

# Report and Recommendation of the President to the Board of Directors

Project Number: 51210-001 November 2017

Proposed Loan Ostro Kutch Wind Private Limited Kutch Wind Project (India)

This is an abbreviated version of the document approved by ADB's Board of Directors that excludes information that is subject to exceptions to disclosure set forth in ADB's Public Communications Policy 2011.

Asian Development Bank

# CURRENCY EQUIVALENTS

(as of 6 October 2017)

Currency unit	-	Indian rupee (₹)
₹1.00	=	\$0.015
\$1.00	=	₹65.21

#### ABBREVIATIONS

ADB	_	Asian Development Bank
CTU	_	central transmission utility
IEE	_	initial environmental examination
LIE	_	lender's independent engineer
LOC	_	letter of credit
OEPL	_	Ostro Energy Private Limited
OKWPL	_	Ostro Kutch Wind Private Limited
GW	_	Gigawatt
MW	_	megawatt
PEL	_	PTC Energy Ltd
PFS	_	PTC India Financial Services Limited
PTC	_	PTC India Limited
PPA	_	power purchase agreement
SECI	_	Solar Energy Corporation of India
WTG	-	wind turbine generator

#### NOTES

- (i) The fiscal year (FY) of Ostro Kutch Wind Private Limited ends on 31 March. "FY" before a calendar year denotes the year in which the fiscal year ends, e.g., FY2017 ends on 31 March 2017.
- (ii) In this report, "\$" refers to United States dollars unless otherwise stated.

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# I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on the proposed loan of up to \$100,000,000 in Indian rupee equivalent to Ostro Kutch Wind Private Limited (OKWPL), for the Kutch Wind Project in India.

2. The 250 megawatts (MW) wind project is located at taluka Bhuj and Anjar, in the district of Kutch in the state of Gujarat. The project involves the installation of 125 V-110 Vestas turbines of 2 MW of wind capacity each. OKWPL has signed four power purchase agreements (PPAs) with PTC India Limited (PTC) for the sale of 250 MW wind power produced by the project. Facilitating the delivery of the country's first wind auctioned project, the project demonstrates the commercial viability of competitively bid wind projects and encourages long term private sector financing in this sector. The project will also help reduce the country's dependence on fossil fuels and promote renewable energy development.

# II. THE PROJECT

## A. Project Identification and Description

## 1. **Project Identification**

3. In 2015, the Government of India set an ambitious target of achieving 175 gigawatts (GW) of renewable energy capacity by 2022—100 GW from solar, 60 GW from wind, and 15 GW from other sources. In pursuit of that target, India added 11 GW of renewable energy capacity in FY2017, taking the total to 57 GW as of 31 March 2017. Of that total, wind contributed 5.4 GW and solar 5.6 GW.<sup>1</sup> Historically, allocation of solar power projects in India has been through reverse bidding mechanism,<sup>2</sup> which has resulted in the tariff falling to ₹2.44 per kilowatt-hour in 2017, from ₹12.16 per unit in 2011. However, the allocation of wind power projects was made under the feed-in tariff policy. In June 2016, the Ministry of New and Renewable Energy launched the country's first wind energy auction to set up 1,050 MW of wind power projects to be connected to the national grid and to be managed by Power Grid Corporation of India Limited that serves as the central transmission utility (CTU). The auction aimed to procure the supply of wind power at a price achieved through transparent bidding procedures and to help meet the nonsolar renewable purchase obligations for states with poor wind resources.

4. The Ministry of New and Renewable Energy designated the Solar Energy Corporation of India (SECI) as the implementing agency for the auction. OKWPL won 250 MW of capacity under the scheme and has approached the Asian Development Bank (ADB) for the debt financing of the project. Ostro Energy Private Limited (OEPL), a renewable energy independent power producer in India, currently owns 100% of the shares in OKWPL, the project company. As of July 2017, OEPL has an operating wind power capacity of 648 MW spread across four states: Andhra Pradesh, Karnataka, Madhya Pradesh and Rajasthan.

<sup>&</sup>lt;sup>1</sup> Government of India, Ministry of New and Renewable Energy. http://mnre.gov.in; Government of India, Ministry of Power, Central Electricity Authority. http://cea.nic.in

<sup>&</sup>lt;sup>2</sup> Reverse bidding is a mechanism where the upper tariff cap is set and projects are awarded to bidders quoting the lowest bid price.

# 2. Project Design

5. The project is being developed on a build–own–operate basis and is required to be commissioned within 18 months from the date of issue of the letter of award. SECI issued the letter of award on 5 April 2017. PTC is appointed as the intermediary to carry out the purchase and sale of wind power procured under the auction. OKWPL was selected as one of the winning bidders and has signed four PPAs on substantially the same terms for the sale of 250 MW, in aggregate, at a fixed tariff of ₹3.46 per unit with PTC as the counterparty.

Confidential information deleted.

6. The government founded PTC in 1999 to promote power trading in India. Since then, PTC has grown to be the largest player in the power trading market. PTC signs PPAs with power project developers and, in turn, signs power sale agreements with offtakers, acting as an intermediary between the generators and consumers. PTC mitigates counterparty risk by diversifying its customer base across multiple states and through recourse to various payment security mechanisms. In FY2017, PTC traded 48.32 billion units through both long-term and shortterm contracts and reported revenues of ₹140 billion with net profit of ₹2.91 billion. As of 31 March 2017, PTC had total assets worth ₹66 billion and a net worth of ₹30.7 billion on a stand-alone basis. PTC has two subsidiaries, PTC Energy Ltd (PEL) and PTC India Financial Services Limited (PFS). PEL undertakes development of wind power projects and has a total operating capacity of 288.8 MW. PFS is registered as a nonbank finance company with the Reserve Bank of India and provides financing to infrastructure projects. All the liabilities of PEL and PFS are on a nonrecourse basis, and PTC does not have any ongoing obligations toward these two companies. PTC does not have any long-term credit rating. However, it has the highest short-term rating of A1+ by CRISIL.

7. For the proposed project, OKWPL has entered into a term sheet with the intention of entering into a date-certain, fixed-price turnkey engineering procurement and construction arrangement with Vestas Wind Technology India Private Limited (Vestas India), a leading supplier of wind turbines in India. The term sheet covers key elements of the engineering, procurement, and construction strategy arrangements, including land and site development, installation and commissioning, wind turbine supply, and power evacuation. Tractebel Engineering Private Limited is appointed as the lender's independent engineer (LIE) and 3Tier R&D India Private Limited is appointed as the lender's wind resource assessment advisor. The LIE has reviewed the term sheet and has confirmed that the terms are satisfactory and in line with the industry norms. According to the engineering, procurement, and construction term sheet, any failure to commission the project as per timelines results in liquidated damages payable by Vestas India to compensate OKWPL for damages, and are sized to include the penalty charged by SECI.

8. Vestas India has significant experience in India, with over 3 GW of installed capacity in India alone. Vestas Wind Systems A/S (Vestas), which has 83 GW of installed capacity across 75 different countries, owns Vestas India. Vestas is listed on the Nasdaq Copenhagen exchange. It has a market capitalization of DKr130.8 billion (\$20.66 billion)<sup>3</sup> as on 12 August 2017. In 2016, Vestas reported annual revenues of €10.2 billion (\$12.06 billion) and net profit of €965 million (\$1.1 billion). Vestas has €9.9 billion (\$11.7 billion) in total assets for 2016.

9. The project is located at taluka Bhuj and Anjar, in the district of Kutch in the State of Gujarat. The project involves installation of 125 V-110 Vestas turbines of 2 MW of wind capacity

<sup>&</sup>lt;sup>3</sup> Using an exchange rate of DKr1 = 0.16.

each. The project will be connected to the CTU at Bachau substation via a 62-kilometer, 220kilovolt transmission line. A total of 1 hectare of land is required for each wind turbine location. OKWPL has confirmed that all of the land for the wind turbines is government-owned revenue land, which will be leased and/or allotted to OKWPL.

# 3. Borrower and Sponsor

- 10. Confidential information deleted..
- 11. Confidential information deleted.

# B. Development Impacts, Outcome, and Outputs

12. **Impacts.** The project is aligned with the following impacts: (i) diversified energy mix in India by adding renewable energy capacity, helping the country reduce its dependence on fossil fuels; and (ii) the promotion of cost-competitive, convenient, safe, and reliable new and renewable energy supply options, which can be achieved through greater private sector participation.

13. **Outcome.** The project will help increase delivery of clean power sustainably produced by the private sector. It will generate 762 GW-hours of clean energy per annum and help avoid 669,036 tons of carbon dioxide emissions annually from 2020.

14. **Outputs**. The outputs will be (i) wind power production capacity increased by October 2018, and (ii) growth of local economy supported.

# C. Alignment with ADB Strategy and Operations

15. **Consistency with ADB strategy and country strategy.** The project's development supports infrastructure and environment, two of ADB's five core operational areas, as per its Midterm Review of Strategy 2020.<sup>4</sup> ADB's country partnership strategy, 2018-2022 for India is based on three developmental pillars: (i) boosting economic competitiveness to create more and better jobs, (ii) inclusive provision of infrastructure networks and services, and (iii) addressing climate change and increasing climate resilience.<sup>5</sup> This project paticularly supports pillar (iii).

16. **Consistency with sector strategy and ADB operations.** The project is consistent with ADB's Energy Policy,<sup>6</sup> which prioritizes support for renewable energy development. In September 2015,<sup>7</sup> ADB announced that it would double its annual climate financings to \$6 billion by 2020. Of this \$6 billion, \$4 billion is for mitigation which includes scaling up support for renewable energy. The project is also consistent with ADB's previous operations in the energy sector in Gujarat. In 2013, ADB provided a \$100 million loan to strengthen the transmission network in Gujarat.<sup>8</sup>

17. **Lessons from previous operations.** The annual reviews of the previous renewable energy projects in India financed by ADB emphasized the financial and execution strengths of the sponsor for the successful implementation of each project. The regulatory environment for the

<sup>4</sup> ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific.* Manila.

<sup>&</sup>lt;sup>5</sup> ADB. 2017. Country Partnership Strategy: India, 2018–2022. Manila.

<sup>&</sup>lt;sup>6</sup> ADB. 2009. Energy Policy. Manila.

<sup>&</sup>lt;sup>7</sup> ADB. 2015. ADB to Double Annual Climate Financing to \$6 Billion for Asia-Pacific by 2020. News release. 25 September.

<sup>&</sup>lt;sup>8</sup> ADB. 2011. Report and Recommendation of the President to the Board of Directors: Proposed Loan to India for the Gujarat Solar Power Transmission Project. Manila.

renewable energy segment in India is rapidly changing, and it is important for the power developers to have a good understanding of the current regulatory environment as well as the required credentials for timely execution of the projects. Other important lessons from the earlier transactions in the renewable energy segment include the need to focus on (i) risks associated with land acquisition and acquisition of rights-of-way, (ii) adequate power evacuation infrastructure, and (iii) receivables and payment delays with offtakers.

## D. Project Cost and Financing Plan

- 18. Confidential information deleted.
- 19. Confidential information deleted.

## E. Implementation Arrangements

20. Table 4 summarizes the implementation arrangements.<sup>9</sup>

Aspects	Arrangements
Regulatory framework	The key policies that govern renewable energy in India are (i) the Electricity Act 2003, which establishes the overall framework for the power sector; (ii) the National Electricity Policy of 2005, a requirement under the Electricity Act that directs the central government to establish a guideline for power development, in consultation with key stakeholders; and (iii) the Tariff Policy 2006, which prescribes key rates, ratios, and other factors to ensure the viability and efficiency of power projects. Key stakeholders who manage these policies include central and state government bodies, such as the Central Electricity Regulatory Commission and the state electricity regulatory commissions.
Management	The team consists of experts with vast experience in the renewable energy segment. The senior management team is headed by Ranjit Gupta, CEO of Ostro Energy Private Limited, and previously the founding CEO of Indiabulls Power in 2007.
Implementation period	December 2017 – October 2018
Construction arrangements	
Type of arrangement	The project will be implemented through a lump-sum turnkey arrangement. The contracts are expected to include the standard clauses on termination and liquidated damages, which are sized to account for the charges and penalties that may result from delays in implementation. The level of the liquidated damages has been vetted by the lender's independent engineer and confirmed to be in line with industry practice.
Contractor	Vestas Wind Technology India Private Limited is the engineering, procurement and construction contractor for the project and responsible for delivering the project within the time schedule and at a fixed price.
Operations arrangements	
Revenue structure	OKWPL has signed a 25-year power purchase agreement with PTC India Limited at a fixed tariff of ₹3.46 per unit.
Operation and maintenance	OKWPL is expected to enter into a comprehensive operation and maintenance contract with Vestas Wind Technology India Private Limited.
Performance monitoring	Key performance indicators, including output and outcome indicators, will be reported by OKWPL and monitored by the Asian Development Bank.

#### **Table 4: Summary of Implementation Arrangements**

CEO = chief executive officer and OKWPL = Ostro Kutch Wind Private Limited. Source: Ostro Kutch Wind Private Limited.

<sup>&</sup>lt;sup>9</sup> Details of Implementation Arrangements are accessible from the list of linked documents in Appendix 2.

## F. Projected Financial and Economic Performance

21. Confidential information deleted.

# III. THE PROPOSED ADB ASSISTANCE

## A. The Assistance

22. ADB will provide up to \$100 million, in Indian rupee equivalent, as limited-recourse project finance loan to OKWPL for the development of the 250 MW Kutch Wind Project.

Confidential information deleted.

## B. Value Added by ADB Assistance

23. The project was awarded through the country's first wind auction at a price that now makes wind energy competitive with other sources of power in India (para. 3). The objective behind the auction was to help states with low wind resources meet their nonsolar renewable purchase obligation at a competitive price. ADB's assistance in the form of a long-term loan will significantly improve project financials. This will have a signaling effect by affirming the commercial viability of competitively bid wind projects as well as the significant technological improvements and innovations in the wind power industry, which justify lower tariffs for cost recovery. It will also alleviate industry concerns about the commercial viability of such projects without any subsidy and incentives.

#### C. Risks

24. **Revenue and resource.** The lender's wind resource assessment advisor has conducted an independent wind resource assessment<sup>10</sup> to verify the resource and energy estimation. Conservative P90 assumptions<sup>11</sup> are used in the financial projections as the base case. Gujarat was the first Indian state to install a wind project in 1986. The wind resource consultant has over 29 years of proprietary data to estimate the wind resource conditions. The quality of the estimates has improved over the years thanks to an increase in the number of data points. In addition, the higher hub heights, increase in rotor diameter, and improvement in technology allow turbines to operate in low wind conditions compared with other 2 MW-rated wind turbine generators, yielding a better output. In case the PPAs are terminated before its tenor, OKWPL will have the option to sell power in the spot market, since the project is connected to the CTU.

25. **Offtaker.** OKWPL has signed four 25-year PPAs with PTC at a fixed tariff of ₹3.46 per unit for its entire capacity which materially mitigates revenue risk. The offtaker, PTC, has an acceptable balance sheet and the highest short-term rating of A1+ by CRISIL, which demonstrates adequate financial capacity. PTC has a good payment track record and its LOCs have never been drawn. PTC, unlike state electricity distribution companies, has a diverse pool of revenues. It has already entered into contractual arrangements for the sale of the entire capacity made available under the auction scheme.

<sup>&</sup>lt;sup>10</sup> Wind resource assessment is the process to estimate the future energy production of a wind farm.

<sup>&</sup>lt;sup>11</sup> Probability of exceedance of 90%. In other words, the wind estimates are expected to be exceeded 90% of the time.

26. Confidential information deleted.

27. **Evacuation.** One of the key risks that renewable energy projects encounter is curtailment or back-down by grid operators. The project will be connected to the CTU, and since renewable energy projects have a must-run status under the grid code, this risk is largely mitigated.

Confidential information deleted.

28. Confidential information deleted.

29. **Construction.** Vestas India is expected to sign fixed-price and date-certain turnkey contracts. This is expected to largely mitigate construction risk. Vestas India is very experienced in delivering wind energy projects in India.

Confidential information deleted.

30. Confidential information deleted.

31. Confidential information deleted.

#### IV. POLICY COMPLIANCE

#### A. Safeguards and Social Dimensions

32. In compliance with ADB's Safeguard Policy Statement (2009), the project is classified category *B* for environment, *category C* for involuntary resettlement, and *category C* for indigenous peoples. An independent consultant prepared the initial environmental examination (IEE), which has identified potential environmental and social impacts and suggested effective measures to avoid, minimize, mitigate, and compensate for any adverse impacts resulting from the project's operations. The institutional capacity and commitment of OKWPL to manage the project's social and environmental impacts are deemed to be adequate. The International Finance Corporation, an existing lender to some of OKWPL's projects, has helped the company put in place an environmental and social management system that is also compliant with ADB's environmental and social safeguard policies.

33. The IEE has assessed the potential environmental and social impacts of the project across its complete life cycle. The siting of the turbines will be done away from sensitive environments and social receptors to avoid impacts associated with shadow flicker, noise, blade throw, and other safety risks. A total of 168 potential locations have been identified for the installation of the wind turbine generators (WTGs). Of these, only 125 will be required. WTG locations that are close to sensitive environmental or social receptors will be left out of the final selection. All the WTGs should be located on government-owned revenue lands, which will be allotted to the project. The IEE has assessed and documented that the land is free from encumbrances and that no physical or economic displacement issues are involved in the transfer of these lands. Other project subcomponents like the transmission line and the access roads will be located on a mix of government and private lands. While government lands will be transferred to the project, private lands will be directly purchased through negotiated one-time settlements with individual landowners under a willing seller-willing buyer arrangement. The environmental and social management system of the company includes a framework for documenting land purchases through negotiated settlements. An independent audit of the land purchase process

will be done to validate the fairness of the negotiation and settlement process and conformance with the Safeguard Policy Statement requirements.

34. The construction-phase impacts are mostly linked to activities such as vegetation clearing, access roads, transportation and delivery of equipment, excavation and the laying of foundations, and installation of wind turbines. Mitigation measures for impacts associated with noise, air pollution, waste management, occupational and community health and safety, and traffic are clearly delineated in the IEE. No wildlife or bird sanctuary or national parks are present within 50 kilometers of the proposed project site. Significant impacts or threats to avifauna are not envisaged as a result of setting up the WTGs. The IEE has proposed design measures such as painting the tip of blades and installing flash lamps on WTGs to prevent collision risks. Operational-phase bird and bat monitoring will be carried out and mitigation measures implemented in the event of any future impacts on avifauna. No known migratory flyways coincide with the project area. Noise and shadow flicker impacts associated with the project were assessed to be low and will be managed through siting of the turbine locations and implementation of mitigation measures proposed in the environmental and social management plan. The project and its activities will not result in impacts on indigenous peoples. No lands owned, used, occupied, or claimed as ancestral domain by scheduled tribes<sup>12</sup> is being used for the development of the project.

35. OKWPL will comply with national labor laws and, pursuant to ADB's Social Protection Strategy (2001), will take measures to comply with the internationally recognized core labor standards.<sup>13</sup> OKWPL will report regularly to ADB on (i) its (and its contractors') compliance with such laws and (ii) the measures taken. Information disclosure and consultation with affected people will be conducted in accordance with ADB requirements.<sup>14</sup>

## B. Anticorruption Policy

36. OKWPL was advised of ADB's policy of implementing best international practice relating to combating corruption, money laundering, and the financing of terrorism. ADB will ensure that the investment documentation includes appropriate provisions prohibiting corruption, money laundering, and the financing of terrorism, and remedies for ADB in the event of noncompliance.

#### C. Investment Limitations

37. Confidential information deleted.

# D. Assurances

38. Consistent with the Agreement Establishing the Asian Development Bank (the Charter),<sup>15</sup> ADB will proceed with the proposed assistance upon establishing that the Government of India has no objection to the proposed assistance to OKWPL. ADB will enter into suitable finance documentation, in form and substance satisfactory to ADB, following approval of the proposed assistance by the Board of Directors.

<sup>&</sup>lt;sup>12</sup> "Scheduled tribes" refers to tribes or tribal communities, or parts of or groups within such tribes or tribal communities, as are deemed Scheduled Tribes under Article 342 of the Indian Constitution based on their primitive traits, distinctive culture, geographical isolation, shyness of contact with the community at large, and backwardness.

<sup>&</sup>lt;sup>13</sup> ADB. 2003. Social Protection Strategy. Manila (adopted in 2001).

<sup>&</sup>lt;sup>14</sup> Summary Poverty Reduction and Social Strategy; Safeguards and Social Dimensions Summary (accessible from the list of linked documents in Appendix 2).

<sup>&</sup>lt;sup>15</sup> ADB. 1966. Agreement Establishing the Asian Development Bank. Manila.

## V. RECOMMENDATION

39. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve:

(i) the loan of up to \$100,000,000 in Indian rupee equivalent from ADB's ordinary capital resources to Ostro Kutch Wind Private Limited for the Kutch Wind Project in India, with such terms and conditions as are substantially in accordance with those set forth in this report, and as may be reported to the Board; and

Confidential information deleted.

Takehiko Nakao President

17 November 2017

# **DESIGN AND MONITORING FRAMEWORK**

#### Impacts the Project is Aligned with:

Diversified energy mix in India through the addition of renewable energy capacity (Mission of the Ministry of New and Renewable Energy)<sup>a</sup>

Cost-competitive, convenient, safe, and reliable new and renewable energy supply options (footnote a).

	Performance Indicators with	Data Sources and/or Reporting	
Results Chain	Targets and Baselines	Mechanisms	Risks
Outcome	By 2020		
Increased delivery of clean power sustainably produced by the private sector	a. Electricity generated and delivered to offtaker increased to 762 GWh per year (2016 baseline: 0)	a–c. Annual development effectiveness reports	Capacity utilization rates do not meet forecast because wind resources are less than anticipated.
	b. 669,036 tons <sup>b</sup> of carbon dioxide avoided annually (2016 baseline: 0)		Power evacuation infrastructure is not completed in a timely manner.
	<ul> <li>c. Contribution to government revenue amounts to an annual average of ₹50 million, increasing to ₹250 million by 2032 (2016 baseline: 0)</li> </ul>		
Output	By 2018		
<ol> <li>Wind power production capacity increased</li> <li>Growth of local economy supported</li> </ol>	<ol> <li>250 MW wind power capacity installed (2016 baseline: 0)</li> <li>Confidential information deleted.</li> </ol>	1–2. Annual development effectiveness reports	Delays in construction because of land acquisition issues
Key Activities with Milestones			
Complete execution of legal documentation by January 2018 Construction of 250 MW project commenced by 2018			
Inputs Confidential information deleted.			
Assumptions for Partner Financing			
Not applicable			

GWh = gigawatt-hour, MW = megawatt, OKWPL = Ostro Kutch Wind Private Limited.

<sup>a</sup>http://mnre.gov.in/mission-and-vision-2/mission-and-vision/mission-2/. Accessed on 15 August 2017.

<sup>b</sup>The country emission factor used is 878 tons of carbon dioxide/GWh, from the International Financial Institution

# 10 Appendix 1

Technical Working Group. 2016. (Interim) Dataset of Harmonized Grid Factors. Source: Asian Development Bank.

# 11 Appendix 2