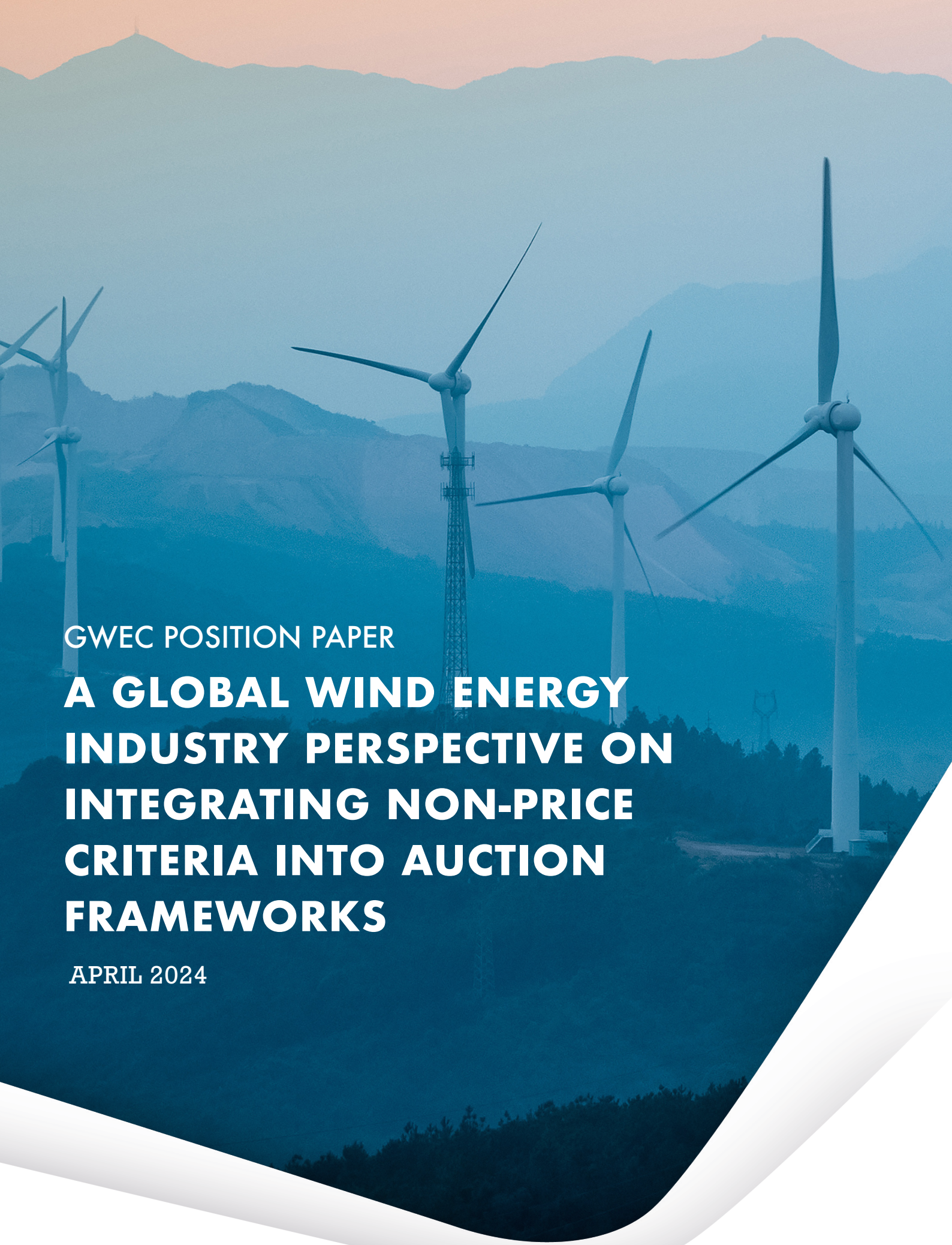

GWEC POSITION PAPER

A GLOBAL WIND ENERGY INDUSTRY PERSPECTIVE ON INTEGRATING NON-PRICE CRITERIA INTO AUCTION FRAMEWORKS

APRIL 2024

GWEC
GLOBAL WIND ENERGY COUNCIL

CONTENTS

EXECUTIVE SUMMARY

The Global Wind Energy Council (GWEC) has developed this position paper in consultation with its members across the global value chain for wind energy. This document provides insights for governments on evolving auction design strategy, covering the benefits, costs and considerations of introducing non-price criteria (NPC, also called non-price award or qualitative criteria) to an auction scheme for procurement of wind energy. It also provides a set of guidelines and guardrails for evaluating the effectiveness of NPC in various market conditions.

There is an imperative to rapidly scale up wind energy capacity to meet the global goal of tripling renewable energy by 2030, agreed at COP28 in 2023. In this context, this paper supports policymakers in making careful and informed decisions regarding the adoption of NPC, to ensure that procurement frameworks can support large-scale, long-term and sustainable deployment of wind energy.

KEY POINTS:

- Dynamic cost environments, rising inflation and cost of capital, and a lack of coherent industrial strategies pose challenges to wind energy development and supply chain stability today, requiring flexible tender design and collaboration between government and industry.

- Wind energy auctions should avoid fostering a 'race to the bottom' by focusing procurement criteria on attaining wind generation for the lowest possible cost, as this jeopardises long-term investment conditions for the continued deployment of wind energy and investment in supply chains.

- Designing robust pre-qualification criteria for tenders and broader supply chain plans for the wind sector can support governments in responding to changing market conditions while maximising energy transition benefits.

- Some governments are further integrating NPC into renewable energy procurement schemes, exploring social, economic, and environmental criteria beyond price in auctions to recognise and maximise the value obtained from renewable energy. NPC should be implemented in a consultative process between governments and industry, to adequately adapt auction design to reflect government ambitions, sector capabilities, the wider cost environment and evolving market conditions.

- NPC can be broadly categorised under sustainability, system integration, and social impact factors. It would be more effective to apply NPC to offshore wind tenders rather than onshore wind tenders, due to the larger scale and longer planning timelines for offshore wind projects. In offshore wind tender processes, earlier application of NPC is preferred, e.g. at the seabed leasing stage for markets with a two-stage auction process.

- While some countries have adopted local content requirements (LCRs) as a tool to encourage supply chain development, the ambition to simulate domestic industrial development should be approached separately to NPC. Overly prescriptive LCRs and implementing supply chain requirements within NPC may result in higher LCOE, hinder forward-planning for supply chain actors, and distort markets by restricting supply chain investment to a small number of actors with winning bids. Broader and more holisitic planning for supply chains and industrial development, developed in collaboration with industry and focused on development, construction, and long-term operations and maintenance (O&M) activities, is more effective in fostering a sustainable and thriving wind industry.

GWEC recommends the following guardrails for governments considering the application of NPC in tender schemes.

- GENERAL PRINCIPLES
  - Deliverability, track record and financial capability should be elements of pre-qualification requirements for participation in the tender
  - Tenders should reflect supportive pricing and an enabling policy and regulatory environment
  - Account for market maturity
  - If introducing NPC, provide an 'on-ramp' transition period to facilitate industry collaboration

- APPLICATION OF NPC
  - Ensure that NPC are transparent, reasonable, practical, and reflective of existing capabilities
  - NPC should be carefully selected to coordinate with broader policy frameworks
  - NPC should not increase legal or administrative barriers to an unreasonable degree, and should be harmonised with existing frameworks and protocols as far as possible
  - For offshore wind, NPC is most effective at the seabed leasing stage (as applicable)

- EVALUATION OF NPC
  - NPC should be measurable, verifiable, comparable and quantifiable, if possible, without restricting flexibility in bidding
  - NPC require enhanced transparency in the evaluation and scoring process for tenders

CHAPTER 1

CONTEXT

Wind energy has achieved significant cost reduction over the last few decades, and now serves as an engine for growth and socioeconomic benefits in developed and developing economies. This section of the paper introduces the global trend towards auctions for procurement of wind energy, the current dynamic cost environment, and the backdrop of global and national climate goals when considering the application of NPC.

1.1. A GLOBAL SHIFT TO AUCTIONS FOR RENEWABLE ENERGY PROCUREMENT

Renewable energy auctions, also known as demand, reverse or procurement auctions, are government-led competitive processes where tenders are issued to procure renewable electricity. They aim to facilitate price discovery and volume control to procure cost-competitive power and support the expansion of renewable energy capacity, in turn increasing access to affordable clean electricity. They have become increasingly prevalent as procurement mechanisms, with 106 countries holding at least one auction for renewables by the end of 2018.[1]

As the energy transition advances, governments are realising the potential of renewables to deliver not just clean energy, but also social, economic, environmental benefits and energy security. These broader objectives, from fostering local industry to creating jobs, are being woven into policy frameworks. To maximise the value of renewable energy, policymakers are exploring various tools beyond focusing only on price-based auctions. This includes larger industrial packages and price-quality evaluation, achieved through the introduction of non-price criteria (NPC) to increase the benefits from the transition to renewables.

Typically, auctions begin with notification of a pre-qualification stage that sets out technical specifications and minimum-level competencies required for participation in the auction. Common criteria for a pre-qualification stage include: past experience and track record; legal requirements; financial competence; good conduct; and geographic specifications.[2]

The second stage encompasses selection and evaluation. During this stage generators submit bids indicating a price per unit of electricity. Subsequently the government evaluates and awards contracts. Contracts may be based on the most competitive bids or based on the best price-quality ratio. This evaluation process takes into account scoring various criteria, including technical, financial, socioeconomic, environmental and other competencies or qualities within NPC.

In the offshore wind sector, seabed leasing auctions are sometimes separate from the auction for offtake. Depending on market conditions and maturity, some seabed leasing tenders may prioritise the highest bids, while others incorporate NPC.

1.2. AUCTIONS IN A DYNAMIC COST ENVIRONMENT FOR RENEWABLE ENERGY

While wind energy has achieved significant cost reduction in the last decade, auction design centred around the lowest costs runs the risk of fostering a 'race to the bottom' in markets. This can create tenuous investment conditions for the continued deployment of wind energy and investment in supply chains (see Case Study 1: Unreasonable price signals in UK offshore wind auction).

This risk is particularly acute given the current dynamic cost environment, marked by elevated cost of financing, high inflation rates, and commodity price volatility. A lack of aligned and coherent industrial strategies between the government and industry players can exacerbate these challenges. All of these factors impact the economics of the value chain for wind energy, from cost recovery for developers to supply chain tightness, and intensify downward price pressure in offtake and supply chain procurement. This highlights the need for a more collaborative and responsive approach between governments and industry to both wind energy procurement and supply chain development.

1 IRENA, Renewable energy auctions: Status and trends beyond price, 2019.

2 Soysal, Emilie Rosenlund, Auctions for Renewable Energy Support: Effective use and efficient implementation options (AURES), Policy Memo 2: Pre-qualifications and penalties, 2016.

CASE STUDY 1

UNREASONABLE PRICE SIGNALS IN UK OFFSHORE WIND AUCTION

In late 2023, the UK held its Allocation Round 5 (AR5) tender for renewable energy under a Contracts for Difference (CfD) mechanism. The outcome was zero bids for offshore wind projects—a downturn for the UK, at one time the world's leading offshore wind market and currently a leader in floating wind. In the previous AR4 round in 2020, 7 GW of offshore wind was awarded alone. The lack of bidders three years later can be attributed to multiple factors, but primarily a low CfD budget (pot size), having no separate pot for offshore wind, and low administrative strike price (ASP) of GBP 44/MWh (around $54/MWh), which had not adapted to market conditions.

Although the offshore wind industry conducted multiple rounds of consultation with the government in the lead-up to AR5 on the need for different pot structures, a larger CfD budget and fair and realistic ASPs, ceiling prices were not revised to account for challenging externalities.[1] These externalities included elevated commodity and construction costs, and increased cost of capital since the last auction round. A lack of inflation indexation of the ASP against a basket of commodity costs between the CfD award date and projects reaching financial investment decision (FID) also meant that the tender did not account for the shift in project economics. The final strike price was deemed unfeasible for investment.

The resulting gap in the UK's offshore wind pipeline was likely to stall broader supply chain investment and planning, and delay the country's progress towards its offshore wind, energy security, and net zero targets. In response to these risks, the UK government took the positive step to increase the ASPs for the subsequent AR6 tender round by 66% for fixed-bottom offshore wind projects and 52% for floating offshore wind projects. This revision also includes the reinstatement of offshore wind in the CfD budget. Furthermore, there is an intention to include NPC (known as Sustainable Industry Rewards in the UK context) in the auction process from 2025 onwards.[2]

1 RenewableUK, Industry warns urgent action needed to restore investor confidence following renewables auction, 2023.

2 UK Government, Boost for offshore wind as government raises maximum prices in renewable energy auction, 2023.

1.3. CONSIDERING NPC WHILE MEETING CLIMATE GOALS: A CAUTIOUS APPROACH

At COP28 in 2023, a global goal was reached to triple the world's renewable energy capacity by 2030, leveraging wind and solar power for the vast majority of new capacity needed in the remainder of this decade. But growth of wind energy still lags far behind the levels required to reach this goal and get on-track for a 1.5°C pathway.

According to IRENA's 1.5°C Scenario, global total installed renewable power generation capacity would need to triple within this decade, from 3,382 GW in 2022 to 11,174 GW in 2030. For wind energy, capacity would need to increase to 3,500 GW, up from 899 GW in 2022.[3] Annual wind installations will need to roughly treble in the next few years to deliver the wind energy required to mitigate the most harmful impacts of climate change.

While facing this sizable challenge to meet climate goals, the wind industry is also experiencing pressure on margins, market pricing and supply chain stability. Rising geopolitical tensions since the invasion of Ukraine, ongoing commodity price inflation, increased interest rates and competition for capital are all converging to impose a squeeze on project returns. As governments seek to secure their project pipelines in advance of milestones (2030, 2035, 2040 and beyond), this can also leave developers and the supply chain exposed to inflationary pressures and macroeconomic risks.

Auctions in many places compel developers to compete for small volumes of capacity by submitting low or even negative bids, which can further squeeze the supply chain. In uncapped seabed leasing tenders, developers face conditions that can generate unreasonably high bids, distorting CAPEX calculations and leading to razor-thin margins; this in turn leaves projects exposed to inflation and external price volatility.

There is a need to balance competitive prices with the robustness of bids, to discourage high speculative bidding and ensure the realisation of project pipelines. While wind energy has experienced significant cost reductions over the last 20 years, the pace of these reductions is expected to slow under the current and near-to-medium term macroeconomic outlooks. This adjustment reflects factors such as the underlying cost of capital, rising de-

3 COP28, IRENA, GRA, Tripling renewable power and doubling energy efficiency by 2030: Crucial steps towards 1.5°C, 2023.

mand, ongoing price volatility for commodities (especially steel and copper), and logistics costs. Hence continued dramatic cost declines for wind energy should not be expected, although onshore and offshore wind will continue to out-compete fossil fuel generation on LCOE, environmental and social terms.[4]

It is important that policymakers consider NPC through the wider lens of market conditions and the urgency to accelerate growth of wind installations. As NPC may entail additional costs, governments should carefully weigh the effectiveness of achieving political, economic or social objectives through auction criteria against the potential impacts on project economics.

Ultimately, the industry needs stable and ambitious policy environments that offer reasonable returns on investment to achieve scalability. And with increased stability and scalability come significant socioeconomic, environmental, and energy security benefits for countries, along with long-term cost reductions.

4 BloombergNEF, Cost of Clean Energy Technologies Drop as Expensive Debt Offset by Cooling Commodity Prices, 2023.

CHAPTER 2

GUIDANCE AND GUARDRAILS FOR NPC IN AUCTION DESIGN

Governments are confronting the need to respond to market pressure, meet capacity targets and maximise the benefits of the energy transition. To address these challenges, various policy tools are available, such as NPC, pre-qualification stages for auctions, setting milestone delivery dates, developing supply chain plans and formulating industrial strategies. Currently, there is no universal template for NPC, as each market carries its own context, technological capabilities, financial conditions and enabling policy/regulatory environment. This section of the paper introduces the typical scope for NPC, as well as specific guardrails for NPC in auction design in developed and developing economies.

2.1. SCOPE FOR NPC

Auctions are primarily designed for transparent, efficient and fair price discovery. NPC expands the scope of auctions by procuring projects that are efficient in pricing and deliver additional value. In general, NPC fall into three main categories:

SUSTAINABILITY	SYSTEM INTEGRATION	SOCIAL IMPACT
• Environmental and ecological sensitivity in construction, operation and decommissioning • Nature-positive approaches to enhance biodiversity and ecosystem health • Limiting emissions intensity of projects • Enhancing circularity, recyclability and decarbonisation	• Integrating different technologies to boost value (such as storage, interconnections, transmission or ancillary services) to boost overall value	• Enhanced community and stakeholder engagement • Enhanced community welfare • Provision of infrastructure and public facilities

The sociopolitical, environmental and economic objectives of a country inform the definition of value and specific criteria, which could include:

- Improved performance in sustainability
- Circularity and waste management
- Emissions intensity of project value chains
- Biodiversity and ecological mitigation
- Community engagement
- Knowledge sharing
- Social impact and community benefits
- System integration and flexibility needs
- System resilience and security
- Environmental, Social, & Governance (ESG) commitments
- Technological innovation and quality, and more

For example, EU State Aid Guidelines for Climate, Energy, and Environment, active from January 2022, permit EU governments to include up to 30% NPC in their auctions to access EU funding support, while the remaining 70% of criteria is price-based.[5] NPC effectively cover sustainability, socioeconomic and energy security objectives in these guidelines. If price support is not provided by the government, the share of evaluation from NPC can be higher, as demonstrated in offshore wind auctions in the Netherlands in 2022.[6] The Appendix provides more detailed information on how various governments approach pre-qualification and NPC for projects.

5 European Union Law, Guidelines on State aid for climate, environmental protection and energy 2022.

6 At Site VI, 50% of scoring related to biodiversity and ecosystem impacts, while at Site VII 50% of scoring related to system integration and knowledge-sharing.

As noted in the previous section, the fulfilment of objectives across sustainability, system integration and social impact generates additional costs for developers and the wider supply chain. However, this investment creates significant value for society, beyond the production of clean energy in itself.

It must be clearly understood that NPC should incorporate the associated costs in auction pricing. Policymakers considering NPC should recognise the costs borne by developers and the supply chain to meet criteria for a wind farm's entire lifespan. In other words, incentivising the industry to deliver added value from wind farms over their operational lifespan requires fair and sustainable remuneration.

While the adoption of NPC will bring about additional value creation from wind energy, it will also introduce a layer of complexity to the evaluation process. Given that onshore wind projects typically operate on a smaller scale with shorter construction timelines compared to offshore wind, it is more effective to apply NPC in the offshore wind sector. Offshore wind projects benefit from larger-scale and longer planning timelines allowing for better preparation to implement NPC when introduced.

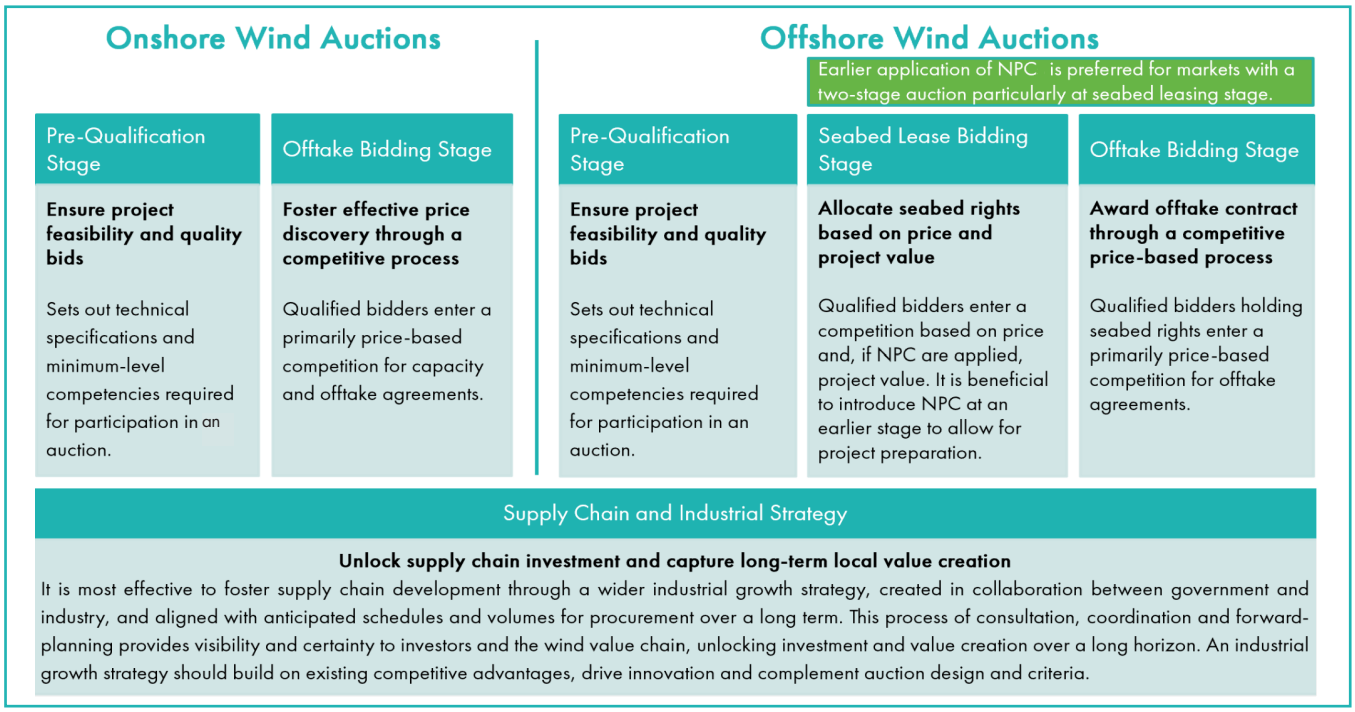

FIGURE 1

Summary of auction stages and potential application of NPC .

2.2. INCENTIVISING SUPPLY CHAIN DEVELOPMENT AS A BROADER SECTOR GROWTH STRATEGY

Wind power is a source of massive capital investment in countries worldwide, with the ability to create multiplier effects in sustainable employment opportunities, industrial growth and development of local supply chains. Wind sector growth generates not only enormous net benefits for economies, but can also support the longer-term transition of value chains and labour markets in fossil fuel-dependent markets.

Several countries have integrated local content requirements (LCRs) into their procurement processes in an attempt to capture domestic industrial value. Approaches range from requesting supply chain plan questionnaires from project developers to more stringent measures, such as mandating the procurement of specific items locally.

Through collaboration with industry, governments can create effective, practical and ambitious industrial growth plans – plans aimed at increasing local content within the expanding wind sector, and fostering significant and sustainable investments in local technology,

supply chains, and people. However, the success of these endeavours relies on the establishment of stable and adequately sized domestic demand conditions.

GWEC believes, however, that it is far more effective to foster supply chain value (including LCRs) via wider frameworks and industrial planning policy, rather than making these developments specific to bid requirements. Focusing NPC solely on local content restricts incentives to a small number of market actors with winning bids, without providing encouraging signals to the broader industrial base, including domestic and foreign companies. This can lead to inconsistent investment and uncertain forward planning for supply chain actors, as it forces them to adapt their order and investment strategies based on auction outcomes.

More effective channels for incentivising local content include:

- Broader sector growth strategies developed through comprehensive consultation processes involving policymakers, industry actors and the investment community. These strategies typically offer a practical timeline with milestone deliverables that incrementally ramp up installed capacity and supply chain development while driving down costs.

- Large industrial policy packages, such as the Inflation Reduction Act in the US, which offer a variety of fiscal incentives for supply chain investment, including tax credits and investment grants over an extended period. These policies should establish clear targets for segments of the supply chain investment, focusing on areas where the country holds a competitive advantage for growth. Additionally, they should be part of a broader industrial plan aimed at capturing this value.

CASE STUDY 2

BROAD SECTOR GROWTH STRATEGIES FOR INCENTIVISING SUPPLY CHAIN VALUE IN THE OFFSHORE WIND INDUSTRY

The UK's LCRs for offshore wind were not a singular, auction-round specific policy with strict requirements, but rather a set of considerations and initiatives aimed at promoting the use of local goods, services and labour in offshore wind projects after consultations with the industry players. One of the key areas of emphasis for the UK offshore wind sector is the growth of the UK supply chain, with the 2019 Offshore Wind Sector Deal targeting 60% local content in new projects by 2030. At the time of the deal, there was approximately 50% UK content in domestic offshore wind farms.[1]

As part of the Sector Deal, training and educational programs were implemented to ensure that the industry's growth translated into employment opportunities for UK residents. To address these skills development challenges, the UK government has committed to transforming further education, aligning technical education and training better through the rollout of T Levels. One of the Sector Deal initiatives will also invest up to £250 million to build a stronger UK supply chain through the establishment of the Offshore Wind Growth Partnership (OWGP). The OWGP supports businesses with the development of the offshore wind supply chain through grant funding and business transformation support, thereby upskilling companies.

During the latest consultation with the industry, and following challenges from the EU regarding discriminatory practices in the adoption of green subsidy schemes to encourage LCR,[2] the government was advised to increase incentives for investment and broaden its focus beyond just local content. It was suggested that newer elements should be incorporated to better measure sector growth.

1 UK Government, Offshore Wind Sector Deal, 2019.

2 European Commission, EU challenges discriminatory practices of UK's green energy subsidy scheme at WTO, 2022.

While the wind industry consistently delivers positive socio-economic impacts, such as generating job opportunities and investment in manufacturing facilities but even more so in O&M and installation, governments must ensure that LCRs, if adopted, are not overly prescriptive or strict. These requirements, if related to factors outside a developer's control (e.g. use of country-flagged vessels which may not exist), can restrict efficiency and flexibility in supply chain management. This often deters investment in local manufacturing and supply chain, particularly in new wind power markets, and increases the LCOE due to lower economies of scale.

Many mature offshore wind markets, such as the UK, developed their offshore wind industry off the back of a very international supply chain which enabled cost reduction and rapid delivery of projects. Overly prescriptive local supply chain requirements, particularly in countries with low existing supply chain facilities and capabilities, have resulted in LCOE increases and market distortion (see Case Study 3: Strict local content requirements in Taiwan (China) lead to higher costs). In addition, local content

should be broad in application, focusing not only on development and construction opportunities but on long-term O&M activities for wind farms, recognising the economic value they can generate over their project lifespan.

Importantly, governments should be cautious when implementing strict LCRs in early-stage wind markets where procurement is still ramping up, a steady rate of project realisation has not yet been established and supply chain maturity is low. With countries around the world now setting ambitious wind targets, particularly in offshore wind, the business conditions in each market have become a factor in competitiveness for attracting investment.

Governments should collaborate with the wind industry to design planning, investment and implementation pathways for supply chain development, supported by adequate local commitments for future volumes and prices for procurement. In turn, the continued deployment of wind energy facilitates long-term local supply chain growth, cost reduction, and competitiveness. This enables governments to achieve their climate, energy security and economic prosperity goals.

CASE STUDY 3

STRICT LOCAL CONTENT REQUIREMENTS IN TAIWAN (CHINA) LEAD TO HIGHER COSTS

Taiwan (China) has emerged as one of the early movers on offshore wind in Asia. Its offshore wind ambitions are widely recognised, driven by ambitions to become a 'green economy' and a relatively open investment environment. Installed capacity targets of 5.7 GW by 2025 and a further 15 GW by 2035 have sent a strong market signal, requiring a steady buildout of roughly 1 GW/year to reach the long-term goal.

Localisation policy in Taiwan (China)'s emergent offshore wind sector is expressed in a few ways. A supply chain plan must be provided in project applications for an establishment permit; fines or punitive measures on the feed-in-tariff are imposed for missed delivery or delays on the plan. In the 2022 tender of the Round 3 Zonal Development Phase, the Industrial Development Bureau also qualified 25 items as key for development (including wind turbine components, engineering services and power facilities), and a longer list of items which qualified for bonus points. Bidders were required to locally procure the key development items for at least 60% of the proposed capacity. This created constraints around vessels, marine engineering and other segments, resulting in higher costs for offshore wind procurement and delayed projects.

As a result of relatively strict LCRs, the levelised offshore wind tariffs achieved in Taiwan (China) were nearly double those of subsequent auction rounds which eased localisation requirements, according to BloombergNEF. The implementation of more stringent LCRs in Taiwan (China)'s growing offshore wind sector reflect the proportional relationship between local content and offshore wind costs. To achieve long-term cost reduction and a regionally competitive supply chain, especially in an early-stage wind market, policymakers should consider flexible and practical localisation approaches which reflect market conditions.

2.3. GUIDANCE AND GUARDRAILS FOR CONSIDERATION OF NPC

In consultation with the global wind industry, GWEC has outlined guidance and guardrails for governments to consider when considering the application of NPC in wind auction design:

GENERAL PRINCIPLES FOR WIND ENERGY PROCUREMENT

1. **Deliverability, track record and financial capability should be elements of pre-qualification requirements for participation in the tender**
   Assessment of project deliverability, bidder track record and financial capability is crucial to ensuring an effective competition process that results in the safe, on-time installation of new wind capacity at anticipated costs. These assessments should be part of a standard pre-qualification stage for auctions, which will help to deter speculative bidding, ensure a more efficient evaluation stage and generate high-quality bids. This is especially important in emerging wind markets where achieving a high project realisation rate is critical for bolstering investment confidence and driving longer-term cost reduction of wind energy. Therefore, deliverability and track record are important components for the pre-qualification stage.

   Standard pre-qualification criteria often encompass various factors including project experience, business experience in the relevant country or region, compliance with applicable national laws (such as cybersecurity or data security regulation), financial

stability, solvency and bid bonds. It's essential that these criteria are not overly strict or prescriptive, as doing so could severely limit the number and diversity of potential bidders and hinder new market entry. Governments should ensure that pre-qualification requirements align with evolving regulations, such as those related to cybersecurity or ESG standards, to prevent inconsistencies and unnecessary cost increases or administrative burdens.

2. **Establish supportive pricing and an enabling policy and regulatory environment**

Tenders should avoid a 'race to the bottom' approach on price of procurement, which can harm project feasibility, expose projects to long-term cost recovery risks (e.g. externalities like rising interest rates and unforeseen spikes in input costs) and limit supply chain investment. Remuneration must enable generators to recover project lifecycle costs and generate reasonable returns on investment, so that they can continue to invest in long-term development pipelines. Auctions should include a mechanism for compensation of the costs of NPC, and for economic efficiency, NPC should provide a net gain to the future development of the industry in areas such as cost reduction, training and sustainability, among others.

As a variable renewable energy source, wind projects are high-CAPEX investments with low operating costs. As renewable energy shares in power systems grow, liberalised power markets will see a "cannibalisation effect" on pricing as remuneration to generators is currently based on marginal costs. Revenue stability and certainty thus becomes more important to mitigate the risks of low capture prices.

In emerging markets where technologies such as fixed-bottom or floating offshore wind are newer, policymakers should prioritise mechanisms which enable revenue stabilisation. This includes options such as a CfD scheme or long-term PPA. In more mature markets, promoting market-based deployment of renewables, such as corporate offtake, alongside auctions can offer developers flexibility in terms of project financing and power marketing.

In auction design, indexation mechanisms should be considered in order to future-proof projects and allow adjustments based on macroeconomic conditions out of their control. The time between auction award and project commissioning date is approximately two years for onshore wind and even longer for offshore wind, for example, six years for recent auctions in Germany.[7] During this period, generators, manufacturers and upstream suppliers are exposed to pricing and supply chain risks. Recent volatility in energy costs and critical material prices, as well as logistics and financing costs have impacted projects that were economically feasible just a few years ago. This trend has been observed from the US to Europe to India (see Case Study 4: Turbulence in the US offshore wind industry).

Implementing checkpoints for inflationary adjustments before installation can better align with wind project timelines and dynamic market conditions. This is essential when considering factors such as the fluctuating costs of key commodities like steel and the rising retention expenses for skilled local workforce, which cannot be reasonably fixed from auction award to installation.

7 Industry input.

CASE STUDY 4

TURBULENCE IN THE US OFFSHORE WIND INDUSTRY

The nascent US offshore wind industry is grappling with inflation, rising cost of capital, permitting delays, grid connection issues and expectations to develop supply chains at breakneck speed. Previously agreed offtake deals are proving uneconomic, leading to contract renegotiations and even cancellations in 2023.

The LCOE for US offshore wind projects increased 50% from 2021 to 2023 (see Figure 3: Impact of inflation, interest rates and tax credits on US offshore wind LCOEs). The absence of inflation adjustments in current offtake agreements has further complicated matters, eroding developers' revenue over time.

While the Inflation Reduction Act provides some relief, developers are advocating for inflation adjustment mechanisms in contracts and further in-

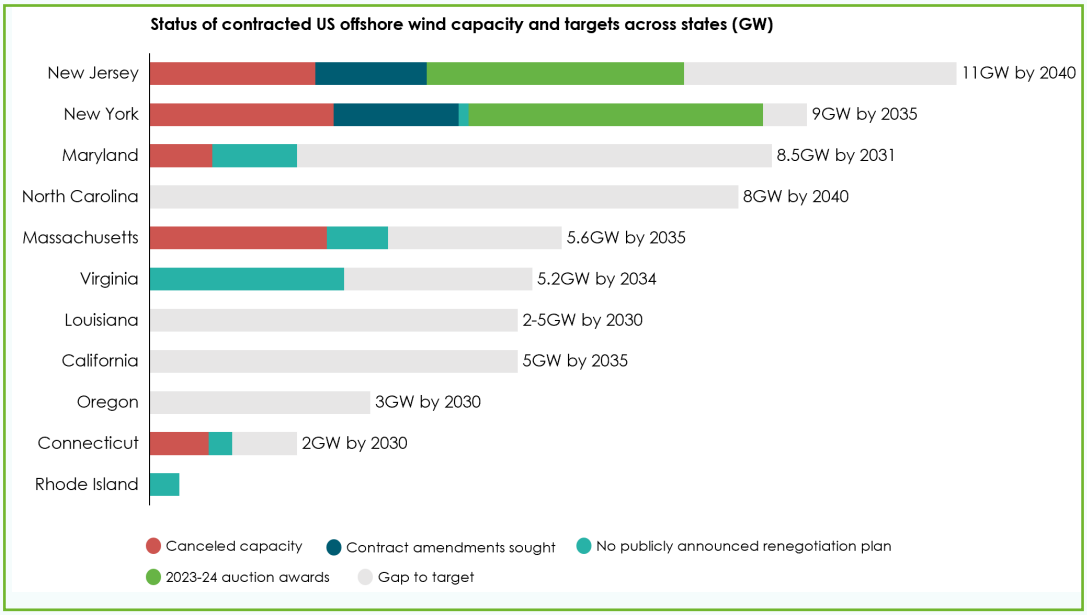

FIGURE 2

Status of contracted US offshore wind capacity and targets across states

Source: BloombergNEF, 2024.

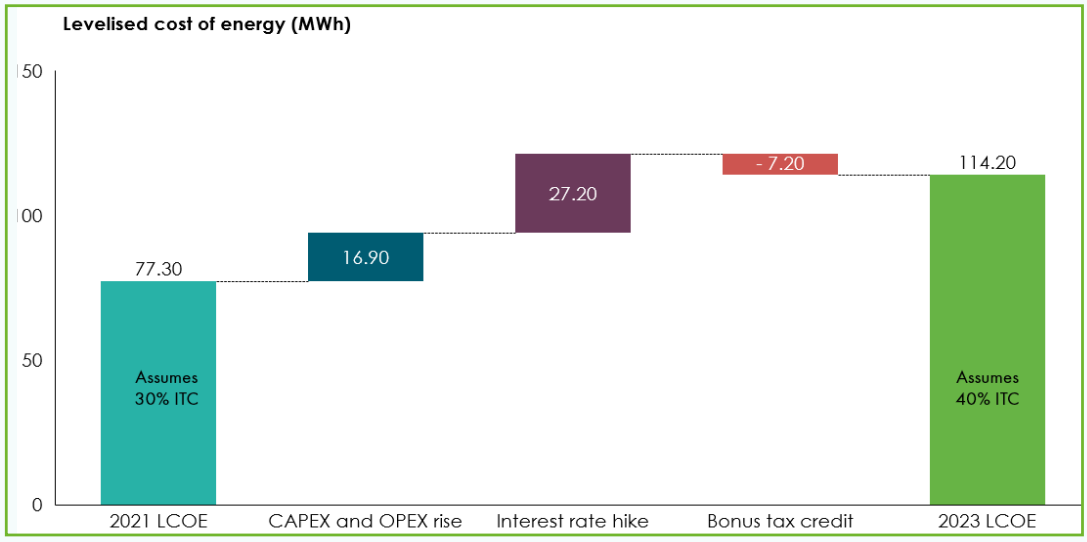

FIGURE 3

Impact of inflation, interest rates and tax credits on US offshore wind LCOEs

Source: BloombergNEF, 2023.

3. **Account for market maturity and conditions**

Early-stage wind markets with fairly low capacity installed to date should include pre-qualification requirements as a standard stage for all auctions, but generally minimise NPC in the first phase of tenders. Introducing a wide range of criteria in an early-stage market raises the risk of overcomplicating tender schemes, driving up project costs and heightening legal, financial, technological or other barriers to entry in a newer market. More mature markets where bidders have various pathways to achieve NPC in a competitive environment may be more appropriate for diverse and ambitious NPC.

Markets with relatively low average project sizes should carefully assess if the introduction of NPC would slow-down the build-out of renewables and inflate the cost of the energy transition.

4. **If introducing NPC, provide an 'on-ramp' transition period to facilitate industry collaboration**

Governments should allow sufficient time for industry to prepare for the introduction of NPC, as potential bidders will need to map industry capabilities, identify partners, prepare supply chain needs and assess financing, among other activities. Publishing prospective NPC 1-2 years ahead of opening the tender, with a stage for stakeholder consultation with authorities, will support a stronger competitive process with high-quality bids and provide early signal for supply chain actors to prepare to work with developers at the later stage.

APPLICATION OF NPC

5. **Ensure that NPC are transparent, reasonable, practical, and reflective of existing capabilities**

   NPC should be reasonable, practical, and realistic to achieve, building upon existing industrial, technological and economic capabilities, without hampering innovation. Practicality ensures that participation in the tender will be sufficiently diverse to foster a competitive process. The global wind industry is moving towards reducing supply chain emissions intensity, improving circularity, adopting biodiversity-positive and nature-positive approaches and ensuring harmonious coexistence with other land and sea users and industries. Criteria in these areas would generally be more realistic to achieve, as the industry is already strengthening its competencies and advantages.

   This principle should be reflected in the ambition of NPC, with more modest criteria in initial tenders that can rise in ambition over subsequent tender rounds as industry capabilities strengthen, project experience and realisation in the country deepen, and the sector matures.[8] For example, it would be practical to require third-party verified Life Cycle Assessments (LCAs) at turbine level for bids today, and once there is an internationally harmonised calculation and verification methodology, project-level LCAs could be introduced.

6. **NPC should be carefully selected to coordinate with broader policy frameworks**

   Governments should not use NPC to duplicate, override or act in place of a broader legislative framework or policy/regulatory scheme. For example, data residency and cybersecurity are applicable across different types of infrastructure and sectors, and are better addressed through established legislative and fiscal policies.[9]

   Criteria that are necessary to achieve in the course of a country's permitting process should not be mirrored in NPC, as this introduces additional bureaucracy and cost to project development. Avoiding redundancy is important for maintaining the integrity of NPC and their intended purpose within the auction process.

7. **NPC should not increase legal or administrative barriers to an unreasonable degree, and should be harmonised with existing frameworks and protocols as far as possible**

   NPC often requires additional costs to be factored into the project lifecycle, and this should also be factored into auction pricing mechanisms, such as ceiling prices. Where possible, NPC should avoid imposing undue legal or transactional costs, or strenuous administrative burdens, on developers to comply with or prove fulfilment of criteria.

   To this end, NPC should be harmonised with existing legal frameworks within the country and internationally, as far as possible. Encouraging compliance with regional or international frameworks for governance and sustainability, for instance, is preferred over esoteric or domestic-only frameworks; this enables a more diverse bidding pool and a streamlined approach to achieving non-economic objectives.

   Examples include: codes of conduct compliant with International Labor Organization (ILO) standards; International Organization for Standardization (ISO) certifications for management systems; use of timber certified by the Forest Stewardship Council (FSC) in wind components; Forced Labour Convention, 1930 (No. 29); and compliance with conflict materials reporting. In the future, this could also include international certification schemes for green steel or sustainable fuels used in the logistics and transport stages of the project lifecycle.

   A lack of harmonisation can lead to a range of challenges that impact projects, including the potential escalation of project costs, administrative burdens and limited diversity of the bidding pool. Without harmonisation, developers will need to navigate disparate and inconsistent requirements across different countries and regions, hindering market entry and resulting in additional expenses as projects need to adapt to varied standards and compliance frameworks.

8. **For offshore wind, NPC is most effective at the seabed leasing stage (as applicable)**

   NPC for offshore wind auctions can be flexibly applied during either the seabed or offtake stages of a tender. While there are upsides and downsides of applying NPC at each stage, introducing NPC earlier can allow developers and supply chain actors more time to plan

8 One example is Denmark, which introduced a new offshore wind tender framework that prioritises sustainability and price in May 2023. However, the final tender framework is yet to be set, and the effectiveness and market response to the future tender remain to be seen.

9 In the EU, wind energy projects need to follow EU and national cybersecurity laws. Wind projects should adopt a long-term risk management approach as outlined in NIS2 legislation. Additionally, there are no strict rules about where project data should be stored within the EU; each Member State can have its own specific data storage rules.

and invest in meeting the criteria. Applying NPC at the leasing stage would also encourage all offshore wind projects to meet NPC requirements, rather than only those seeking a regulated tariff at the offtake stage.

However, introducing overlapping or incompatible NPC in both seabed lease and offtake stages should be avoided, as this increases bureaucracy and complexity in project development. For example, in the UK, NPC applied at the offtake stake may conflict with criteria set at the leasing stage due to the differing nature of leasing routes that precede offtake activity.

In practice, NPC can depress high bids at the seabed leasing stage by requiring bidders to make adjustments to their anticipated project costs.[10] While this is a positive outcome, as high leasing costs ultimately result in higher electricity costs for the offtakers, it is not the primary intention of NPC. Governments should instead proactively avoid uncapped bidding for seabed leases and concessions in their auction design.[11] This should be done with a view to securing affordable energy for consumers and discouraging a 'high cost of entry' to an offshore wind sector, as the latter can lead to market concentration effects.

Seabed tenders with maximum price caps and ceilings, such as the ScotWind leasing round in 2022, are a more sensible approach.

Governments can also consider concession payments linked to market revenues: When power prices and therefore revenues are strong, the taxpayer receives more funding via leasing fees; however, when power prices and therefore revenues are low, concession fees are also lower and reduce overall cost pressure on the project.

EVALUATION OF NPC

9. **NPC should be measurable, verifiable, comparable and quantifiable, if possible, without restricting flexibility in bidding**

   Policymakers should design NPC that are clear, measurable and quantifiable to allow for a relatively objective and comparable evaluation process. While not all criteria are quantifiable, comparable data or evidence of fulfilment allows for greater objectivity in the evaluation process and can thus reduce the risk of legal challenges to the results (see Case Study 5: Independent expert evaluation in the Netherlands).

   In addition to measurable criteria, governments should establish a clear penalty system for missed milestones and delivery dates to discourage speculative bidding. This system should allow for a reasonable and manageable schedule of checkpoints on project delivery, overseen by a designated authority with enforcement powers. Penalties should be fair and not be overly harsh, particularly in early-stage markets where the first wave of projects have not yet been realised, to avoid deterring investment and tender participation. Furthermore, the penalty system should allow for discretionary appeals in cases of macro-events or external factors beyond developers' control, such as delay in grid connection or supply chain constraints.

Hollandse Kust West marks the third Dutch offshore wind tender to be conducted on an unsubsidised basis. This tender, encompassing 1.5 GW capacity, was divided into two sites by the Dutch government. Site VI focused half of its scoring criteria on investments or innovations benefiting the biodiversity of the Dutch North Sea, while Site VII allocated half of the points to bidders' plans for integrating the project into the Dutch energy system.

All bidders were required to meet eligibility requirements and undergo an evaluation based on a point system before proceeding to the comparative assessment stage. An expert committee consisting of a group of independent experts in relevant fields was tasked with establishing a transparent comparative assessment system. This committee provided advice on scoring bids that contributed to biodiversity enhancement and integration of wind farms into the Dutch energy system. [1]

For example, the Hollandse Kust West VI project, is set to become the first offshore wind farm in the Netherlands with an ecological focus. From its design and construction to ongoing operation, research and knowledge sharing. [2] This project aims to minimise the impact on marine mammals, birds and bats and other marine life. Visible activities tai-

10 This also hinges on auction structure—whether it is a one or two-stage process, and how much weight is given to price.

11 Caps should be set at a reasonable level. Generally, leasing fees have equated to roughly 2% of gross annual revenue for projects. See: GWEC, Global Wind Report 2022.

1 Netherlands Enterprise Agency, Hollandse Kust (west) Wind Farm Zone, 2023.

2 https://ecowende.nl/en/home/.

lored to each species group will be implemented to achieve this goal. To ensure the project delivers the anticipated ecological benefits, it must adhere to a set of requirements aimed at enhancing the ecology of the North Sea. [3]

With a significant portion of the evaluation process relying on NPC, this case study highlights the importance of transparent progress reporting and a fair penalty system, to ensure bidders are able to deliver the promised value.

3 See: https://zoek.officielebekendmakingen.nl/stcrt-2022-7101-n1.html.

10. **NPC require enhanced transparency in the evaluation and scoring process for tenders**
    Governments can promote strong competition in future tenders by providing a level of enhanced transparency in the evaluation, scoring and final award process. Publishing anonymised and sanitised bids and evaluations can support prospective bidders in designing their participation strategy for future tenders. This, in turn, fosters a more competitive process that delivers maximum value to countries.

    Ensuring transparency in scoring and evaluation also builds confidence in an objective assessment, which can serve to attract a greater diversity of bidders.

APPENDIX

DIFFERENT GLOBAL APPROACHES TO PRE-QUALIFICATION, PRICE CRITERIA AND NPC

This section provides a simplified and non-exhaustive overview of how governments around the world have designed tender schemes for wind energy with regards to a pre-qualification stage, price criteria and NPC.

MARKET	AUCTION ROUND	PRE-QUALIFICATION	PRICE CRITERIA	NPC
UK	Offshore Wind AR5 , 2023[12]	• Statements in relation to supply chains • Applicable planning consents • Connection agreements • Non-receipt of other funds under Government support schemes • Certificate of incorporation • Private networking CfD agreements • Advanced conversion technology plant will comply with physical • separation requirement • Specific requirements for Floating Offshore Wind	100% on price	The UK government is in the process of introducing NPC by 2025.[13] NPC ideas to be introduced through different models[14]: 1. 'Top-up' to the CfD strike price 2. Bid re-ranking 3. Other mechanisms NPC should address deployment capacity, sustainability, skills, and innovation.
DENMARK	Thor Offshore Wind Farm , 2020[15]	• Economic and financial capability • Technical and professional capability	100% on price	Sustainability and social responsibility -related NPC were introduced in May 2023 for the upcoming 9 GW offshore wind tender extending up to 2030.[16]
FRANCE	Centre Manche 1 Normandy (AO4), 2023[17]	• Technical capability • Financial capability	75% on price	25% on NPC[18] 1. 15% on environmental impact a. 2%: the number of turbines b. 5%: how much money the bidder is committing: (a) to avoiding, reducing and in the last resort compensating impacts plus the decommissioning plan; and (b) to funds aimed at preserving biodiversity impacted by the project and at improving knowledge of the relevant biodiversity; c. 8%: the recycling/reuse rate of the blades 2. 10% on economic development a. 5%: the share of installation work and studies the bidder intends to procure from SMEs b. 3%: the share of Operation and maintenance procurement that will go to SMEs c. 2%: the amount of community financial participation
GERMANY	Offshore wind tender, 2023	• A bid bond of €200,000/MW of installed capacity is required. This bond 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.	60% on price	40% on NPC[19] 1. 10% on contribution to decarbonisation for offshore wind energy 2. 10% on the amount of energy produced 3. 10% on noise reduction during foundation installation and seabed area with foundation structure 4. 10% on contribution to skilled workforce

12 UK Government, Contracts for Difference (CfD) Allocation Round 5: Allocation Framework, 2023.

13 UK Government, Boost for offshore wind as government raises maximum prices in renewable energy auction, 2023.

14 DESNZ, Contracts for Difference for Low Carbon Electricity Generation: Call for Evidence on introducing non-price factors into the Contracts for Difference Scheme, 2023.

15 DEA, Tender process, tender material, and participation in the tender, 2020.

16 Bech-Brunn, Political agreement on tender framework for 9 GW offshore wind until 2030, 2023.

17 Commission de régulation de l'énergie (CRE), Examination of the offers submitted to the "AO4" offshore wind call for tenders and the associated summary report, 2023.

18 WindEurope, Position on non-price criteria in auctions, 2022.

MARKET	AUCTION ROUND	PRE-QUALIFICATION	PRICE CRITERIA	NPC
THE NETHERLANDS	Offshore wind, Hollandse Kust (west) Wind Farm Zone VI & VII, 2019	Point allocation in the form of: • Technical feasibility • Economic feasibility • Financial feasibility • Timely realisation • Conformity with regulations in the Wind Farm Site Decision	50% on price	50% on NPC[20] 1. 50% on ecology innovation for the latest Hollandse Kust West Site VI 2. 50% on system integration for the latest Hollandse Kust West Site VII
JAPAN	Round 3 tender[21], 2023	• Submit an occupancy plan • Must be a Japanese entity if not a shareholding member of a Special Purpose Company (SPC) • Should not violate any rules and regulations during the period of application	50% on price	Projects will be evaluated based on 'price' and 'project feasibility' in 1:1 evaluation ratio and NPC is being presented as part of project feasibility requirement[22]: 1. 40% on project implementability 2. 10% on community coordination and spillover economic effects
TAIWAN (CHINA)	Offshore wind Zonal Development Round, 2021	Average of 70 points in their technical and financial capabilities: • Technical capability (60%) · Construction capacity, 25% · Engineering design, 20% · O&M plan, 15% • Financial capability (40%) · Financial integrity, 25% · Capital capacity of shareholders, 15%	100% on price, only after developers are technically and financially qualified, and have fulfilled NPC.	NPC takes the form of local content requirements within the Phase 1 qualification review stage (pre-qualification stage) prior to the Phase 2 competitive auction process. [23] 1. Industry relevance - Bidders have to meet 60% of the 26 critical development items under 4 categories and obtain at least 10 points for the 57 optional items under 5 categories.

19 Norton Rose Fulbright, Global Offshore Wind: Germany, 2023

20 NEA, Hollandse Kust (west) Wind Farm Zone, 2019

21 METI, Draft Round 3 Tender Guideline, 2023.

22 Lexology, The Second Round of Offshore Wind Tenders in Japan (Updates from the First Round), 2023.

23 Jones Day, Taiwan Offshore Wind Farm Projects: Updates to Guide Investors and Financiers through the Legal and Regulatory Framework, 2021.

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