PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE

Report No.: PIDA24712

Project Name	North Eastern Region Power System Improvement Project (P127974)
Region	SOUTH ASIA
Country	India
Sector(s)	Transmission and Distribution of Electricity (100%)
Theme(s)	Infrastructure services for private sector development (50%), Corporate governance (33%), Other public sector governance (17%)
Lending Instrument	Specific Investment Loan
Project ID	P127974
Borrower(s)	Department of Economic Affairs, Ministry of Finance, Government of India
Implementing Agency	POWERGRID Corporation Limited
Environmental Category	A-Full Assessment
Date PID Prepared/Updated	21-May-2015
Date PID Approved/Disclosed	21-May-2015
Estimated Date of Appraisal Completion	05-Jun-2015
Estimated Date of Board Approval	25-Jun-2015
Appraisal Review Decision (from Decision Note)	The team was authorized to proceed with Appraisal subject to disclosure and clearance by RSA's office of the environment and social management frameworks for the remaining two states and related management plans for identified sub-projects. The documents have subsequently been disclosed.

I. Project Context

Country Context

As noted in the Country Partnership Strategy for India for the Period FY2013–2017, India's economic and human development is one of the most significant global achievements of recent times. Between 2005 and 2010, India's share of global GDP increased from 1.8 to 2.7 percent, and 53 million people were lifted out of poverty. Growth has steadily accelerated over time, showing resilience even inthe aftermath of the global crisis. In the last decade, India's economy expanded at an average annual rate of 7.6 percent, placing it in the top 10 of the world's fastest growing nations. Exports account for 21.5 percent of GDP, three times more than in 1990, and net inflows of foreign direct investment (FDI) make up another 1.6 percent. India is home to globally recognized companies in pharmaceuticals, steel, and space technologies, and the country is a leader in the use

of information technologies for e-government purposes and public service delivery. In line with these transformations, India is now in the top 10 percentile of fast growing nations and has become a prominent global voice. Progress in key human development indicators has been remarkable; life expectancy more than doubled from 31 years in 1947 to 65 years in 2012 and adult literacy more than quadrupled, from 18 percent in 1951 to 74 percent in 2011.

However, this rapid economic growth and positive human development has not been widely shared as the Indian society remains highly segmented and income inequality is rising. At present, more than 400 million people still live in poverty. In addition, structural inequalities or handicaps have meant that sometimes entire groups of states or regions are unable to take advantage of opportunities that economic growth has offered. One such is the North Eastern Region (NER).

NER stretches across the eastern foothills of the Himalayan mountain range and is comprised of seven states. Geographically the region is connected to the other parts of the country through a small “chicken neck” corridor in the State of West Bengal. With a total population of 45.6 million (2011 census), the sparsely populated NER accounts for about 3.7 percent of India’s total population and covers 7.9 percent of India’s total geographical area. The vast majority of the region’s population lives in rural areas, accounting for 82 percent of the total population compared to the national average of 69 percent (2011).

NER lags behind the rest of India in important parameters of growth. The standard of living, as measured by average per capita Gross State Domestic Product (GSDP) in the region, is only 74 percent of the national average (2008-09), while 32 percent of the region’s population lives below the poverty line, primarily in rural areas, as compared to the national average of about 29.8 percent (2009-10). Slow pace of industrialization and limited opportunities for productive economic activities have led to a distressed economy and an alarmingly high youth unemployment rate of 14 percent, despite high rates of literacy. The poor economic performance of the NER is further compounded by widely recognized issues such as geo-political isolation, protracted insurgency in some areas, and recurring natural disasters. The severe development backlog has added to levels of discontent seen in the region in the past. The weak security environment in some parts of the region has in turn vitiated the investment climate in the region.

Despite being well-endowed with natural resources, the gap between the region and the rest of India continues to widen. The region possesses substantial estimated energy reserves, including more than 40 percent of the 150 GW hydropower potential of the country, 37 percent of the estimated 773 million tons of crude petroleum reserves and 15 percent of the 1,115 billion cubic meters of natural gas reserves in the country. The abundance of these energy resources puts NER at the center of the energy security equation for India. Furthermore, with its significant deposits of mineral reserves including limestone, clay and iron ore, NER has the potential to become a major contributor to the national economy. Finally, the region is key to India’s geo-political “Look East” strategy towards its neighbors. Bounded by Bangladesh, Bhutan, China, Nepal and Myanmar, the development of NER is critical as India seeks to enhance its cooperation with its neighbors.

Rapid economic growth will be critical for eliminating poverty and inequalities in the NER. With that in mind and to help close the gap with the rest of the country, the Government of India (GoI) has made specific policy efforts for and channeled substantial investments to the region, particularly in development of infrastructure in the region.

Sectoral and institutional Context

NER has a very small and underdeveloped power system. The peak demand in the region was 2,164 MW (2014), or just a little over one-fourth of the peak demand in Haryana which has a population of 25.3 million, which is slightly more than half of NER's population of 45.6 million. The annual per capita power consumption of about 340 kWh in NER is one-third of the national average. As per Census 2011, household electricity access rate in NER was 47.7 percent compared to the All India figure of 67.2 percent, while household electricity access rate in rural areas of NER was 37.6 percent compared to All India figure of 55.3 percent. The utilities face significant Transmission & Distribution (T&D) losses, with figure of more than 50 percent in some states, on account of high technical and non-technical losses and high operating costs. Most of the utilities are loss making and rely on state government for financial support.

The Government of India's Vision document for the region NER Vision 2020 recognizes the challenges facing the power sector in the region, and its inability to promote economic development. In this context, the Vision 2020 document states that:
"Almost every North Eastern State is deficit in power, which is important given the nascent state of industrial and other economic activities based on power in the region…..Power consumption has remained virtually stagnant in most of the states over a period of more than ten years, with the exception of Meghalaya and …..... In Manipur, power consumption has actually declined ….. "

Progress in implementing the sector reform and structural changes envisaged in the Electricity Act of 2003 has been slow in NER. Mizoram and Nagaland are served by a vertically integrated Department within the State Government, while in other States (Assam, Manipur, Meghalaya and Tripura), some form of unbundling and/ or corporatization has taken place. Although state level Electricity Regulatory Commissions are functioning in four states (except in Manipur and Mizoram that have a Joint Electricity Regulatory Commission), development of the regulatory framework is still at its early stages.

There are significant barriers to providing reliable and quality power supply in NER. In 2014, the region faced an energy shortage of 6.5 percent and a peak shortage of 5.4 percent on suppressed demand, according to Central Electricity Authority (CEA). The historical underinvestment in the power sector has imposed a heavy toll on the availability and reliability of power supply.

Only around 577 MW of new generation capacity was added in NER over the past ten years, between April 2004 and September 2014 compared to the 121 GW capacity addition all over India since 2007.
A large generation capacity addition program is already underway to improve the power supply in the region. Around 3,000 - 4,000 MW of mainly thermal and hydropower capacity being developed by public sector players (such as NHPC, NTPC, NEEPCO etc.) in NER, is expected to be added over the next few years. Around 70 percent of this power has been allocated to the region, while the remaining 30 percent is available for other states. With this allocation, the supply available to NER states will almost double and will create a surplus at the regional level.

However, some of the NER states are not even able to draw their current allocated share of power from the national grid and face frequent interruptions and outages. There has historically been inadequate investments in the transmission, sub-transmission and distribution network in the region due to a combination of factors, including limited financial resources. As a result, the existing intra-

state transmission and distribution infrastructure in all the NER states suffers from bottlenecks that constraining power delivery to the consumers. Unless the existing transmission and distribution network constraints are removed, these constraints will continue to prevent consumers from benefitting from any additional power added to the system.

The transmission, sub-transmission and distribution networks within each NER state are being managed by the respective state power utility/ department in that State. These power utilities and departments bring power into their respective state network using inter-state transmission lines owned by POWERGRID, which is interconnected to the state's network at particular substations.

Most of the states in NER are connected to the transmission network mainly at 132 kV and below. The 33 kV system is the backbone of power distribution system in these States. In order to reduce the gap between the requirement and availability of the intra-state transmission and distribution system, it is necessary to provide 132 kV / 220 kV connectivity to the NER States for proper voltage management and lower distribution losses. Similarly, the distribution system in all these States which mainly relies on 33 kV network need to be strengthened substantially.

Recognizing the critical need to improve the performance of the transmission and distribution networks, the Central Electricity Authority (CEA), GoI developed a comprehensive scheme for NER in consultation with POWERGRID and the State Governments with the aim of (i) augmenting the existing transmission and distribution infrastructure to improve the reliability of service delivery across all the NER states; and (ii) building institutional capacity of the power utilities/ departments in NER. This network expansion scheme is part of GoI's wider efforts to extend last mile electricity connectivity to households and to have 24 x 7 Power for All.

The proposed project is part of that comprehensive scheme and aims to strengthen the existing intra-state transmission, sub-transmission and distribution networks across the six participating states in the region and help strengthening the institutional capacity of the power utilities/ departments in these six states. GoI has requested World Bank support in implementing this comprehensive scheme in six NER states of Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura (while other states in the region will be funded directly by GoI). The Government requested a total funding of US$ 1.5 billion, which is proposed to be implemented and financed in three phases. This project supports the first phase of the GoI's comprehensive scheme.

II. Proposed Development Objectives

The proposed project development objective is:

To increase the delivery of electricity at the boundaries of the power distribution network in the participating states in the North Eastern Region.

III. Project Description

Component Name

Component A: Priority investments for strengthening of intra-state transmission, sub-transmission and distribution systems

Comments (optional)

This component will include priority investments in strengthening and augmenting the intra-state state transmission, sub-transmission and distribution networks by upgrading old and constructing new 220 kV, 132 kV, 66 kV and 33 kV lines and associated sub-stations in each of the six

participating states. These investments will increase the power transfer capability of the transmission network, and improve the electricity supply within the state, by allowing them to draw more power from the national grid, especially their allocated share of power from central sector generating stations. This component will be implemented by POWERGRID, with the support of states.

Component Name

Component B: Technical Assistance for Capacity Building and Institutional Strengthening (CBIS) of power utilities and departments

Comments (optional)

This component will provide support for capacity building of power utilities and departments across the six participating States. In that context, a capacity building and institutional strengthening (CBIS) plan has been developed for each state, on the basis of a state-specific diagnostic study complemented with detailed discussions with key stakeholders of the state.

This component would be fully financed by GoI and procurement of the consultancies to be financed under this component would be carried out as per GOI/ POWERGRID rules and regulations and the power utilities/ departments of the participating states would be responsible for the implementation of the various initiatives developed under the program within their day-to-day systems and processes.

IV. Financing *(in USD Million)*

Total Project Cost:	953.10	Total Bank Financing:	470.00
Financing Gap:	0.00		

For Loans/Credits/Others	**Amount**
Borrower	483.10
International Bank for Reconstruction and Development	470.00
Total	953.10

V. Implementation

GoI has selected POWERGRID, as the Implementing Agency (IA) for the project. Powergrid will work in close coordination with the respective state power utilities and departments. Participation agreements have been signed between POWERGRID and power utilities and departments of Manipur, Meghalaya, Nagaland and Tripura respectively in March/ April 2015 while it is expected to be signed shortly in case of Assam and Mizoram. Once the assets are created and commissioned, they will be transferred to the respective state power utilities or departments on the basis of the takeover over/ handover procedure as defined in participation agreement. The state power utilities or departments will then operate and maintain these assets as per normal industry practices.

Over the past decade, POWERGRID has acquired and developed skills required for successfully planning and implementing large scale capital investment programs, through their mandate to develop the inter-state transmission network of India and also by acting as Consultant to some states to assist them to plan, design and implement their transmission and distribution networks. All the schemes envisaged under this operation are being designed, procured and implemented by POWERGRID. To ensure that the states develop the capacity required to operate and maintain the assets created through this project, the participation agreement provides for states to depute their engineers to POWERGRID to work alongside POWERGRID officials in implementing the schemes

and thus developing an understanding of the technical requirements of the assets created. This will also enable enhancing the strengthening of the technical capacity in the participating state power utilities/ departments.

The project implementation will be under the institutional oversight of the Ministry of Power (MOP), the Ministry of Finance (MoF) and CEA. With the start of the process of the signing of the participation agreements, a multi-tier monitoring mechanism at different levels (GoI, respective state governments, POWERGRID & State power utility/ department) has been established to regularly monitor and review project implementation in each participating state and address/ resolve issues, as needed and now needs to be operationalized.

VI. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	×	
Natural Habitats OP/BP 4.04	×	
Forests OP/BP 4.36	×	
Pest Management OP 4.09		×
Physical Cultural Resources OP/BP 4.11	×	
Indigenous Peoples OP/BP 4.10	×	
Involuntary Resettlement OP/BP 4.12	×	
Safety of Dams OP/BP 4.37		×
Projects on International Waterways OP/BP 7.50		×
Projects in Disputed Areas OP/BP 7.60		×

Comments (optional)

For ensuring compliance with the safeguard policies viz., safeguards management, the project has adopted a framework approach as all the investments have not been identified as yet. Each of the six participating states has been enabled to prepare a customized set of Environment and Social Policy and Procedures (ESPP) document. This is a generic document and serves as a framework, and can be adopted for all power transmission, sub-transmission projects.

Essentially, the state-specific ESPP framework preparation is based on POWERGRID's ESPP, which has been reviewed and accepted by World Bank for Use of Borrower Systems or UCS (Report No. 49022-IN, Project Appraisal Document, Fifth Power System Development Project, August 25, 2009), but incorporates due requirements of India's new "The Right to Fair Compensation in Land Acquisition, Resettlement and Rehabilitation Act, 2013" as well as Indian Constitution's provision related to Scheduled (Tribal) areas in NER.

Implementation of the project is primarily the responsibility of POWERGRID. POWERGRID has extensive experience of working with World Bank safeguards policies (and other multilateral agencies such as ADB) and is currently implementing Fifth Power System Development Project as a pilot under the Use of Borrower Systems. POWERGRID has established a Central Project Implementation Unit (CPIU) at Guwahati working exclusively for this project. At the state level, Project Implementation Units (PIUs) are being set up. Additional contractual staffing is also planned to augment resources to manage environmental and social aspects. In order to ensure that the Utilities are able to take up the operation and maintenance after implementation, for each state, a Project Coordination Unit (SPCU) has been established with staff from the Utility in respective

states. SPCUs will coordinate with POWERGRID staff so that the knowledge about ESPP use during preparation and implementation of schemes can be transferred to the states. Each Utility is also developing its own organizational structure to manage environmental and social aspects for post-implementation phase. The capacity building plan for the project includes specific activities to ensure that Utilities' staff are trained on managing environmental and social issues throughout the project cycle.

VII. Contact point

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