions from the requirement to allocate aid and determine the aid level through a

[125] CEEAG point 106.

[126] Deutsche Windguard (2023): Kostensituation der Windenergie an Land Stand 2023 https://www.bmwk.de/Redaktion/DE/Downloads/E/eeg-eb-wal-kostensituation-20231123.pdf?__blob=publicationFile&v=6

[127] Point 107 (b) (iv) and (v) of the CEEAG allow exceptions when dully justified and point 120 of the CEEAG recognizes more flexibility regarding pre-qualification criteria.

[128] Article 4 of the Renewable Energy Directive

competitive bidding process[129]. This can be justified where evidence is provided that beneficiaries are small projects, i.e. projects below or equal to 1 MW, SME-owned or REC projects equal to or below 6 MW, wind projects owned by RECs or small and microenterprises equal to or below 18 MW. This is also mirrored in the General Block Exemption Regulation and the TCTF[130]. It should also be noted that citizen energy communities can also benefit from these rules to the extent they qualify as an SME.

Where Member States use competitive auctions to allocate support to RECs, this can lead to several challenges for RECs participating in auctions. RECs as non-professional, small and novel actors may have difficulties in overcoming the administrative burden and cost of participating in auctions and prequalification criteria are often harder to meet for RECs. Moreover, auctions based on price criteria do not reward the social and environmental benefits created by RECs and their unique characteristics (including ownership and governance structure). The generally smaller and geographically confined scale of REC projects often means higher costs per unit of energy and thus lower chances to win. Also, RECs are not always able to design bidding strategies relying on market knowledge and economies of scale that larger market players may have, and they are more sensitive to changes in support schemes over time.

Nevertheless, in Member States with more mature energy communities, auctions can be an efficient way to allocate support to them. According to CEEAG[131], Member States could grant more flexibility regarding pre-qualification requirements for projects developed and 100 % owned by SMEs or by renewable energy communities as a means to reduce barriers to their participation.

Separate auction baskets where only community projects compete against each other are a possible solution when implementing Article 22 (7) of the RED. To avoid abuse of such special pathway by large market actors, would be essential to put in place a robust definition of energy communities as well as a registration system to check that all the criteria are met. When applicable, the possibility for a renewable energy community to be open to cross-border participation is encouraged when designing auctions.

Ireland – ringfenced auctions and eased participation requirements: under the RESS 2 scheme, projects between 0.5MW and 5W that qualify as a REC could participate in a ring-fenced tender reserved only for RECs[132,133]. To prevent abuse, projects had to be 100% owned by a REC either through direct ownership of the project's assets or through direct ownership of the shares in the generator. Furthermore, 100% of the profits, dividends and surpluses from the project must be returned to the REC. Qualifying projects did not need to submit a reservation fee or security, and did not need to have planning permission to apply for a grid connection.

[129] For instance, **Germany** applies an exception from competitive tenders for renewable energy communities.
[130] See Point (77) h. (ii) and (iii) of the TCTF.

[131] See point 120 of the CEEAG which recognises more flexibility regarding pre-qualification criteria.
[132] The Ireland Renewable Electricity Support Scheme (RESS) State aid scheme was approved under TCTF (see Section 2.5.1.2 of the decision SA.105135).
[133] https://www.gov.ie/en/publication/36d8d2-renewable-electricity-support-scheme/

Lithuania – bonus points in auctions: energy communities are potential beneficiaries under Lithuania's recovery and resilience plan. The fund is administered by the Lithuanian Energy Agency, and includes EUR 90 million to support solar projects up to 500kW and wind projects up to 6MW. Tenders provide bonus scoring to energy communities. The target groups of the calls for proposals are renewable energy communities, citizen energy communities, micro and small enterprises, as well as farmers qualifying as micro-enterprises[134].

CONCLUSIONS

For the purposes of attaining their renewable energy objectives, the practices set out in this guidance should enable Member States further improve their auction design in particular by including objective, transparent and non-discriminatory non-price criteria and other measures to maximise the success rate of auctions and the execution rate of renewable projects.

Furthermore, it will be also important to ensure economic efficiency in the design of support schemes as an important aspect for a cost-efficient deployment of renewable energy in Europe.

[134] See https://www.ena.lt/inpa-saules-elektrinems/ and https://www.ena.lt/inpa-vejo-elektrinems/

ANNEX - SYNOPSIS REPORT ON THE CALL FOR EVIDENCE

When preparing the Commission Recommendation and guidance on auction design for renewable energy, the main stakeholder consultation activities consisted of an online 'call for evidence', which was available for feedback on the Commission's consultation website 'Have your say' for 4 weeks[135]. In addition to the call for evidence, the Commission also organised two online workshops at technical level – one with Member States on 13 November 2023 and another one with private stakeholders on 1 December 2023.

The consultation activities containing free text questions were designed following the structure and the list of topics which were included in Action 4 of the Wind power package plan of 24 October 2023[136] and which the Commission is addressing in the recommendation, as well as in the guidance on auction design for renewable energy.

The objective of the consultation was to gather feedback from the public and private stakeholders, including citizens on the proposed scope and content of the initiative, in particular as regards specific elements of auction design that are covered within the scope of the action under the Wind power package plan and the recommendation and guidance. The main stakeholders targeted for the auction design related aspects were national authorities (Member States and the authorities which are implementing renewable energy auctions), renewable energy producing companies, companies involved in the clean tech manufacturing energy communities, and branch organisations.

The consultation activities reached all identified stakeholder groups, and input from the stakeholders was received via responses to the 'call for evidence', as well as through participation in the stakeholder workshops. Feedback was received from public authorities (at central governmental level), companies active in renewable energy production and participating in renewable energy auctions, manufacturing companies which produce goods for the supply chain of renewable energy installations and branch organisations of all sizes (from micro to large). Citizens and non-governmental organisations also provided input.

A quantitative and qualitative analysis of the comments received to the 'call for evidence', including the attached position papers was carried out. The comments to the 'call for evidence' were classified according to the claims made and quantified.

This document should be regarded solely as a summary of the stakeholder contributions. It cannot in any circumstances be regarded as the official position of the Commission or its services and therefore does not bind the Commission. Responses to the consultation activities also cannot be considered as a representative sample of the views of the EU population.

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[135] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14122-Design-elements-of-renewable-energy-auctions-guidance-_en.

[136] COM(2023) 669 final.

In total, 89 replies were received in response to the '**call for evidence**'. Most (37) came from companies and businesses, 24 from business associations, 15 from non-governmental organisations, 6 citizens and 3 from public authorities. One joint reply by two trade unions was submitted as well. Out of the replies from companies and businesses, the majority are from respondents which are either outside the wind sector (6) or that are operating in the wind sector but also in other sectors (24). In terms of geographical spread, most replies came from Belgium (19), Germany (15) and France (9). A smaller proportion of replies came from other Member States including Portugal (6), Denmark (5), Poland and Spain (4 each) and others. Respondents from non-EU countries including Norway (10) and the United Kingdom (2) also submitted replies.

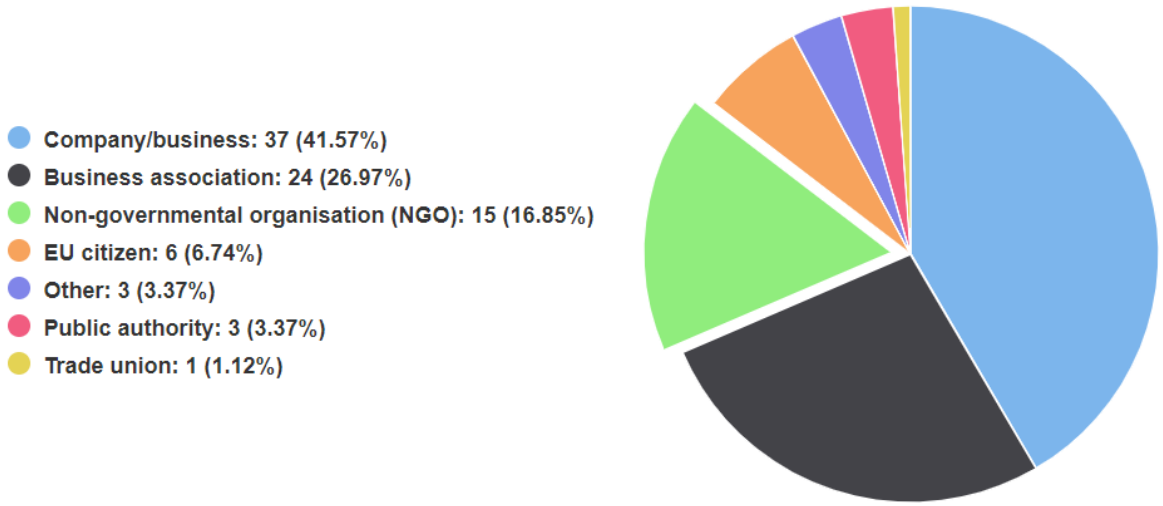

Fig. 1: Overview stakeholder replies per sector

Most respondents expressed general support for a more harmonised and common application of auction design across the EU, which will allow for synergies, streamlining and better investment environment for renewable energy developers, while also leaving some flexibility at national level. In particular, the auctions would benefit from comparable non-price criteria, if possible underpinned by reliable and comparable methodologies. Another common reply was that non-price criteria should be objective, transparent, verifiable, non-discriminatory and based on measurable and comparable indicators.

Most respondents defended the technology-specific approach to introduction of non-price criteria, stating that the application should be tailored to the needs and the market reality of the different technologies (including differentiating between solar and wind, and between onshore and offshore wind). In particular, many of the respondents argued that for solar PV and onshore wind the application of non-price criteria should take the form of pre-qualification requirements, while for offshore wind it should take the form of award criteria. When using non price criteria related to resilience and European content for solar PV auctions, the possible impact of slowing down the deployment should be considered. On penalties, most respondents shared similar views that the penalties need to be high enough to

ensure the delivery of the projects, but not too strict as to lead to excessively high costs for developers, which could deter them from participating in the auction. The public authorities focus on the purpose of the penalties to reflect a proportionate response to the scale and phase of project delays or non-execution, i.e. to the need to adjust them corresponding to the specific tender.

On price indexation, most respondents argued that such indexation is needed and should apply differently in the various stages of project implementation, i.e. in the first period between the end of the auction and the final investment decision, during the construction phase and during the operation phase. This would capture both the capital expenditure ('CAPEX') and operating expenditure ('OPEX') costs. However, the public authorities raised concerns related to predictability and planning security of budgets which could ultimately lead to higher support costs, therefore they insist that indexation should be an instrument in a toolbox, rather than preferred option.

On bid ceilings, most respondents, in particular the business associations and companies agreed that the ceilings should reflect the LCOE for each technology, while others argued that they should refer to wholesale market prices (i.e. to a basket price that includes signals from both spot and forward markets). All respondents agreed that the bid ceilings need to be transparent and adapt to the market reality (i.e. be assessed and updated regularly). Also, all respondents refer to a delicate balance between high enough ceiling which will attract sufficient number of bids but without leading to excessively high bid prices, and low enough ceiling which will exclude advantageous bids but without missing deployment targets because of too little participation.

The major difference in opinions of the respondents was on the topic of negative bidding. Some respondents, notably companies and businesses and associations argued against the application of negative bidding for concession payments to the government (capped or uncapped) with the argument that it leads to detrimental race to the bottom, squeezing the supply chain (by paying less money for components and services) and passing on the costs to consumers (by concluding PPAs at higher prices). Other respondents, notably a smaller number of companies and national authorities argued in favour of negative bidding for offshore auctions as the most efficient award scheme for mature, subsidy-free technologies, which maximises the value of the rare good such as offshore wind sites and allows the generated revenues be used for other public objectives such as energy system integration or environmental protection, and without making the energy more expensive or increasing the pressure on the supply chain.

The two stakeholder workshops, held on 13 November 2023 with Member States, and on 1 December 2023 with stakeholders, focused on the main elements on auction design which will be captured by the Commission's Recommendation and guidance. The workshops' participants were selected based on their profile as participants in EU auctions in the established renewable energy technologies, as well as associations which represent the interest of the renewable energy sector and its supply chain. Participants of both stakeholder workshops identified the role of auction design and non-price criteria in particular in supporting the clean tech manufacturing sector and the sustainability and resilience of the renewables deployment, as well as the need for a common application and well-calibrated elements of the auction design.

The results of the various stakeholder consultation activities were largely consistent and contributed to the identification and development of the key elements of auction design for renewables to be addressed in the Commission Recommendation and guidance. The information and evidence gathered in the context of the consultation work as well as feedback received has been taken into account in the finalisation of the initiative.