I. Introduction and Context

Country Context

Vietnam has witnessed impressive economic growth and poverty reduction in the past 25 years. Political and economic reforms (Đổi Mới) launched in 1986 have transformed Vietnam from one of the poorest countries in the world, with per capita income below US$100, to a lower middle-income country within a quarter of a century. At the end of 2011, Vietnam’s per capita income was estimated at US$1,374. Using a ‘basic needs’ poverty line initially agreed in 1998, the poverty headcount fell from 58 percent in the early 1990s, to 14.5 percent by 2008, and is expected to be well under 10 percent by 2014. The country has attained five of its ten original Millennium Development Goal targets and is likely to attain two more by 2015. Vietnam’s economy gradually returned to a relatively stable macroeconomic environment during 2012 compared to the tumultuous period of 2007-11. In early 2011, the country was in a phase of heightened macroeconomic vulnerability. This was characterized by high and rising inflation, extreme volatility in the foreign
exchange market, rapidly dwindling international reserves, a sharp rise in country risk following
default by one of its biggest SOEs, high levels of fiscal and trade deficits, and weaknesses in the
banking and corporate sectors. These issues and the absence of a persuasive strategy to address
them led to weakening sentiments towards the country’s economic prospects.

Electricity demand has grown at a rapid pace averaging 15 percent per year between 2008 and 2010
before dropping to 9 percent in 2011 due to the macroeconomic situation. The national Power
Development Master Plan 7 (PDMP7), approved by the Prime Minister in 2011, projects a return to
the pre-2011 growth rates during the period to 2015. In the face of periodic power shortages and
financing challenges, there is continued government commitment to moving towards enhancing
energy efficiency on both the supply and demand side.

**Sectoral and Institutional Context**

By the end of 2012, the total installed and operating generation capacity in Vietnam’s
interconnected power system was 26.93 GW. Annual electricity consumption showed a significant
increase from 66 terawatt hours (TWh) to about 105 TWh between 2008 and 2012. Between 1995
and 2011, household energy access increased from 50 to over 98 percent.

Vietnam Electricity (EVN) is active in all electricity activities, and is the single wholesaler. Around
two-thirds of generation capacity is owned by EVN, directly and through its subsidiaries. In 2010,
non-EVN generation capacity represented about 32 percent of the national total and was owned by
both local investors - referred to as Independent Power Producers (IPPs) - and foreign investors -
through Build-Operate-Transfer (BOT) power generation projects.

Transmission of electricity is defined as voltages at 500kV and 220kV, and has been defined in the
Electricity Law as to be and remain 100% SOE. The transmission grid has been expanded to
reliably serve the growing demand. In the past five years, transformation capacity has grown from
22.5GVA to 40.5GVA and the length of the transmission system (220 and 500kV lines) from
11,400 to 16,100 kilometers.

In parallel with network investments, Vietnam has undertaken reforms of its power sector leading to
private participation in generation and has implemented a competitive generation market. In 2008,
as part of the reforms, the transmission business was separated into an autonomous EVN subsidiary,
NPT, to provide an open access power transfer regime for generators and distributors. Transmission
of electricity at 500kV and 220kV is under NPT’s ownership and responsibility. NPT is sub-divided
into three regional Power Management Boards (PMB) in charge of investments in and construction
of new network assets and four Power Transmission Companies charged with operation and
maintenance of the assets.

The PDMP7 has identified that by 2020 the transformation capacity of the grid needs to grow to
135.2 GVA and the transmission length to 37,800 kilometers. According to PDMP7 projections
NPT needs to invest about US$800 million per year on transmission network infrastructure for the
next three-four years to keep up with demand growth. This investment level is posing large
institutional and financial challenges for NPT and its regional subsidiaries. It also raises technical
challenges due to the pressure on existing infrastructure. Realizing these challenges, EVN has
launched an ambitious Smart Grid Program to ensure integration of new monitoring, protection, and
control technologies to improve the reliability of the grid and make efficient use of existing and
future infrastructure while facilitating future integration of scaled up renewable energy options.
EVN has also identified a need to develop capacity in NPT and its regional Power Management Boards and Transmission Companies on issues such as integrated and commercially based network planning, financial analysis and medium term financial forecasting, performance monitoring and reporting etc. so as to meet the challenges of a reformed power market.

Institutional Context: The power sector falls under the auspices of the Ministry of Industry and Trade (MoIT). Through its General Directorate of Energy (GDE), it exercises all state management functions for the energy sector and controls EVN. Within MoIT and directly under its Minister, the Electricity Regulatory Authority of Vietnam (ERAV) is responsible for licensing, technical codes and performance standards for distribution and transmission, electricity tariff regulation and review, and monitoring the electricity market, supply security and compliance with technical and performance standards. The Energy Efficiency and Conservation Office (EEO) is the dedicated unit in MoIT responsible for the coordination of the Vietnam Energy Efficiency Program (VNEEP), the Energy Efficiency and Conservation Law (EE&C) implementation decrees, and EE&C regulations and measures for the industrial and power sector. The Electricity Law of 2005 foresees introduction of competition in generation, unbundling of EVN’s business segments and subsidiaries, introduction of cost-reflective tariffs and improvement of the legal framework for energy efficiency and conservation. Subsequent faces envision the introduction of a wholesale electricity market after 2015 and by 2022 and the development of retail competition.

Proposed Project Rationale: To sustain Vietnam’s economic growth, NPT will have to continue upgrading and expanding the power transmission system to keep pace with demand, whilst increasing its institutional capacity to gradually evolve, as envisioned in the overall reform process, from a dependent subsidiary of ENV to a fully-fledged independently regulated transmission company able to deliver high performance transmission services efficiently.

Reliability and efficiency of the transmission grid will be supported through phased introduction of smart grid technologies that in the medium to long term will facilitate the scaled up integration of low carbon generation technologies in the power system.

The World Bank’s third loan in the Development Policy Operation (DPO) series has as one of its targets that NPT becomes an independent transmission company with its own revenue stream from the application of cost-of-service reflective regulation for the transmission sector. TEP will support key steps in this process including the definition of technical performance indicators, the introduction of enterprise management systems and asset management and maintenance systems. The project will also provide capacity building to NPT so that they are able to produce their first proposal on cost-of-service tariff request to ERAV. In addition, the operation will strengthen NPT’s regional subsidiaries to effectively undertake the role of project developer, owner and operator of transmission assets.

Relationship to CAS

The proposed project is linked to the Bank’s Country Partnership Strategy (CPS) for the period 2012-2016, supporting the competitiveness and sustainability pillars. The transmission efficiency investments in the proposed project will contribute to the competitiveness pillar through improving the quality and efficiency of electricity infrastructure and services. Reduction of losses and financing smart grid technologies in power transmission combined with technical assistance will contribute to mitigation of climate change under the CPS sustainability pillar.
II. Proposed Development Objective(s)

Proposed Development Objective(s) (From PCN)

The Project Development Objective (PDO) for TEP is to improve the technical and operational performance of NPT in providing reliable and energy efficient electricity transmission services in Vietnam.

Key Results (From PCN)

Key results indicators to monitor progress toward achievement of the PDO are:

Technical Performance Indicators:
• Average interruption frequency per year in the project area
• Electricity losses per year in the project area

Operational Performance Indicators:
• NPT’s produces financial statements audited externally and following International Financial Reporting Standards (IFRS)
• NPT implements operational performance monitoring and asset management systems

III. Preliminary Description

Concept Description

The proposed loan consists of: (i) a Transmission Infrastructure Component focusing on the greater Hanoi and Ho Chi Minh City areas and the Mekong Delta; (ii) a Smart Grid Component; and (iii) a Capacity Building and Institutional Strengthening Component.

- The Transmission Infrastructure Component will finance transmission lines and substations at voltage levels of 220kV and 500kV. The investments will target areas that are key to the economic development of Vietnam, namely the Greater Hanoi Area, the Greater Ho Chi Minh City Area and the Mekong Delta. The key parameters for identifying sub-components to be included in TEP will be: (i) priority areas in the PDMP7 and the match with the Project’s PDO; (ii) technical and economic justification; and (iii) readiness for implementation in terms of environmental issues and land acquisition. The subprojects will be analyzed and vetted according to their status in the PDMP7 system interdependence verification of subset priorities, final amount and prioritized following urgency/linkages.
- The Smart Grid Component will improve network reliability and launch new technologies that will make it possible to use existing and future transmission infrastructure more efficiently and make it ready to handle a transition to a higher penetration of renewable energy. Among the smart-grid subprojects, the most relevant in terms of size is the modernization of monitoring, control, and protection functions in the 500kV and 220kV substations.
- The Capacity Building and Institutional Strengthening Component will contribute to the gradual development of NPT to become a fully-fledged independent transmission company with revenues from the application of cost-of-service regulation in the transmission sector. The steps to be supported in this operation include the definition of technical and financial performance indicators, the introduction of enterprise management, asset management and maintenance systems. The operation will also support NPT to produce its first proposal on cost-of-service tariff request to ERAV. In addition, the operation will strengthen NPT’s regional subsidiaries to effectively undertake the role of project developer, owner and operator of transmission assets. The component may also support ERAV in developing relevant transmission regulation to prepare for the
implementation of wholesale competition in 2015.

Table 1 shows the total estimated cost for the subcomponents which has been preliminary screened by NPT and the Bank team, and identified as well justified, urgently needed and with a reasonably high level of readiness for implementation. At this stage, however, the total amount does not necessarily coincide with the current financing plan. The components and provinces included in the project will be subject to further review and may change. It is of critical importance that NPT continues to refine the components, investment prioritization criteria, results indicators and institutional development targets. Also, NPT needs to start and develop their own project development objectives and discuss and liaise with relevant government authorities.

Table 1: Preliminary Estimated Project Costs by Component (US$ million)

<table>
<thead>
<tr>
<th>Component</th>
<th>Total Investment</th>
<th>Proposed WB share</th>
</tr>
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<tbody>
<tr>
<td>The Transmission Infrastructure Component</td>
<td>Approx. 640</td>
<td>Approx. 450</td>
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<tr>
<td>The Smart Grid Component</td>
<td>Approx. 55</td>
<td>Approx. 45</td>
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<td>The Capacity Building and Institutional Strengthening Component</td>
<td>Approx. 5</td>
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<tr>
<td>Total</td>
<td>Approx. 700</td>
<td>Approx. 500</td>
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IV. Safeguard Policies that might apply

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<th>Safeguard Policies Triggered by the Project</th>
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<th>No</th>
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<tr>
<td>Environmental Assessment OP/BP 4.01</td>
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<td>Forests OP/BP 4.36</td>
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<tr>
<td>Pest Management OP 4.09</td>
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<td>Physical Cultural Resources OP/BP 4.11</td>
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<td>Indigenous Peoples OP/BP 4.10</td>
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<td>Involuntary Resettlement OP/BP 4.12</td>
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<td>Safety of Dams OP/BP 4.37</td>
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<td>Projects on International Waterways OP/BP 7.50</td>
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<td>Projects in Disputed Areas OP/BP 7.60</td>
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V. Financing (in USD Million)

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<th>Total Project Cost:</th>
<th>700.00</th>
<th>Total Bank Financing:</th>
<th>500.00</th>
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<tr>
<td>Financing Gap:</td>
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<table>
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<tr>
<th>Financing Source</th>
<th>Amount</th>
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<td>Borrower</td>
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<td>International Bank for Reconstruction and Development</td>
<td>500.00</td>
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<tr>
<td>Total</td>
<td>700.00</td>
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