NON-PRICE CRITERIA IN PLANNED OFFSHORE WIND FARMS IN THE NETHERLANDS

@Vestas

The inclusion of non-price criteria (NPC) in Dutch offshore wind tenders is poised to revolutionise ecological innovation and the commercialisation of technologies like offshore solar. By prioritising factors beyond just cost, these criteria hold the potential to accelerate innovations such as offshore solar and nature-inclusive design. But with the offshore sector's long lead times, the pressing question remains: when do we see the results?

NPC are essential tools to reduce the impact of offshore wind farms on the ecosystem and foster the uptake of new innovative technologies. To give an outline on NPC in newly constructed offshore wind farms, an overview of the planned offshore wind tenders and their implementation in The Netherlands is shown in Table 1.

Innovations selected on the basis of NPC with a more permanent nature (offshore solar, hydrogen, scour protection, etc.) in recently constructed wind farms are generally only implemented after the full-scale wind farm goes operational. For economic reasons it can make sense to build the highest revenue generating infrastructure first.

However, given the larger scale of other revenue generating technologies, e.g. offshore hydrogen or offshore solar, and the addition of the other sources to the contracts to achieve learnings on those technologies more quickly, this tendency might shift to a more parallel construction completion.

The Dutch wind farm Hollandse Kust West (HKW) might be the first farm in which this shift could be seen, since the ecology innovations (e.g. noise reduction measures, bird radars and artificial reefs) are planned to be installed by around 2026, the year the wind farm shall go operational. In Table 1 below, this is indicated by having the operation start and the NPC in the same column.

Considering the same rhythm as in the last years, a 50-50 spread between ecological (ECO) and system integration (S-I) NPC is expected and some assumptions on the addition of offshore solar were taken. It shall be noted that all current tenders are already including some ECO NPC and should also do so in the future as those are essential for a sustainable energy transition. The NPC with an ecological focus are expected to add additional mitigations due to a close proximity to ecological relevant areas and / or due to the implementation of new innovations.

Based on these assumptions please find some given (until 2024) and speculative capacities (after 2024) tendered in The Netherlands for energy multi-source with a focus on offshore solar and hydrogen in Table 1.

Table 1: Non-price criteria tendered for energy multi-source in The Netherlands

Bi-annual capacities tendered in the Netherlands	Tendered in	2020	2022	2024	2026	2028	2030	2032
			Given		Speculative			
	Offshore solar	0,5 MW (HKN)	5 MW (HKW)	50 MW (IJ beta)	0,15GW 0,3GW	0,5GW 0,5GW	0,5GW 0,5GW	0,5GW
	Offshore hydrogen	1 MW (HKN)	-		30-50 MW (demo1)	0,7GW (demo 2)	-	~ 1GW
	Wave energy tech.	-	Wave floater	-	~ 0,5 MW	~ 5 MW	~ 30 MW	~ 100 MW
	Cumulative tendered offshore wind	~ 5GW	~ 6,5GW	~ 10,5GW	~ 14,5GW	~ 17,9GW	~ 21GW	~ 30GW
	Cumulative operational offshore wind	~ 2GW	~ 2,7GW	~ 5GW	~ 5,6GW	~ 6,4GW	~ 14,4GW	~ 20GW

Several 100s of MW could be added by retrofitting offshore wind with offshore solar based on the "Area Passports". To reach the Dutch target of 3 GW of offshore solar tendered by 2032, it is essential that large scale offshore solar is added to the system integration offshore wind tenders. At the same time, for the first GWs installed, offshore solar will still have a higher LCoE than wind.

The financial pressure on project developers can be mitigated by reducing the financial bid and fully removed by having a feed-in tariff or contract for difference on the offshore solar installation. This could limit financial uncertainties for project developers and incentivise them to integrate large capacities of offshore solar as demanded in the wind tenders.

Table 2: Non-price criteria in (planned) offshore wind farms in The Netherlands

	Windfarm	pre 2019	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Operational / tendered wind parks	Egmond aan Zee	108 MW								DEC										
	Prinses Amalia	120 MW														DEC				
	Beaufort	350 MW														DEC				
	Gemini	600 MW																		DEC
	Borssele 1 & 2	752 MW		€	Eventual addition of retrofitted multi-use (e.g. solar, wave, aquaculture, o.a.)															
	Borssele 3, 4 & 5	750 MW			€	Eventual addition of retrofitted multi-use (e.g. solar, wave, aquaculture, o.a.)														
	HKZ 1, 2, 3 & 4	→	→	1520 MW			€	Eventual addition of retrofitted multi-use (e.g. solar, wave, aquaculture, o.a.)												
	HKN 5			→	759 MW		€	NPC S-I 0,5 MW PV + ~1 MW H_2			Learn	Eventual addition of tender for NPC S-I 100 MW Hydrogen (any Hollandse Kust)								
	HKW 6					→	760 MW			€ + NPC Eco		Learn								
	HKW 7					→		800 MW			€ + NPC S-I 5 MW PV		Learn							
	Ijmuiden ver α							→	2000 MW			€		NPC Eco	Learn					
	Ijmuiden ver β							→	2000 MW			€ + NPC S-I 50 MW PV			Learn					
Information available	Ijmuiden ver γ								→	2000 MW					€ + NPC Eco		Learn			
	Nederwiek 1								→	2000 MW				€	NPC S-I > 150 MW PV		Learn			
	Nederwiek 2									→	2000 MW					€ + NPC Eco		Learn		
	Nederwiek 3									→	2000 MW				€	NPC > 300 MW PV		Learn		
	TNW										→	700 MW			€ + NPC S-I 500 MW H_2			Learn		
Highly speculative	Doordewind 1										→	2000 MW				€	NPC	Learn		
	HKW 8										→	700 MW				€	NPC	Learn		
	Doordewind 2											→	2000 MW						€	NPC
	Additional wind farms in wind search areas 2-7											→	2000 MW						€	NPC
												→	2000 MW						€	

LEGEND

→	... tender information published
XXX MW	... construction start and size of the planned wind farm
€	... wind farm fully operational producing revenues
NPC S-I / Eco	... all system integration (S-I) or ecology (Eco) NPCs are implemented
Learn	... first results from NPC consolidated & expected to be disseminated
DEC	... wind park schedule for decommissioning

DMEC EU-SCORES European Scalable Offshore Renewable Energy Sources

***Reference**: Table 2 details farms constructed after 2019 and the information has been sourced from RVO's webpages, TenneT's project overview, the individual wind farm websites, insider knowledge and the November 2023 NSEC tender and construction plan. Some dates and plans were slightly contradicting and are by the nature of long-term plans likely to face challenges and potential delays.*

Conclusion

In conclusion, the integration of NPC in Dutch offshore wind tenders marks a pivotal shift towards more sustainable and innovative energy solutions. By prioritising ecological considerations and system integration, these criteria are driving the development of offshore solar and other technologies essential for meeting The Netherlands' ambitious renewable energy targets. However, to realise the full potential of these innovations, it is crucial that the industry overcomes financial challenges, keeps considering alternatives such as retrofitting and accelerates the implementation timelines, ensuring that these transformative changes align with urgent environmental goals.

For more information

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