

CONSIDERATIONS ON SEABED AREAS AND LEASE FEES FOR BRAZIL

OFFSHORE WIND GENERATION WORKSHOP
OCTOBER 21, 2024



Credit: - Woldcam © Equinor - Dudgeon OWF

World Bank Group *Offshore Wind Development Program*

About the Program:

- Led by the Energy Sector Management Assistance Program (ESMAP) in partnership with IFC
- Launched in 2019; ~\$US 12m budget
- Objective: **Accelerate deployment of offshore wind in emerging markets**

Program's work to date:

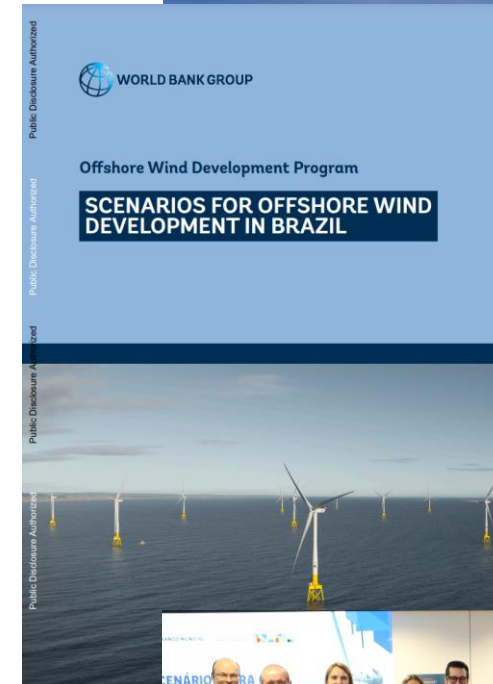
- Supported 24 country governments over 6 years
- Seven Roadmaps released to date: Azerbaijan, Vietnam, Philippines, Colombia, **Brazil**, Sri Lanka and Romania
- Coming soon: Türkiye, South Africa
- Global Reports, held Study Tours, Technical Assistance
- Received “Global Offshore Wind Award” in 2023

Offshore Wind Technical Potential in the Caribbean Islands

Fixed: 238 GW || Floating: 513 GW || Total: 751 GW



Key Factors for Successful Development of Offshore Wind in Emerging Markets



Guiding principles for a successful industry development

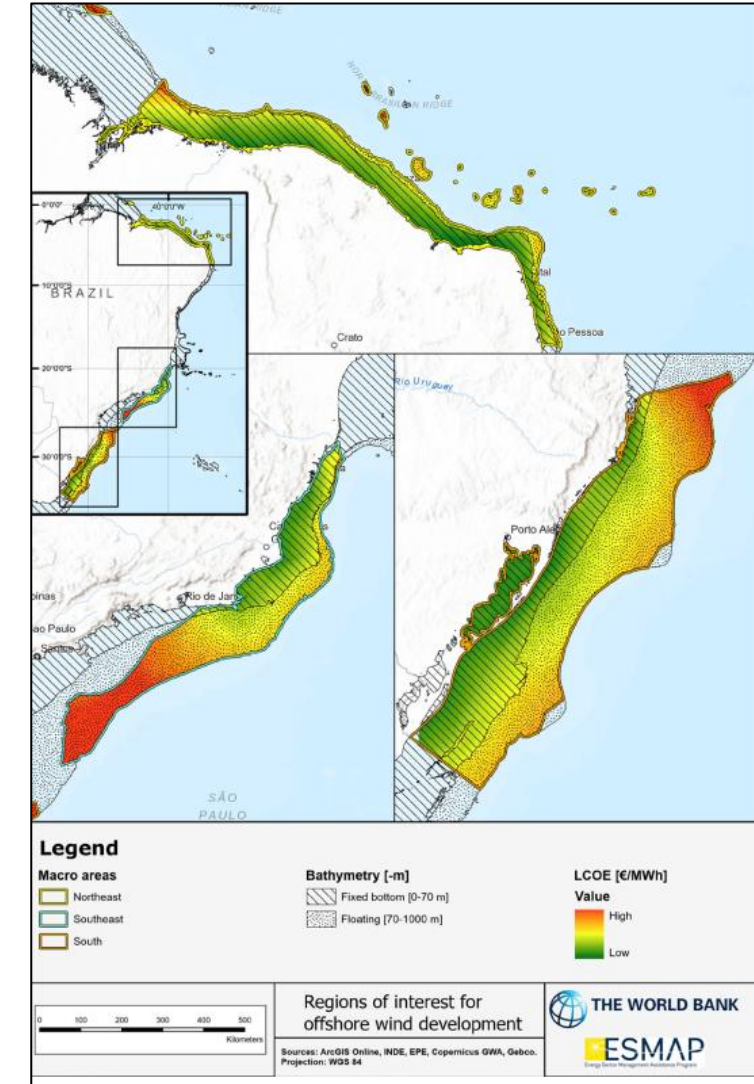
1. Keep LCoE as low as possible
2. Keep it simple and transparent
3. Ensure strong competition
4. Let project developers do derisking

World Bank view to setting limits for offshore wind sites

Preliminary considerations

1. Development of offshore wind is a **risk reduction exercise** taking place over a number of years.
2. There are **few 'no-go' considerations in the early stages** when defining seabed areas to lease.
3. Offshore wind can **co-exist** with some E&S sensitive attributes and **multi-uses** of the areas are possible.
4. It is key to follow a **de-risking and de-conflicting approach, led by developers**, throughout the development of offshore wind.

Brazil's starting point:

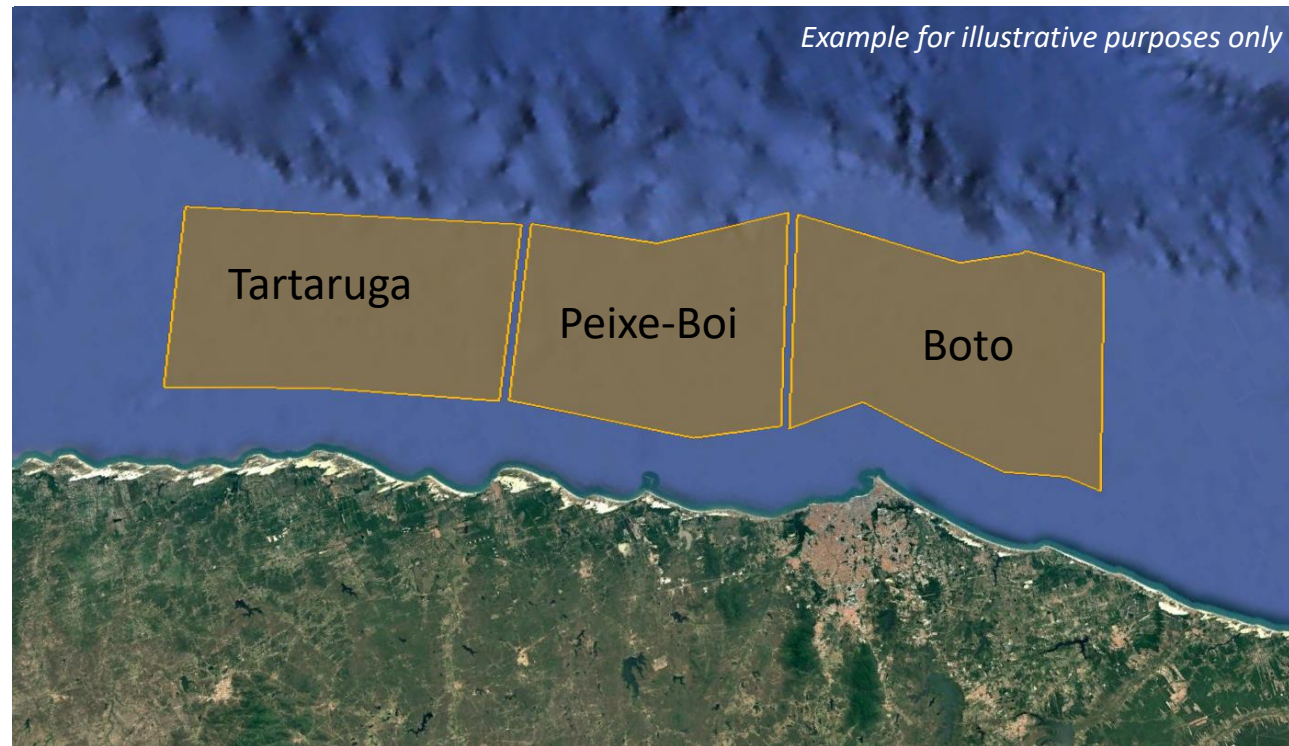


World Bank view to setting limits for offshore wind sites

World Bank recommended approach

Step 1. Government defines large zones, the prisms (e.g. 2000km²), and names them

Exercise guided by preliminary desktop data considerations and stakeholder engagement data e.g. buffer to shore, bathymetry, wind resource, strategic grid reinforcement, main shipping route and O&G blocks avoidance.



- Launch seabed tender of large zones Tartaruga, Peixe-Boi, and Boto.
- Award each zone to a different consortium.

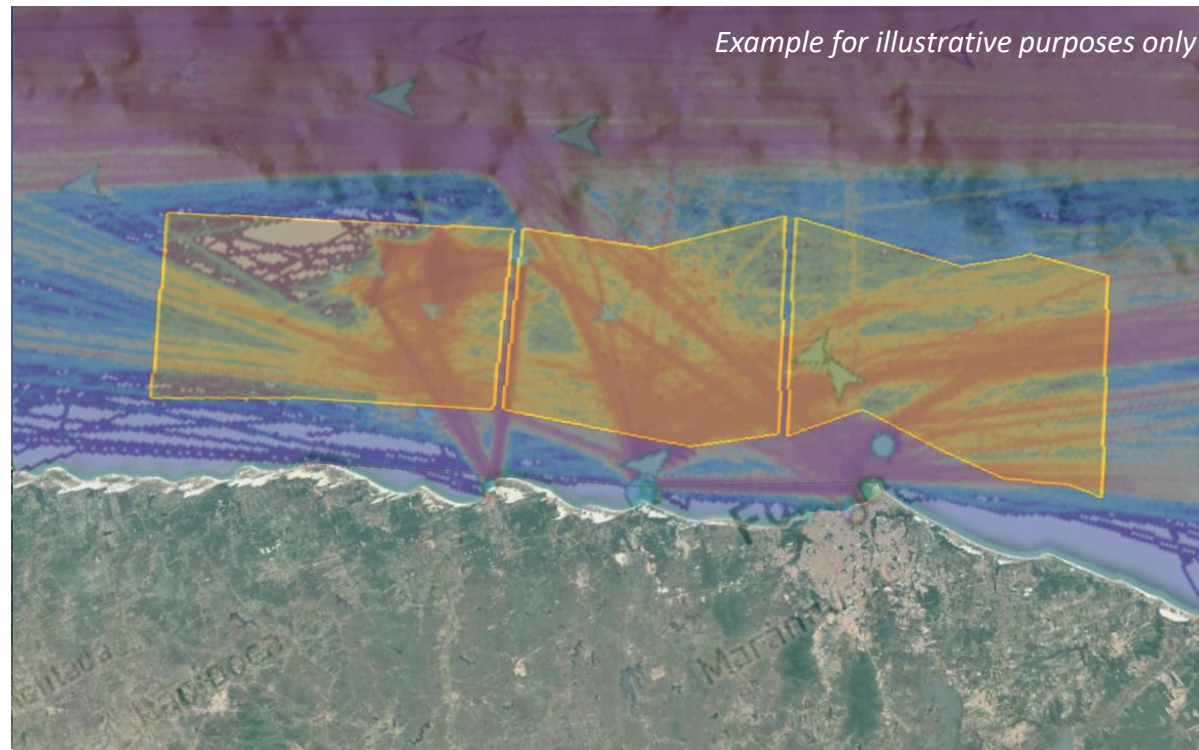
World Bank view to setting limits for offshore wind sites

World Bank recommended approach

Step 1. Government defines large zones

Step 2. Awarded developers investigate large zones (de-risking journey)

On-site surveys and desktop studies to understand Environmental, Social and Engineering constraints and assess co-existence / multiple uses.



Example:
Assessing shipping
constraints

World Bank view to setting limits for offshore wind sites

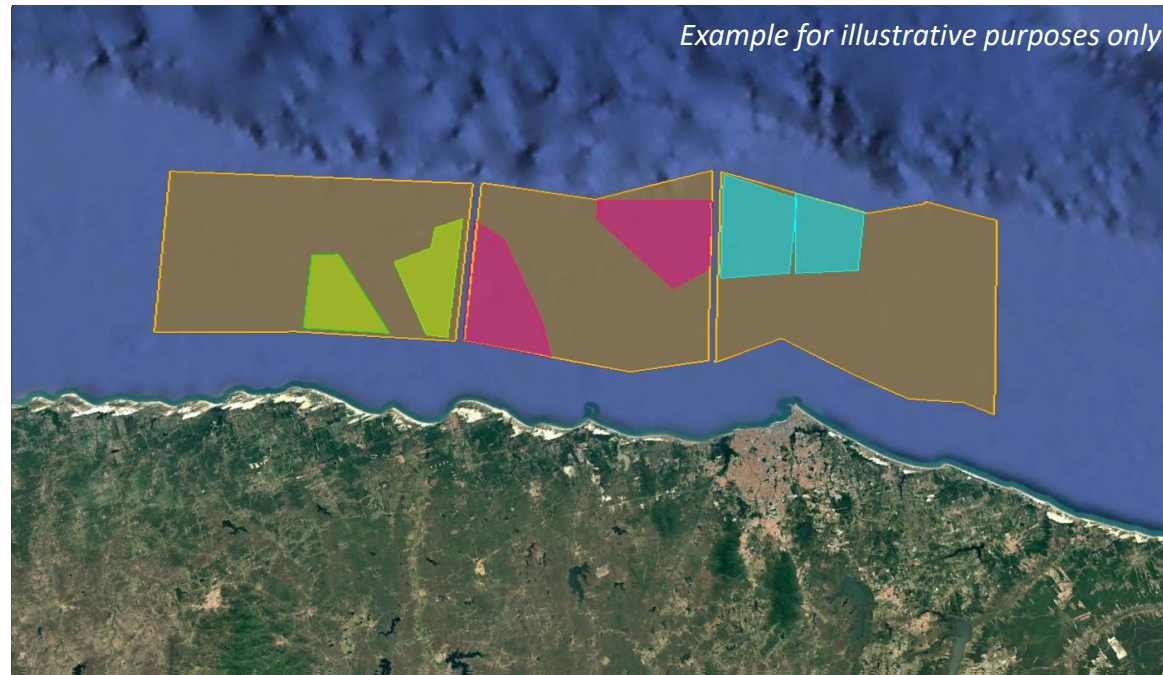
World Bank recommended approach

Step 1. Government defines large zones

Step 2. Awarded developers investigate large zones (de-risking journey)

Step 3. Pipeline of optimal project areas identified

Developers work to obtain financing and permits to construct and operate in chosen (de-risked) areas in project phases.



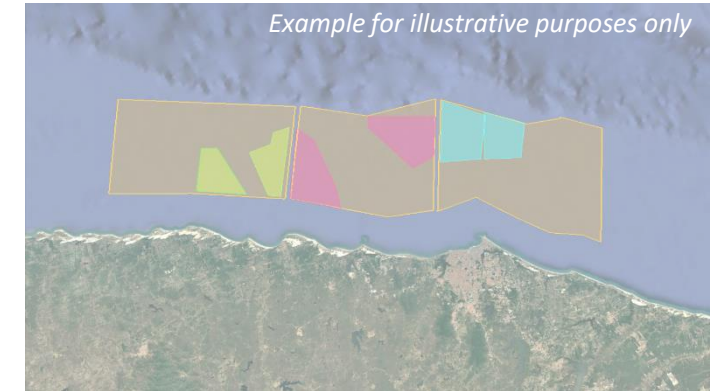
World Bank view to setting limits for offshore wind sites

Advantages of the World Bank recommended approach for Brazil

Step 1. Government defines large zones

Step 2. Awarded developers investigate large zones (de-risking journey)

Step 3. Pipeline of optimal project areas identified



De-risking

Government defines zones.
Developers define projects within zones.

Long-term investment

Development pipeline for each awarded consortium

Simplicity

Avoid project area overlaps and minimise external wake effects

Reduce Government load

Allow Government to focus on regulatory strengthening, enabling actions and support during permitting

Guiding principles for setting leasing fees

The World Bank recommends to **set fees low** to attract developers to create the market. Once the market is established, setting the fee methodology can be revised.

Termo de Outorga

Site exclusivity phase for data collection and studies.

Recommendation: Cost recovery approach.
Yearly fee to cover direct and indirect costs to assist developers in obtaining permits.

Seabed Tender



Development

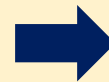


Outorga

Environmental license and detailed design approved by relevant authorities.

Recommendation: Once operations start, set fees at a **fixed 2% gross revenue**.

Construction



Operation



Decommissioning

Evaluation criteria and cost implications

PL 576/2021

Art. 9º A outorga de prisma sob oferta planejada será precedida de processo licitatório. (...) **§ 4º** No julgamento, será considerado como critério, **além de outros que o edital expressamente estipular, o maior valor ofertado a título de participações governamentais**, nos termos do art. 13 desta Lei, conforme disposto em edital.

Art. 13 (...) as seguintes participações governamentais obrigatórias:

I – bônus de assinatura, que terá seu valor estabelecido no edital, (...) pagamento ofertado na proposta para obtenção da outorga;

II – taxa de ocupação da área, calculada em R\$/km², anualmente.

III – participação proporcional, correspondente a percentual, a ser estabelecido no edital, do valor da energia gerada pelo empreendimento;

I - Bônus de assinatura

Commonly used in Brazil for O&G blocks. % paid to the *União* when signing the Termo de Outorga.

II - Taxa de ocupação da área

Yearly seabed lease during *Termo de Outorga* for the the *União*. Calculation methodology to be clarified.

III - Participação proporcional

% of generated energy sales revenue that will be shared across the *União Estados confrontantes*, affected communities, etc.

World Bank recommends:

Set a limit (cap) in the Edital, “sign up” fee.

Fee based on a **cost recovery** approach. Avoid 100% price-based competitions. Measurable **Qualitative criteria** to be included in the Edital (*além de outros* criteria)

Set a **limit or a fixed 2%**. Inviting bids for Participação proporcional has only been done once in Northern Ireland and it was not regarded as successful.

A large-scale photograph of an offshore wind farm. Numerous white three-bladed wind turbines are visible, stretching from the foreground into the distance across a dark, choppy sea. The sky is a uniform, overcast grey. The perspective is from a low angle, looking out over the water towards the horizon.

Thank You!

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ESMAP-IFC OFFSHORE WIND DEVELOPMENT PROGRAM

WWW.ESMAP.ORG/ESMAP_OFFSHORE-WIND