



Grid Readiness and Supply Chain for Vietnam's Offshore Wind Future

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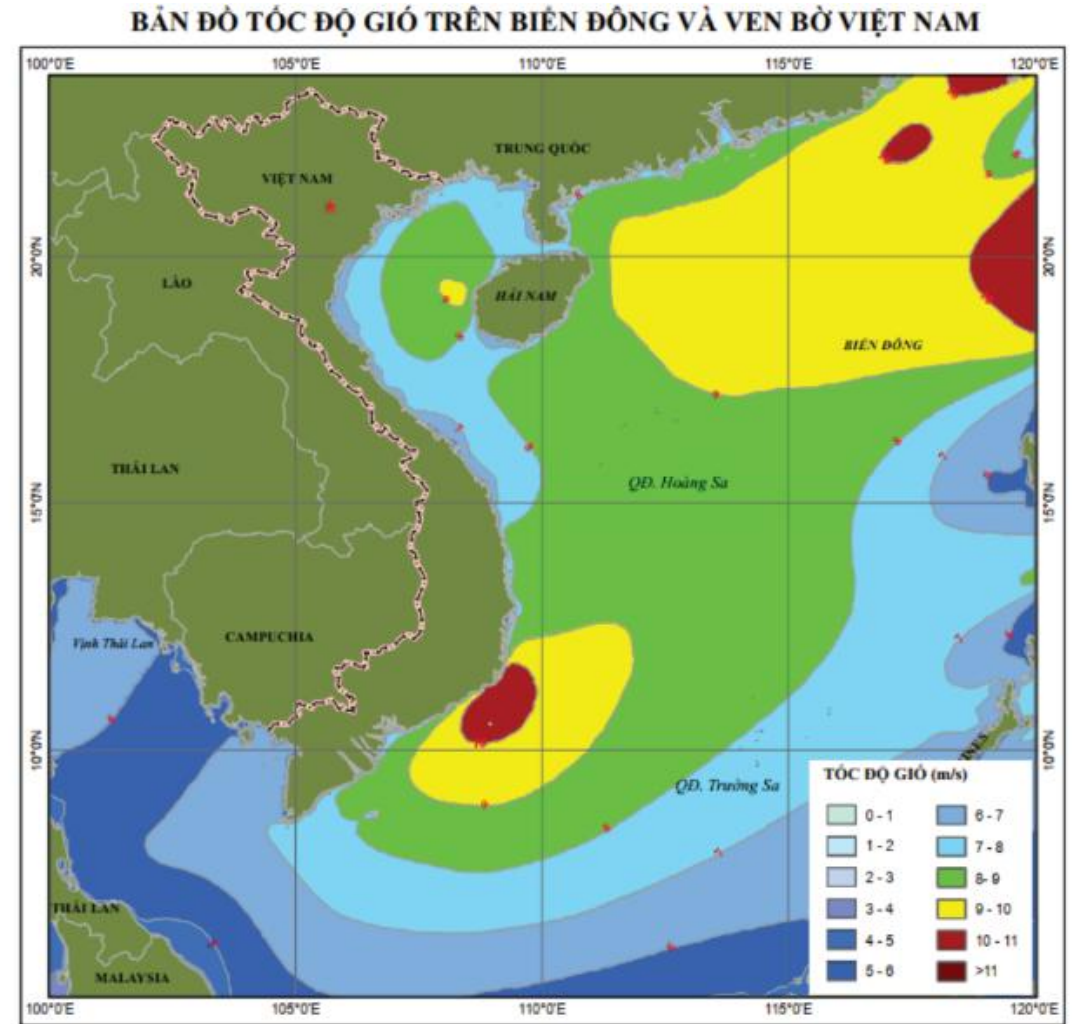
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Vietnam's OSW Ambitions and Integration Context

National Goals (RPDP8): 6,000–17,032 MW of OSW during the 2030–2035 period and targets 113,503–139,097 MW by 2050. This represents Vietnam's first major breakthrough into the OSW sector.

Current System Context: Installed capacity as of August 2025 is 88.4 GW, predicted to increase to 130 GW by 2030

Geographical Imbalance: The majority of potential OSW areas are located in the south, leading to an increasing challenge for power system balance due to the concentration of wind resources



TỐC ĐỘ GIÓ TRUNG BÌNH NĂM, ĐỘ CAO 150M

Existing Grid Capacity and Challenges

Current Infrastructure: The national grid includes 11,841 km of 500 kV lines and 20,667 km of 220 kV lines

Transmission Strain: Three parallel 500 kV transmission lines connect the North and South, carrying a high load, particularly during the rainy season which corresponds to high wind resources

Congestion: has already been identified in and around major cities with high population density

Integration Impacts: System inertia, frequency change, harmonic currents, long cables, voltage rising, reactive compensation

Strategic Grid Upgrades and Investment Planning

Required Timeline: Upgrades needed to absorb 6 to 17 GW of new OSW by 2030-2035, 113 to 139 GW by 2050 will require up to 5 to 10 years of design, planning, and construction work, necessitating immediate action

RPDP8 Investment Demands: 2026 – 2030: 18.1 billion\$, 2031–2035: 15.9 billion\$, 2036 – 2050: 27.9 billion\$

Technological Recommendations: HVDC, Smart inverter, FACTS DSM, and Virtual Power Plants (VPPs) Technological Recommendations: HVDC, Smart inverter, FACTS DSM, and Virtual Power Plants (VPPs)



Grid Connection Process

Current Process: The power plant owner is responsible for the connection from the wind farm to the grid interconnection point, including the investment and operation of transmission cables and substations

Guidance Needed: Need the clear guidance and a grid code standard for new OSW grid connections

Process Acceleration Options: To accelerate OSW investment: Offshore Transmission Model (OFTO), Financing Transmission Upgrades - A Build Own Operate Transfer (BOOT) model

Supply Chain Foundation: Local Capabilities



Focus Areas for Localization: The supply chain covers the entire project lifecycle, from planning to decommissioning.

Port Infrastructure: for fabrication, marshalling, and O&M.

Manufacturing key components: foundations, turbine towers, blades, and nacelle assembly.

Existing Strengths: Vietnam possesses strong port infrastructure and industrial skills across steel fabrication, renewable energy, and oil and gas (O&G) sectors

Challenges in the Global Supply Chain: The global wind supply chain faces difficulties, including market volume volatility, inflationary impacts, and high R&D spend due to the rapidest development requirement.

Assessing Local Suppliers and Manufacturing

Supply Chain Analysis Methodology

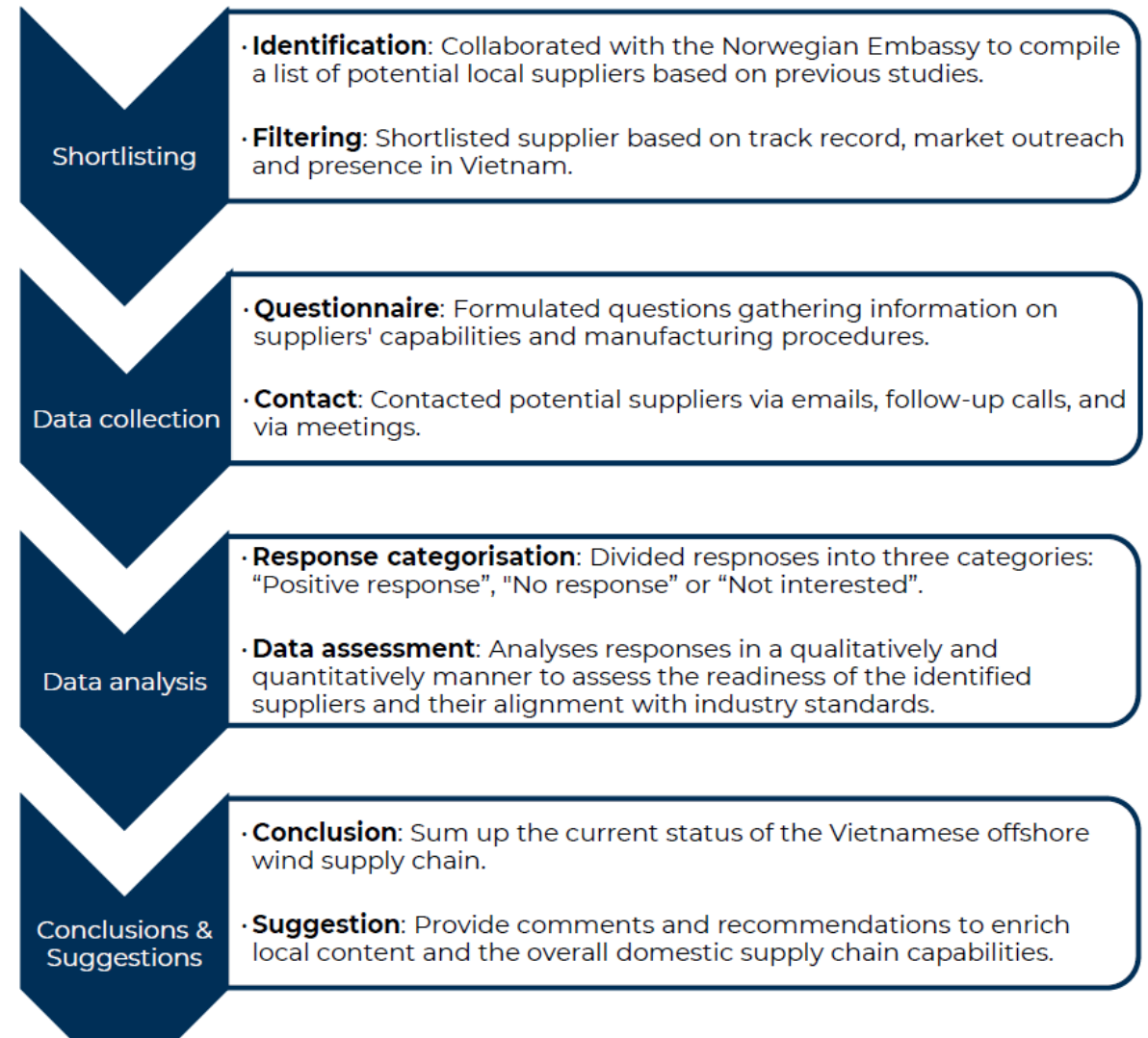
Four-stage assessment methodology

Development Potential

Specific areas demonstrate higher potential for advanced development

Joint Manufacturing

Cooperation with international partners



Key Takeaways: Enhancing Readiness

Grid Readiness Priorities: HVDC technology for long-distance power transfer, clear grid code standards and acceleration mechanisms, optimizing grid operation through forecasting, smart inverters, and managing system inertia

Supply Chain Priorities: High-potential localization areas, including foundations, turbine towers, and ports. Developing specialized port infrastructure to serve as manufacturing, assembly, and O&M hubs. Leveraging international partnerships for joint ventures, technology transfer, and skill training to build domestic capacity.

Thank you for your attention