BRINGING OFFSHORE WIND TO EMERGING ECONOMIES

ZERO CONFERENCE - OSLO

NOVEMBER 6, 2019
Energy Sector Management Assistance Program

ESMAP is a partnership between the World Bank and 21 development partners and private non-profits to help low and middle-income countries reduce poverty and boost prosperity through environmentally sustainable energy solutions.

International Finance Corporation

Member of the World Bank Group and the largest global development institution focused exclusively on the private sector in developing countries.

Some of our work in wind power

Investments March 2008 - July 2018

42 wind projects in 19 countries
$US 1.8 billion own account
3.8 GW total capacity
Offshore wind has grown quickly ...

New installations
MW, offshore

Source: GWEC Market Intelligence, Wind Europe
Why? Offshore wind costs are falling fast...


Source: BloombergNEF. Note: Figures refer to an estimated levelized price, taking into account tariff price and length, inflation, a merchant tail assumption and a 25-year lifetime. Prices above $150/MWh were omitted. The full cost of transmission to shore is included in some but not others.
Why? Resource close to demand without land constraints

Global Offshore Wind Speeds (100m)

Range of viable wind speeds for an offshore wind farm
Why? Offshore wind is deployable (almost) anywhere ...
Not surprising that it is now moving to new markets...

Will Emerging Markets “miss the boat”? Do they have the technical potential?

Offshore wind possible:
- Wind speed > 7 m/s
- Water depth < 50m (fixed)
- Water depth < 1000m (floating)
What are the opportunities in emerging markets?

<table>
<thead>
<tr>
<th>Country</th>
<th>Fixed (GW)</th>
<th>Floating (GW)</th>
</tr>
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<tbody>
<tr>
<td>India</td>
<td>112</td>
<td>83</td>
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Within 200 km of coast
What are the opportunities in emerging markets?

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<td>Morocco</td>
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<td>S. Africa</td>
<td>57</td>
<td>589</td>
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Within 200 km of coast

3,082 GW of technical offshore wind potential in only eight countries
WBG Offshore Wind Development Program

- Led by ESMAP in close partnership with IFC
- Launched: March 2019
- **Objective:** To support the inclusion of offshore wind into the energy sector policies and strategies of WBG client countries and the upstream work needed to build a pipeline of bankable projects
- **Budget:** $5 million
- **Scope:**
  1. Knowledge generation, dissemination and exchange
  2. Exploratory country studies and planning work
  3. Detailed downstream technical studies and project development
1. REPORT: Going Global – Expanding OSW to Emerging Markets – published last week!

2. REPORT: Key Factors for Successful Deployment of OSW in Emerging Markets – planned for mid 2020

3. REPORT: Environmental Framework for OSW Development – planned for early 2020
Global Knowledge Exchange

UK Study Tour, June 24 – 28, 2019
• 24 representatives from eleven countries including Argentina, Algeria, Brazil, Costa Rica, India, Indonesia, Morocco, Sri Lanka, South Africa, Turkey and Vietnam

2020 Event: location TBC
• Bigger and with a focus on floating wind
Exploratory Country Studies and Planning Work

Brazil:
- Stakeholder workshop (industry, banks, government, EPE, BNDES etc.) to exchange views and outline needs
- Organized with GWEC; target is for Brasilia March 2020

India:
- Early stage discussions building on EU’s FOWPI project
- Workshop in early November

South Africa:
- Potential engagement with Council for Scientific and Industrial Research (CSIR) and IPP Office
- Stakeholder workshop in early 2020 + support for development of an offshore roadmap (scope tbd)

Sri Lanka:
- Request for assistance from Sri Lanka Sustainable Energy Authority
- Planning workshop in Colombo in December

Turkey:
- Workshop late October; structured around “Offshore Wind Market Readiness Assessment”
- Preparing an offshore wind development roadmap

Vietnam:
- MOIT workshop in Hanoi (held mid-October)
- Agreed work program starting with a Roadmap
Typical Assistance Requirements

1. Upstream planning and studies: >$1 million
2. Downstream technical studies and capacity building: $10-20 million
3. Transaction advisory: >$2 million
4. Concessional (climate) financing: >$500 million

...per country!

BUT...

We believe it is possible to secure commitments for >20GW of offshore wind across >5 emerging economies by 2022
Opportunities for Norway

- Technical assistance to governments
- Hosting of knowledge exchange events and study tours
- Global innovation funding for floating wind
- Support to climate finance facilities for early deployment
- Political backing and promotion at the highest levels
THANK YOU

OLIVER KNIGHT (WORLD BANK, WASHINGTON DC)
SEAN WHITTAKER (IFC, WASHINGTON DC)

https://esmap.org/offshore-wind