Report and Recommendation of the President to the Board of Directors

Project Number: 46919
March 2013

Proposed Equity Investment
NSL Renewable Power Private Limited
Hydro and Wind Power Development 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 Communication Policy 2011

Asian Development Bank

CURRENCY EQUIVALENTS
(as of 6 March 2013)

Currency unit	–	Indian rupee/s (Re/Rs)
Re1.00	=	$0.018248
$1.00	=	Rs54.80

ABBREVIATIONS

ADB	–	Asian Development Bank
CO_2	–	carbon dioxide
IFC	–	International Finance Corporation
IPO	–	initial public offering
NRPPL	–	NSL Renewable Power Private Limited
O&M	–	operation and maintenance
PPA	–	power purchase agreement

WEIGHTS AND MEASURES

GW	–	gigawatt
GWh	–	gigawatt-hour
km	–	kilometer
kWh	–	kilowatt-hour
MW	–	megawatt
W/m^2	–	watt per square meter

NOTES

(i) In this report, "$" refers to US dollars.

(ii) The fiscal year (FY) of all NSL Group entities ends on 31 March. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2013 ends on 31 March 2013.

Vice-President	L. Venkatachalam, Private Sector and Cofinancing Operations
Director General	P. Erquiaga, Private Sector Operations Department (PSOD)
Director	M. Barrow, Infrastructure Finance Division 1, PSOD
Team leader	M. Lemoine, Investment Specialist, PSOD
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	R. Samiano, Safeguards Officer, PSOD
	M. Tsuji, Principal Safeguards Specialist, PSOD

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PROJECT AT A GLANCE

1. Project Name: Hydro and Wind Power Development Project

2. Project Number: 46919-014

3. Country: India

4. Department/Division: Private Sector Operations Department
Infrastructure Finance 1

5. Sector Classification:

Sectors	Primary	Subsectors
Energy	√	Renewable energy generation

6.Thematic Classification:

Themes	Primary	Subthemes
Economic growth	√	Physical infrastructure development
Environmental sustainability		Eco-efficiency
Private sector development		Private sector investment

6a. Climate Change Impact:

Adaptation	
Mitigation	√
Not applicable	

6b. Gender Mainstreaming:

Gender equity theme	
Effective gender mainstreaming	
Some gender elements	
No gender elements	√

7. Targeting Classification:

General Intervention	**Targeted Intervention**		
	Geographic dimensions of inclusive growth	Millennium development goals	Income poverty at household level
√			

8. Location Impact:

Rural	Medium
Urban	Low
National	High
Regional	Low

9. Nonsovereign Operation Risk Rating : Not Applicable

10. Safeguard Categorization:

Environment	**A**
Involuntary resettlement	**B**
Indigenous peoples	**C**

11. ADB Financing:

Sovereign/Nonsovereign	**Modality**	**Source**	**Amount** ($ million)
Nonsovereign	Equity	OCR	$30.0 million (in Indian rupee)

12. Cofinancing: Not Applicable

13. Counterpart Financing: Not Applicable

14. Aid Effectiveness: Not Applicable

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed equity investment of up to $30,000,000 (in Indian rupee equivalent) in NSL Renewable Power Private Limited (NRPPL) for the Hydro and Wind Power Development Project in India.

II. THE PROJECT

A. Project Identification and Description

1. Project Identification

2. India is in chronic need of additional power generation capacity. The government's 11th Five Year Plan, 2007–2012 targeted the creation of 79 gigawatts (GW) of additional capacity for grid power. Actual realization did not exceed 50 GW, largely on account of slippages in public sector projects. The government's draft 12th Five Year Plan, 2012–2017 targets 100 GW, including 28 GW of capacity from projects that were supposed to be completed during the previous plan. However, because of the continued growth in power demand, power supply is expected to continue to remain 10%–12% short of demand every year during the 12th plan.[1]

3. India also needs to preserve its energy mix, not only to combat climate change but also to ensure the country's energy security. The availability of indigenous conventional fuels is diminishing and India has to import increasing quantities of coal and liquefied natural gas. Investing in renewable power mitigates import dependency and the impact of potential imported fuel price increases. The share of renewable power in total installed capacity has declined from 44% in 1970 to 31% in 2011. The government intends to stop this decline and has set a goal of maintaining the proportion of renewable power at its current level (31%) until 2023.[2]

4. The government's energy sector strategy is based on three pillars: (i) reforming the sector's policy and regulatory framework, (ii) promoting energy efficiency, and (iii) promoting renewable energy. The draft 12th plan calls for a continued emphasis on renewable resources. India's renewable energy potential is 80% unrealized and the largest untapped renewable resources are hydro (125 GW) and wind (68 GW). Yet, renewable energy capacity addition since 2007 has been disappointing, especially for hydropower. During the 11th plan, hydro capacity addition was only 5,400 megawatts (MW) against a target of 15,600 MW (footnote 2).

5. The private sector is expected to play an increasing role in accelerating the pace of investment in renewable energy to realize India's potential fully. In particular, the private sector is expected to be more involved in hydropower. As of December 2011, the private sector share in hydropower installed capacity was 7% as opposed to 21% in thermal power (footnote 2). The private sector will also continue to drive the development of wind power, which is expected to represent 40% of the renewable energy capacity addition during the 12th plan (11,000 MW out of 27,700 MW— about the same expected capacity addition as hydropower).

6. The Asian Development Bank (ADB) was approached by NRPPL in April 2012 and the structure of the investment in the form of equity was finalized in September 2012 during the due diligence mission. The project is consistent with ADB's strategy of supporting renewable energy development and will be ADB's first nonsovereign investment in the hydropower sector in India. The project is also consistent with the Private Sector Operations Department's strategy of

[1] Government of India, Planning Commission. 2011. *Faster, Sustainable and More Inclusive Growth: An Approach to the Twelfth Five Year Plan*. Delhi.

[2] Central Electricity Authority (CEA). 2012. *National Electricity Plan*. Delhi.

pursuing investments through innovative financial structures. Supporting a renewable energy developer with growth capital, as opposed to single project financing, is a way to achieve greater leverage of ADB's funds and greater development impact in terms of capacity addition.

7. Several Indian renewable energy developers have been considered for growth capital funding since 2010 and NRPPL was found to be the most suited for an investment by ADB. NRPPL combines the presence of a strong sponsor, a strong track record, a solid pipeline, and a commitment to comply with ADB's environmental and social safeguards. ADB assistance will improve NRPPL's ability to attract other investors and to prepare for an initial public offering (IPO), enabling the company to achieve its target of at least 1,000 MW of operating renewable power projects in India by 2017.

2. Project Design

8. The project encompasses the development by NRPPL of at least 175 MW of renewable energy projects by 2017. The 100 MW Tidong hydropower project in Himachal Pradesh and the 75 MW Chilarewadi wind project in Maharashtra are included as identified subprojects in the scope of the project. The company may identify other wind subprojects in India after approval by ADB's Board of Directors and utilize part of the proposed ADB funding for these subprojects.[3]

9. The Tidong run-of-river hydropower project is located near the town of Reckong Peo on the Tidong River in Himachal Pradesh, about 230 kilometers (km) from Shimla. The Tidong River is primarily snow-fed. More than 30 years of hydrological data are available from government sources. The plant load factor was estimated at 54.8% at P50.[4] Hydrological analysis was conducted by Chubu Electric Power, a Japanese power company. The project will include a 16 km transmission line up to the grid connection point at Kashang.

10. The Tidong project tied up its entire debt requirements in 2010. Lenders include Axis Bank, L&T Infra Finance, State Bank of Hyderabad, State Bank of Patiala, and Canara Bank. Construction is 50% complete and the commercial operation date is expected by June 2016. The project requires a total equity funding of $41.9 million.

11. The Chilarewadi project is located in Maharashtra, 85 km from the city of Satara. All private land required for the project has been acquired, while the required government land is at advanced stages of acquisition. NRPPL engaged AWS Truepower, a leading renewable energy consulting company, to carry out the wind analysis and estimation of annual energy. AWS Truepower estimated the P50 plant load factor at 26.7%. The project will include a 7 km transmission line that will connect to the existing Sholapur–Karad transmission line.

12. The Chilarewadi project is expected to be commissioned by December 2013. Certification from the Centre for Wind Energy Technology was received in July 2010. The project is expected to reach financial close by March 2013. Limited recourse debt financing will be provided by the International Finance Corporation (IFC), Standard Chartered Bank, and PTC India Financial Services. The project requires a total equity funding of $28.9 million.

3. The Sponsor

13. NRPPL is a leading renewable power developer in India. NRPPL intends to have a diversified portfolio of more than 1,000 MW operational renewable power projects by 2017.

[3] Any new project would have to meet criteria specified by ADB for use of ADB funds.
[4] P50 means a probability of 50%: the plant load factor is expected to be at least 54.8% in 50% of the years.

14. NRPPL is 72.7% owned by the NSL Group. The group includes the largest seed company in India (Nuziveedu Seeds), as well as companies engaged in textiles, cotton, sugar, and the manufacturing of wind turbines. The wind turbine business (Regen) has a technology agreement with Vensys from Germany. The NSL Group is owned by husband-and-wife team Prabhakar Rao and Asha Priya.[5] FE Clean, a private equity fund, and IFC invested a combined $60 million in NRPPL in 2011.

B. Development Impacts, Outcome, and Output

1. Impacts

15. The project will contribute to the continued development of renewable energy generation in India. In doing so, it will help preserve India's energy mix by relying on indigenous energy sources as opposed to imported fuels. The project will contribute to the national goal of at least maintaining the proportion of renewable power in total installed capacity at its current level (31%) until 2023.

16. ADB's assistance will also support private sector development by catalyzing private investment in the Indian renewable energy sector. As a result of continued government support for private sector participation in renewable energy, the private sector share in the total installed capacity of renewable energy in India is expected to increase from 33% in 2011 to 50% in 2023.

2. Outcome

17. The outcome will be an increased production of renewable energy. The project is expected to generate 530 gigawatt-hours (GWh) annually and avoid 400,000 tons of carbon dioxide annually from 2017 onward, as well as contribute to local employment generation and tax revenue.

3. Output

18. The output will be 100 MW of hydropower and at least 75 MW of wind power plants developed and commissioned by 2016.

C. Alignment with ADB Strategy and Operations

1. Consistency with Strategy 2020 and Country Strategy

19. The project is consistent with ADB's Strategy 2020.[6] It relates to two of ADB's five core areas of operations: infrastructure and environment. The strategy calls for ADB support for clean energy development to meet growing energy demands in a sustainable manner. The project will contribute to ADB's operational goal of scaling up private sector development and private sector operations.

20. The project is aligned with the India country partnership strategy, 2009–2012.[7] One of the four pillars of the strategy is support for inclusive and environmentally sustainable growth through an enhanced focus on renewable energy. The draft country partnership strategy, 2013–2017 maintains this focus with a call for the "expansion of clean and renewable energy

[5] P. Rao's father founded the seed company in 1972.
[6] ADB. 2008. *Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank*, *2008–2020*. Manila.
[7] ADB. 2009. *Country Partnership Strategy: India, 2009–2012*. Manila.

development" and "more commercial approaches to support the deployment of advanced, energy efficient, and renewable energy technology including solar and wind energy."[8]

2. Consistency with Sector Strategy and Relevant ADB Operations

21. The project is fully aligned with ADB's Energy Policy 2009.[9] The policy states that support for renewable energy projects will be prioritized and broadened. Starting in 2013, ADB has increased its target of clean energy investments to $2 billion a year from the earlier target of $1 billion. The policy emphasizes private sector participation as a tool to enhance energy sector efficiency by introducing increased competition and increased investable resources.

22. The project will complement ADB's sovereign assistance to the energy sector in Himachal Pradesh, where the Tidong project is located. In 2008, the Board approved $800 million assistance to Himachal Pradesh government to increase the state government-owned hydroelectric capacity from about 400 MW in 2007 to about 1,200 MW in 2016.[10] By adding 100 MW capacity from the private sector, the project will join forces with the public sector's effort in realizing the state's hydropower potential. In 2011, the Board approved additional $350 million assistance to the state government to support the development of the necessary transmission systems to evacuate the power generated by the hydropower projects being developed. A technical assistance grant was approved at the same time to support capacity development of the state agency in charge of these transmission systems, Himachal Pradesh Power Transmission Corporation.[11] This will directly benefit the project since the transmission line required to evacuate power from Tidong has to be built by the state agency.

3. Lessons from Previous Operations

23. No evaluation report has been produced yet on ADB-financed hydropower projects in India. However, an evaluation study by ADB's Independent Evaluation Department on the 114 MW Dagachhu hydropower project in Bhutan, which was financed by a sovereign loan, stressed the importance for ADB to support the development of medium-size (50 MW–200 MW) hydropower projects through private sector investments under the public–private partnership model.[12] The study also highlighted the environmental and social issues associated with the large-scale development of hydropower in the Himalayas. Thorough environmental and social due diligence has been conducted on the Tidong hydro project and issues will be addressed in accordance with ADB's safeguard policies.

24. The extended annual reviews of wind projects previously financed by ADB's Private Sector Operations Department in India highlighted three key lessons: (i) the importance of wind resource assessment, (ii) the risks associated with land acquisition if forestland is included in the scope of the project, and (iii) the need for more power evacuation facilities. In the case of the Chilarewadi wind project, these risks are mitigated by (i) the wind study conducted by a reputable specialized firm, (ii) the absence of forestland, and (iii) the limited length of the required transmission line to connect to the grid (7 km). NRPPL is following the same approach for other wind projects that it is developing, starting with several years of wind data collection.

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[8] ADB. 2012. *Country Partnership Strategy: India, 2013–2017 – Draft for Consultation*. Manila.
[9] ADB. 2009. *Energy Policy*. Manila.
[10] ADB. 2008. *Report and Recommendation of the President to the Board of Directors: Proposed Multitranche Financing Facility for the Himachal Pradesh Clean Energy Development Investment Program*. Manila.
[11] ADB. 2011. *Report and Recommendation of the President to the Board of Directors: Proposed Multitranche Financing Facility and Technical Assistance Grant to India for the Himachal Pradesh Clean Energy Transmission Investment Program*. Manila.
[12] ADB. 2010. *Sector Assistance Program Evaluation: Energy Sector in Bhutan*. Manila.

D. Project Cost and Financing Plan

25. The two subprojects identified for ADB assistance are estimated to cost $236.1 million. Table 1 presents the cost breakdown for these two subprojects, as validated by independent engineers (Chubu Electric Power for Tidong and Lahmeyer International for Chilarewadi).

Table 1: Project Cost

Item		Amount (Rs million)	Amount ($ million)	Share of Total (%)
Tidong				
A.	Land acquisition	69.4	1.3	0.9
B.	Civil works	3,150.5	57.5	41.1
C.	Hydro-mechanical works	400.1	7.3	5.2
D.	Electromechanical works	1,362.8	24.9	17.8
E.	Transmission works	177.0	3.2	2.3
F.	Development costs	59.6	1.1	0.8
G.	Resettlement and safeguard costs	206.4	3.8	2.7
H.	Interest during construction	1,131.9	20.7	14.8
	Contingencies (25% of capital cost)	1,104.3	20.2	14.4
	Total Tidong	**7,662.1**	**139.8**	**100.0**
Chilarewadi				
A.	Land acquisition	227.0	4.1	4.3
B.	Civil works	200.0	3.6	3.8
C.	Supply and erection of wind turbines	4,105.0	74.9	77.8
D.	Transformer	152.5	2.8	2.9
E.	Development cost	78.1	1.4	1.5
F.	Prefunded working capital and DSRA	173.0	3.2	3.3
G.	Interest during construction	245.8	4.5	4.7
	Contingencies (2% of capital cost)	96.0	1.8	1.8
	Total Chilarewadi	**5,277.4**	**96.3**	**100.0**

DSRA = debt service reserve account.
Sources: Asian Development Bank financial model; Chubu Electric Power. 2011. *Technical Evaluation Report on NSL Renewable Power Private Limited Hydro Electric Power Projects in India*. Nagoya; Lahmeyer International (India). 2012. *75 MW Wind Power Project in Satara District, Maharashtra*. New Delhi.

26. Table 2 identifies the corresponding sources of funds. Out of $236.1 million, 70% will be funded by project level debt ($165.3 million) and 30% by equity ($70.8 million). Out of the $70.8 million, $16.6 million has already been invested by NRPPL. The remaining $54.2 million will be funded by ADB ($30.0 million) and other investors ($24.2 million).

Table 2: Financing Plan

Source	Amount (Rs million)	Amount ($ million)	Share of Total (%)
Loans			
Lenders to the Tidong project [a]	5,363.4	97.9	41.5
Lenders to the Chilarewadi project [b]	3,694.2	67.4	28.5
Equity			
Already invested by NRPPL	912.4	16.6	7.1
Asian Development Bank	1,644.0	30.0	12.7
Other investors	1,325.5	24.2	10.2
Total Tidong and Chilarewadi	**12,939.5**	**236.1**	**100.0**

NRPPL = NSL Renewable Power Private Limited.
[a] = Axis Bank, L&T Infra Finance, State Bank of Hyderabad, State Bank of Patiala, and Canara Bank.
[b] = PTC Financial Services Limited, International Finance Corporation, and Standard Chartered.
Source: Asian Development Bank financial model.

E. Implementation Arrangements

27. Table 3 summarizes the implementation arrangements.

Table 3: Summary of Implementation Arrangements

Aspects	Arrangements
Regulatory framework	The Himachal Pradesh Hydro Policy, 2006 is the relevant regulatory framework for the Tidong hydro project, in addition to the central government policies (e.g., Electricity Act, 2003). Consistent with the policy, the project was allotted following a competitive tender and may sell power to any third-party off-taker, although a proportion of the power output will have to be allocated free of cost to the state utility for 30 years ("free power"). The New Policy for Power Generation from Non-Conventional Sources of Energy of Maharashtra, 2008 provides incentives for wind power development in the state and is applicable to the Chilarewadi wind project. Under this policy, the projects are required to sell at least 50% of the power to Maharashtra State Electricity Distribution Company under long-term power purchase agreements (PPAs).
Management	The management team of NSL Renewable Power Private Limited (NRPPL) is composed of seasoned professionals with relevant experience in the renewable energy sector. To manage projects effectively across India, the company has set up satellite offices in five states in addition to the headquarter office in Hyderabad.
Implementation period	Tidong: February 2009–June 2016 Chilarewadi: January 2013–December 2013
Construction arrangements	All contracts for Tidong have been or will be granted following international competitive bidding. The civil works contract was allocated to Himalaya Construction Company, an Indian firm with good tunneling experience. The electromechanical works were awarded to Alstom Projects India. Selection of the hydro-mechanical contractor will be done by June 2013. All contracts include performance security, warranty period, and liquidated damages. Nevertheless, 25% of the capital cost has been budgeted as contingency. For Chilarewadi, the project company entered into an arm's length supply, erection, and commissioning contract with Regen. Regen was selected after a comparative study with two other potential turbine suppliers (GE and Vestas) conducted by AWS Truepower, a wind power consultant. Based on the review conducted by Lahmeyer International, the lenders' independent engineer, the terms and conditions specified in the supply agreement are at par with good industry practices.
Revenue structure	The Tidong project company has entered into a 15-year PPA with Tata Power with upside sharing. If the merchant tariff realized by Tata Power is above the base tariff (Rs4.4 per kilowatt-hour [kWh]), the difference will be shared between NRPPL and Tata Power on a 90:10 basis. The Chilarewadi project company will enter into a 13-year PPA with Maharashtra State Electricity Distribution Company. The PPA will be signed after the commissioning of the project, as mandated by policy. Wind power density for the project site was estimated at 236.20 W/m^2 at 50 meters (m) above ground level by the Centre for Wind Energy Technology. As such, the project falls under zone 1 (low wind density) with an applicable tariff of Rs.5.67/kWh.
Operation and maintenance (O&M)	NRPPL plans to manage the O&M of the Tidong hydro project internally by hiring hydropower experts. The O&M cost is minimized since the hydropower experts will handle the operations of the four hydro projects of NRPPL. Regen will undertake the O&M for the Chilarewadi project for 20 years. The first 2 years from the date of commissioning will be covered by the warranty period. The annual O&M

Aspects	Arrangements
	cost is set for the first 10 years. The O&M cost from the 11th to the 20th year will be mutually agreed 6 months prior to the 10th year after commissioning.
Performance monitoring	Financial performance and key performance indicators, including output and outcome indicators, will be reported by NRPPL.

Source: NSL Renewable Power, Asian Development Bank staff due diligence.

F. Projected Financial and Economic Performance

28. The project is financially viable because the expected financial internal rate of return is 15.6% for Tidong and 15.0% for Chilarewadi, higher than the weighted average cost of capital of 11.0%. The project is economically sustainable as the economic internal rate of return is 12.4% for Tidong and 13.8% for Chilarewadi, higher than the social discount rate of 12.0%.

III. THE PROPOSED ADB ASSISTANCE

A. The Assistance

29. ADB will invest up to $30 million (in Indian rupee equivalent) in NRPPL in the form of common equity shares to partially fund the company's equity injection in identified subprojects.
30. The equity investment has been structured to address the capital needs of NRPPL. It provides growth capital to NRPPL without imposing the burden of interest payments, while the asset base is being expanded. It will enable ADB to share the investment upside created by an IPO.

B. Value Added by ADB Assistance

31. ADB's assistance will support the government's policy to develop renewable energy, particularly hydropower where the private sector has been slow to move and where ADB has been looking for good opportunities for some time. ADB's investment will strengthen a local renewable energy sponsor with a good operational track record and solid pipeline. ADB's presence is expected to catalyze further private equity investment and facilitate a future IPO. This will help the company reach its target of 1,000 MW of operational renewable energy assets by 2017. ADB's presence will also enhance the company's commitment to comply with environment and social safeguard standards. Finally, ADB's Future Carbon Fund will potentially provide carbon offtake to Clean Development Mechanism registered projects.

C. Risks

IV. POLICY COMPLIANCE

A. Safeguards and Social Dimensions

32. In compliance with ADB's Safeguard Policy Statement (2009), the project is classified category A for environment, category B for involuntary resettlement, and category C for indigenous peoples based on the significance of impacts from two identified subprojects (Tidong and Chilarewadi). The potential environmental and social impacts of the project have been identified; and effective measures to avoid, minimize, mitigate, and compensate for the adverse impacts are incorporated in the corporate audit report recommendations and safeguard reports and plans for the identified subprojects. A draft environmental and social impact assessment and a compliance audit report for Tidong (classified category A for environment) were posted on ADB's website in June 2012. The institutional capacity of NRPPL to manage the project's environmental and social impacts needs to be strengthened according to the compliance audit

report. Based on ADB's due diligence, all safeguard reports and plans were improved and updated to include additional assessment and additional measures, such as erosion prevention of construction wastes for Tidong. The company is committed to implement these measures and to continue to build the capacity of its staff and contractors to manage the project's environmental and social effectively. The revised safeguard reports and plans were posted on ADB's website in March 2013. Information disclosure and consultations with affected people are conducted in accordance with ADB's requirements.

33. The project is classified as having no gender elements. ADB will ensure that the investment documentation includes appropriate provisions requiring NRPPL to comply with national labor laws and, in addition, to take specific measures (including in relation to contractors) in relation to the internationally recognized core labor standard for the ADB financed portion of the project, in compliance with ADB's Social Protection Strategy.[13]

B. Anticorruption Policy and Anti-Money-Laundering Policies

34. NRPPL was advised of ADB's Anticorruption Policy (1998, as amended to date), and policy relating to the Combating of Money Laundering and the Financing of Terrorism (2003). Consistent with its commitment to governance, accountability, and transparency, ADB will require NRPPL to institute, maintain, and comply with internal procedures and controls following international best practice standards for the purpose of preventing corruption and money laundering activities and the financing of terrorism; and to covenant with ADB to refrain from engaging in such activities.

C. Investment Limitations

35. The proposed equity investment is within the medium-term, country, industry, group, and single-project exposure limits for nonsovereign investments.

D. Assurances

36. Consistent with the Agreement Establishing the Asian Development Bank, the Government of India's no objection to the proposed assistance to NRPPL will be obtained. 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.

V. RECOMMENDATION

37. I am satisfied that the proposed equity investment would comply with the Articles of Agreement of the Asian Development Bank (ADB) and, acting in the absence of the President, under the provisions of Article 35.1 of the Articles of Agreement of ADB, I recommend that the Board approve the equity investment of up to $30,000,000 (in Indian rupee equivalent) in NSL Renewable Power Private Limited for the Hydro and Wind Power Development Project in India from ADB's ordinary capital resources, 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.

Bindu N. Lohani
Ranking Vice-President

[13] ADB. 2003. *Social Protection.* Manila (adopted in 2001).

21 March 2013

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and/or Indicators with Baselines	Data Sources and/or Reporting Mechanisms	Assumptions and Risks
Impacts Continued development of renewable energy in India Greater private sector participation in the Indian renewable energy sector	Share of renewable energy (including hydropower) in total installed capacity maintained at 31% from 2011 to 2023 (end of 13th plan) Private sector share of total installed capacity of renewable energy (including hydropower) increased from 33% in 2011 to 50% in 2023 (end of 13th plan)[a]	ADB staff estimates based on capacity addition for the 12th and 13th five year plans, cited in Central Electricity Authority. 2012. *National Electricity Plan*. ADB staff estimates based on capacity addition for the 12th and 13th five year plans, cited in Central Electricity Authority. 2012. *National Electricity Plan*.	**Assumptions** Continued macroeconomic and political stability at the central and state levels Regulatory incentives for renewable energy projects remain
Outcome Increased production of renewable energy	400 GWh generated annually by the hydropower plant from 2017 onward [b] 130 GWh generated annually by the wind farm from 2014 onward [c] 300,000 tons of CO_2 avoided annually through the hydropower plant from 2017 onward [d] 100,000 tons of CO_2 avoided annually through the wind farm from 2014 onward [e] 200 FTE employed during operation by 2017 Annual contribution of corporate taxes of at least Rs200 million by 2017	NRPPL's technical reports ADB's development effectiveness monitoring reports NRPPL's audited financial statements	**Assumptions** PPAs honored Continuity of qualified company management **Risks** Hydrology and wind risks Operational risks causing disruption in power production
Output Hydro and wind power projects developed and commissioned	100 MW of additional hydropower capacity commissioned by 2016 75 MW of additional wind power capacity commissioned by 2013 Locally purchased goods and services amount to Rs9 billion by 2016	NRPPL's technical reports ADB's development effectiveness monitoring reports NRPPL's audited financial statements	**Assumption** Business plan executed in a timely fashion and within budget **Risk** Projects are delayed because of contractors' underperformance

Design Summary	Performance Targets and/or Indicators with Baselines	Data Sources and/or Reporting Mechanisms	Assumptions and Risks
	500 FTE employed during construction in 2013		or external factors
Activities with Milestones Financial close of Chilarewadi wind power project achieved by March 2013 Audit and appropriate revision to the company's environmental and social management system by June 2013 Commissioning of Chilarewadi wind power project achieved by December 2013 Commissioning of Tidong hydropower project achieved by December 2016			**Inputs** $30.0 million equity from ADB $24.2 million equity from other investors $16.6 million equity from NRPPL $165.3 million project debt

ADB = Asian Development Bank, CO_2, = carbon dioxide, FTE = full time equivalent, GWh = gigawatt-hour, MNRE = Ministry of New and Renewable Power, MW = megawatt, NRPPL = NSL Renewable Power Private Limited, PPA = power purchase agreement.

[a] Target assumes 10% of hydropower capacity addition by the private sector and 90% of other renewable energy capacity addition by the private sector in the 12th and 13th five year plan periods.

[b] 100 MW capacity x 48.1% plant load factor (at P90) x 8,760 hours x (1 - 2% auxiliary consumption) = 413 GWh

[c] 75 MW capacity x 21.5% plant load factor (at P90) x 8,760 hours x (1 - 2% auxiliary consumption) = 138 GWh

[d] 400 GWh x 739.73 (ADB's conversion factor) = ~300,000 tons of CO_2 avoided

[e] 130 GWh x 739.73 (ADB's conversion factor) = ~100,000 tons of CO_2 avoided

Sources: NSL Renewable Power Private Limited, ADB staff estimates.