1. Country and Sector Background

The Philippines, a set of islands with a population of about 82 million, is prone to typhoons, which have become more severe in recent years. The Bicol region, with a population of over 5 million, is one of 17 regions in the Philippines. Two “super-typhoons,”¹ Milenyo and Reming, hit the Bicol region in September and November 2006, respectively. Typhoon Reming struck with unprecedented wind gusts, exceeding 230 kilometers per hour (km/hr), toppling or otherwise damaging 118 transmission towers supporting 230 kV transmission lines in the South Luzon transmission system. Five months later, seven additional 500 kV towers that were already weakened collapsed as a result of subsequent inclement weather. The combined damage from both typhoons resulted in a two-day blackout in the South Luzon area² and a still ongoing power deficit in the Bicol region.

The Sector. Institutionally, the power sector in Philippines is structured around the Electric Power Industry Reform Act (EPIRA) and the accompanying Implementing Rules and Regulations (IRR). EPIRA provides, among others, for:

a. Unbundling of the sector into generation, transmission, distribution, and supply; the generation and supply businesses are intended to be open and competitive.

b. Creation of the National Transmission Corporation (TRANSCO) to assume the transmission assets and functions of National Power Corporation (NPC).

c. Creation of the Power Sector Assets and Liabilities Management (PSALM) Corporation to own TRANSCO and other NPC assets and assume all the liabilities of NPC, with a

¹ Defined as typhoons with wind speeds exceeded 200 km/hr.
² Based on the System Operator’s estimation of unsupplied energy.
mandate to privatize TRANSCO via concession and to dispose of other, mostly
generation, assets.

Although the blackout resulting from the typhoons was not large on a countrywide basis, it had a considerable economic impact on the Bicol region. As Figure 1 shows, the entire transmission system serving the Bicol was out of commission in November 2006, with unsupplied energy during the blackout amounting to over 200 GWh. A deficit of 50 GWh, or about a quarter of the Bicol region’s power consumption, remains unserved due to incomplete restoration of the power sub-transmission and distribution capacity. The economic cost of the blackout and continued power deficit—excluding revenue losses to TRANSCO and the electricity cooperatives—has been in excess of US$250 million.

Figure 1: Illustration of Damaged Sections of the Transmission System

TRANSCO restored the bulk of its 230 kV power transmission to the Bicol region in late December 2006, using Emergency Restoration Systems (ERS) to replace damaged permanent structures. However, the company has a limited number of these structures, some of which it had to transfer to the Bicol region from other regions. Even with the ERSs, the Bicol region does not yet have full electricity service. Full service restoration will require, in addition to the restoration of transmission towers, the repair of damaged 69 kV sub-transmission lines as well as medium-voltage distribution lines owned by various electricity cooperatives. TRANSCO

---

3 The power system of the Philippines has a total installed capacity MW 15,600 with annual electricity generation of about 56,510 GWh.
4 The loss of supply would have been worse had the Transmission Company (TRANSCO) not responded within two days in both cases to restore the vital 230 kV transmission interconnections at Naga and Labo, using temporary Emergency Restoration Structures (ERS), in order to restore supply the northern part of Luzon Island including the capital city of Manila.
anticipates completed repairs in the power system (in both the transmission and distribution systems) by the end of 2007.

2. Objectives

The project’s development objective is to support: the restoration of critical electricity transmission infrastructure damaged by typhoons, and critical emergency preparedness measures and investments.

3. Rationale for Bank Involvement

There are several reasons for Bank involvement in the project. First, the project meets the eligibility criteria for a rapid response of the Bank to loan requests to finance investments necessary for the repair from an actual or imminent damage resulting from natural or man-made disasters. Second, it provides the opportunity for a more strategic engagement in Philippines—a country prone to natural disasters—to mitigate future emergencies. Third, the project is in line with the current Country Assistance Strategy (Section C, No.5), which emphasizes private sector development in its platform for economic growth and recognizes the importance of adequate infrastructure. Further, the Bank is actively involved in dialogue on power sector reform and is concerned about the preservation of the transmission system’s assets during the transition period to private operation. In this interim period, TRANSCO is constrained in its ability to raise funds for any new investments. At the same time, without these investments, the asset base could deteriorate, thus affecting economic growth in the Bicol region.

4. Description

The project’s components consist of two parts. Part I contains four packages (A-D) of investments in equipment and their installation to repair damage to the 230 kV and 500 kV transmission systems, serving the Bicol area, sustained as a result of typhoons during 2006. Part II consists of investments in equipment and consultant services to reinforce the transmission system in order to reduce potential damage and related power system disruption from future typhoons.

On July 31, 2007, TRANSCO received approval from the government\(^5\) for borrowing from the Bank to finance investments necessary for the restoration of five sections of the 230 kV transmission system under Part I, which the project loan will finance. However, TRANSCO has not yet received approval for the loan to finance investments in restoration work for the 500 kV system under Part I or the investments for the strengthening of the transmission system under Part II. Tentatively, the project’s financing plan assumes that TRANSCO will finance these investments on its own. Project negotiations will confirm the financing arrangements.

---

\(^5\) Refer NEDA letter July 31, 2007, confirming its prior approval for TRANSCO to borrow up to Peso 646 million to fund 71 percent of the replacement 230 kV towers but also makes provision for an increase of the loan amount on submission of information supporting the additional reinforcement measures.

This part consists of three packages (Packages A–C) that cover the five sections of the Bicol area’s 230 kV transmission system damaged immediately following the typhoons in 2006. The fourth package (Package D) covers seven additional towers for the 500 kV system to replace those that collapsed several months after the typhoon due to the weakened structural integrity as a result of typhoon damage. These packages consist of the following items:

**Package A**: Supply and installation of 56 steel transmission towers and line materials for typhoon-damaged portions of the double-circuit Naga-Labo 230 kV 795mm aluminum conductor steel reinforced (ACSR) transmission line. *(Cost: US$5.7 million).*

**Package B**: Supply and installation of 32 steel transmission towers and line materials for typhoon-damaged portions of the double-circuit Tiwi Plant C-Naga 230 kV 2-795mm ACSR transmission line. *(Cost: US$4.6 million).*

**Package C**: Supply and installation of 30 steel transmission towers and line materials for typhoon damaged portions of three double-circuit, 230 kV ACSR transmission lines: (a) Tiwi Plant A-Daraga (1-795mm); (b) Naga-Daraga (1-795mm); and (c) Bacman-Daraga (2-795mm). *(Cost: US$3.6 million).*

**Package D**: Supply and installation of additional materials for restoring seven 500 kV towers that in recent months have collapsed due to typhoon damage. *(Cost: US$2.0 million).*

Part II – Strengthening of the TRANSCO System Against Future Typhoons

This part consists of two packages (E1 and E2), covering additional ERS required to rapidly restore power in the event of future damage to transmission towers and development of an investment plan for reinforcing the transmission system against typhoon damage. These packages consist of the following:

**Package E1**: Supply of 11 additional sets of ERS to replace existing stocks borrowed from other TRANSCO stores and thereby enhance the system’s preparedness for restoring power in the event of future damage to transmission towers. *(Cost: US$2.6 million).*

**Package E2**: Consulting services to assist with planning investments for a comprehensive transmission upgrading program. TRANSCO has submitted draft terms of reference (Annex 10) to ICC/NEDA for final approval. *(Cost: US$0.5 million).*

Further, TRANSCO has also requested consideration for a shunt reactor (180 MVar) in the northern part of the Luzon line, in Kadampat. During the recent typhoon the system operator had to de-energize one circuit of the entire stretch of the 500kV system thereby further reducing

---

6 These structures need to be compatible with the proprietary ERS materials already procured from a manufacturer in the United States, through a local dealer. Given the proprietary nature or the equipment, the project will procure this equipment through direct contracting, which the TRANSCO Board already has approved.

7 The proposed upgrading program is unlikely to be implemented before 2008, subject to ERC approval and after time the Concessionaire is expected to be in place.
system reliability and further degrading system integrity. Had there been a reactor in the north, it could have mitigated the high voltage in the North during the incident and, therefore, increased supply reliability to Bicol during the emergency.

5. Financing

<table>
<thead>
<tr>
<th>Source</th>
<th>($m.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borrower</td>
<td>8.5</td>
</tr>
<tr>
<td>International Bank for Reconstruction and Development</td>
<td>16.1</td>
</tr>
<tr>
<td>Total</td>
<td>24.6</td>
</tr>
</tbody>
</table>
6. Implementation

Because the transfer of transmission assets from the National Power Corporation (NPC) to TRANSCO is still in process, the Bank has agreed with PSALM to make the loan to the NPC with arrangements to transfer all the funds to TRANSCO under a separate Project Agreement, with the same terms and conditions, at some future date.

NPC. The Borrower, NPC, is a government-owned and controlled corporation created under Republic Act No. 6395. NPC’s audited financial statements still include TRANSCO’s pending completion of legal requirements to transfer of the assets of the transmission operation to TRANSCO as per EPIRA. The NPC deposits the funds it collects from TRANSCO into an account of NPC and from that account, provides TRANSCO with funds for its operations. The President of the Philippines appoints the members of the Board of NPC, with the Secretary of the Department of Energy as Chairman and the President of NPC as Vice Chairman.

TRANSCO. The Implementing Agency for the project, TRANSCO, is a government owned and controlled corporation, created in 2000 under Republic Act No. 9136 to acquire all the transmission assets of NPC. To date, however, the transfer of such transmission assets has not taken place because certain creditors of NPC have still not given their consent to the transfer. Although TRANSCO’s financial statements are still consolidated with those of NPC, TRANSCO has its own financial management system and organization. NPC will enter into a Memorandum of Agreement with TRANSCO, for the project’s implementation.

7. Sustainability

As the Southern Luzon-Visayas corridor has been subject to an increased incidence of “super-typhoons,” sustainability of the project activities is strengthened through the supply of 11 additional sets of ERS to rapidly restore power in the event of future damage to transmission towers. Additionally, the development of a comprehensive transmission upgrading program will prioritize investments that will reinforce a transmission system capable of withstanding wind speeds above 200 km/hour. This will, in turn, reduce the prospects of severe damage and preserve transmission system assets in the interim period prior to TRANSCO’s privatization.

8. Lessons Learned from Past Operations in the Country/Sector

The most recent Implementation Completion Reports for Bank power transmission projects managed by NPC, have noted protracted delays in procurement and rated resettlement as highly unsatisfactory. In addition, NPC has experienced financial problems that in the past have resulted in uncertain or unsustainable achievement of project objectives. Given the emergency nature of the project and the fact that the procurement already has taken place for many of the components, the risk of protracted delays in procurement is low. Due to past deficiencies in safeguards, the project’s appraisal has given considerable attention to evaluating related policies and procedures in place. The project’s appraisal of standards for safeguards reviewed has found them overall, to be consistent with Bank policies. In addition, the project’s supervision team will give close attention to the satisfactory achievement of the LARP.
9. Safeguard Policies (including public consultation)

TRANSCO has an Environmental Management Division led by a well qualified Division Manager and social development specialists in its central and field offices. The company’s process for environmental management meets the Bank’s minimum requirements specified under OP 4.01 on Environmental Assessment.

The project is not likely to have any significant and irreversible negative impacts on environment, including natural habitats of wildlife and forests. An environmental management plan (EMP), which includes a reforestation plan, has adequately provided for the mitigation of any impacts that the project may generate. The project’s preparatory work has identified 47 families that face potential displacement. The families have occupied the affected areas way after its original construction decades. Some however will be affected by the restoration of a few towers as the old towers will be replaced by new ones to be constructed on adjacent properties due to some unavoidable adjustments in the line alignments. Although the owners of the affected land reportedly have received compensation in the past, the project shall ensure that the compensation for affected structures reflects a LARP that the appraisal team has reviewed and found consistent with Bank standards on compensation.

The project is exempt from the Free and Prior Informed Consent of the Indigenous Peoples (Agta tribe in Tiwi, Buhi, and Tayabas) because of its emergency nature. However, following good practice, TRANSCO staff has committed to officially seek a Certificate of Non Coverage from NCIP. Mitigation measures for adverse impacts pertaining to involuntary resettlement are in place. The LARP for the project complies with the Bank’s related OP 4.12. Furthermore, TRANSCO’s Social Engineering and ROW Management staff is skilled and experienced in implementing similar activities. The budget required for its implementation is within TRANSCO’s overall approved budget 2007.

10. List of Factual Technical Documents


---

8 As an ISO14001- certified company, TRANSCO adopted, on January 5, 2004, its own Corporate Social Responsibility and Environmental Stewardship Program and has environmental management system in place. Prescribed in its Project Management Procedural manual, which became effective December 18, 2006, under the section on project development procedures, is a detailed procedural flow on conducting an Environmental Impact Assessment (EIA) and securing an Environmental Compliance Certificate (ECC) and Certificate of Non-Coverage (CNC). This process is in accordance with the national rules and regulations prescribing the requirements such certificates.

9 The transmission towers that the project will restore will largely follow existing transmission line rights of way (ROW) to reduce the intrusion onto private property. However, it is possible that the ROW for the Tiwi-Buhi and the Naga -Tayabas transmission lines may traverse the ancestral domain of indigenous peoples/cultural minorities. In any case, the appraisal found that land acquisition is likely to be small.

10 Including resettlement (minor land take, dismantling of 82 structures and cutting/trimming of trees and other vegetation).
11. Contact point

Contact: Arturo S. Rivera
Title: Sr. Energy Specialist
Tel: (202) 473-1131
Fax: (202) 522-1648

Email: Arivera2@worldbank.org

12. For more information contact:

The InfoShop
The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 458-4500
Fax: (202) 522-1500
Email: pic@worldbank.org
Web: http://www.worldbank.org/infoshop