I. Introduction and Context

Country Context

1. Indonesia has made remarkable progress over the last decade in terms of macroeconomic and political stability. Macroeconomic performance since the late 1990s has seen consistent output growth and a rapid decline in external imbalances. With inflation under control and rising incomes, Indonesians have been enjoying improving living standards and poverty levels have fallen, although many remain close to the poverty line. Indonesia was less affected by the global economic downturn of 2008-09 than most economies, and by late 2009 the economy had recovered to grow faster than pre-crisis averages. The outlook is that Indonesia’s economic momentum will continue to build, with growth rising above 6 percent in 2011, and with scope for growth to average 7 percent by mid-decade, despite the weaker global economic outlook. Indonesia’s fiscal position also remains strong, providing Indonesia with options for providing additional resources for meeting infrastructure development priorities. Successful implementation of priority infrastructure projects will be essential for Indonesia to emerge as a strong middle income country in the coming decade.

Sectoral and Institutional Context
2. Indonesia's power industry experienced rapid expansion from the early 1980s to late 1990s. Although significantly weakened by the Asian Financial Crisis, the power sector has been gradually recovering, especially in the past few years. By the end of 2010, the total installed generation capacity of the national power system reached 30,750 MW, making it one of the largest in Southeast Asia. However, given the size of its population, Indonesia's per capita electricity consumption and electrification ratio are still the lowest among the Bank's large developing member countries in the region.

3. The geography of Indonesia as well as the distribution of population and economic activities divides the electricity systems in Indonesia into two distinctly different parts: (i) the Java-Bali interconnected power system with around 23,000 MW installed generation capacity and; (ii) over 20 isolated small power grids with generation capacity ranging from 12 MW to around 2,000 MW on islands outside Java and Bali. The Java-Bali system is a large and modern power system with relatively strong high voltage transmission networks, which provides electricity to over 60 percent of the population and economic activities in Indonesia. Most of the small grids, on the other hand, are much less sophisticated.

4. The state-owned national power company, PT Perusahaan Listrik Negara (PLN) Persero has the mandate for providing electricity in Indonesia. It is a vertically integrated power company, generating, transmitting and distributing most of the electricity in the country. Acting as the single authorized buyer at the wholesale level, PLN buys electricity from an increasing number of Independent Power Producers (IPPs) and some large captive power plants.

5. Driven by the robust economic growth and sustainable household income increases, electricity demand is expected to grow at around 9 percent annually over the next 10 years. Huge investments will be required by the sector to keep pace with economic growth and to significantly increase electricity access rates. PLN's latest development plan entails an estimated US$ 97.1 billion total investment over 10 years. Although the private sector will finance part of the capacity expansion, PLN is expected to invest around US$ 62.2 billion, a large portion of which will be for the expansion of transmission systems, for which it is solely responsible.

6. The power sector is now facing the following major challenges to sustain economic growth and social development:

- Electrification levels remain low, especially outside Java-Bali. The current national electrification rate is only 66.5 percent leaving around 78 million people without access to electricity, or unreliable electricity supply. Most of those without access to electricity live in the remote areas of Java and Bali or on islands outside the area covered by the Java-Bali system. Apart from a lack of generation capacity, the weak and low coverage of transmission infrastructure prevents people and businesses from accessing reliable electricity supplies. To reach the Government's target of electrifying 90 percent of the population by 2020, the power sector will need to significantly strengthen and extend the coverage of the transmission networks, especially on islands outside Java-Bali.

- While abundant renewable resources are largely unexploited, the rapid increase of coal in the generation fuel mix may expose the country to environmental risks, both locally and globally. According to PLN's long-term capital investment plan, the share of coal in the generation fuel mix will increase from around 35 percent today to roughly 70 percent by 2020. The magnitude of this expansion is raising concerns about the likely negative environmental impact in the heavily populated areas of Java and Bali, and in the environmentally sensitive areas of some of the outer islands. Indonesia's greenhouse gas emissions will continue to grow at a much faster pace than most of its neighbors. Although Indonesia is rich in renewable energy resources, especially geothermal, hydropower and biomass, the lack of incentives and regulatory certainty, combined with the relatively weak institutional capacity of major national and local institutions, as well as the weak and low coverage of transmission networks has hindered the rapid development of these indigenous and clean energy resources.

- Current electricity tariffs are insufficient to cover the cost of supply of the national power utility (PLN), leading to high Government subsidies. The electricity price level, though increased by around 6 percent in mid 2010, is still among the lowest of most of the countries in the region and lower than the cost of supply. PLN's financial viability is reliant upon the Government's public service obligation (PSO) subsidy. The PSO was around 36 percent of total revenues in 2010, raising doubts about the long-term sustainability of this financial support mechanism. Furthermore, tariffs below cost recovery levels are the main barrier for improving energy efficiency and for shifting energy production and consumption to a low-carbon development path.

7. The government's power sector strategy is focusing on: (a) facilitating private investments and increasing public financing to grow supply capacity; (b) improving the generation fuel mix by developing coal fired and renewable energy; (c) rationalizing the electricity tariff and subsidy regime; and (d) further strengthening institutional capacity and improving the management efficiency of PLN.

Relationship to CAS
8. The Country Partnership Strategy (CPS) for Indonesia FY2009-2012 supports the building of effective and accountable institutions in the power sector. The proposed project will contribute to the country program by improving the business climate by better meeting the increasing demand for electricity (in line with Core Engagement 1 for supporting private sector development).

9. In line with the Bank’s Country Partnership Strategy (CPS), for 2009-2012 and the government’s strategic priorities, the Bank is implementing and preparing (i) a large investment lending program to finance public sector power infrastructure projects, especially renewable energy and transmission projects, to sustain economic growth and increase electricity access; (ii) development policy lending programs to support the government’s efforts to establish a sustainable policy environment for infrastructure project development and move the energy sector towards low-carbon development paths; and (iii) technical assistance to rationalize the electricity tariff and subsidy regime, establish incentives for renewable energy resources development, to support efficient use of energy on the supply and demand sides and to strengthen the capacity of line ministry and national state owned companies in the energy sector.

10. The proposed project will form an integral part of the Bank’s assistance program to the energy sector to rapidly eliminate the bottlenecks in major transmission systems in Java and Bali, and to expand the capacity of transmission networks on other islands to support rural electrification. If implemented successfully, the proposed project will play an important role in supporting economic growth in Indonesia over the medium to long term.

II. Proposed Development Objective(s)

Proposed Development Objective(s)

11. The development objective of the proposed project is to assist the Borrower to meet growing electricity demand and increase access to electricity in project areas in a sustainable manner. It will achieve this objective by strengthening and expanding the capacity of the power transmission networks in Java-Bali and other large islands in East and West Indonesia and improving the Borrower’s capacity to plan and operate the transmission and distribution network in an efficient and transparent way through introduction of smart grid technologies.

Key Results

12. Achievement of the development objective will be assessed through an increase in electricity sales, as well as increases of availability of capacity at MV feeders in the substations being financed for electrification as a result of the strengthening and expansion the capacity of the transmission systems in the areas; and improved capacity of PLN in planning and introducing smart grid technologies to the transmission and distribution systems.

III. Preliminary Description

Concept Description
A. Concept

1. The proposed project is a follow-up operation of the on-going Indonesia Power Transmission Development Project (IPTD-Ln. 7940-ID) the implementation of which is satisfactory. The proposed project will continue expansion of 150 kV sub-transmission systems in Java-Bali and Sumatra, which has been partly covered by the IPTD and support extension of the existing 150 kV sub-transmission systems in Kalimantan and Sulawesi to meet the increasing demand and to increase access rates in these islands. In addition, the project will include a technical assistance component to build the capacity of PLN in introducing modern technologies to improve the supply and demand-side efficiency of the power system.

Description

2. The proposed project would consist of four components as described below. The preliminary cost estimate is about US $416 million in which $375 million is to be provided by IBRD, $2 million by a bilateral donor on a grant basis and the rest by PLN.

Component 1: Extension, Rehabilitation and Construction of 150 kV Substations in the Java-Bali System. Under this component, selected existing 150/20 kV substations in Java-Bali will be expanded by adding one or more new transformers and associated equipment at each substation; replacing one or two existing transformers with new transformers and associated equipment with higher capacity; and constructing selected new 150/20kV substations. These substations will be located across the islands of Java and Bali mostly in Jakarta, West Java & Banten, Central Java and Bali.

Component 2: Extension, Rehabilitation and Construction of 150 kV and 70 kV Substations in East Indonesia. Under this component, selected 150/20 kV and 70/20 kV substations in East Indonesia will be expanded by adding one or more new transformers and associated equipment at each substation or replacing one or two existing transformers with new transformers and associated equipment with higher capacity. In addition, selected new 150/20kV substations will be constructed. These substations will be located in Kalimantan (except West Kalimantan province) and Sulawesi.

Component 3: Extension, Rehabilitation and Construction of 150 kV Substations in West Indonesia. Under this component, selected existing 150/20kV substations in West Indonesia will be expanded by adding one or more new transformers and associated equipment at each substation or replacing one or two existing transformers with new transformers and associated equipment with higher capacity. In addition, selected new 150/20kV substations will be constructed. These substations will be located in Sumatra and West Kalimantan province.

Component 4: Technical Assistance for Capacity Building for Planning and Implementation of Smart Grid Technologies for PLN Transmission and Distribution Systems ($2 million Co-financing Grant). Under this component, technical assistance will be provided to PLN to build its capacity in assessment and planning for introduction of smart grid technologies for Indonesia’s transmission and distribution (T&D) networks. The component includes consulting services and training of PLN staff for assessment of smart grid applications for the T&D networks; preparation of a road map for a smart grid program; and preparation of feasibility studies for selected prospective investments. This component is expected to be financed by a co-financing grant to the project. The source of financing is to be defined during preparation.

Subprojects under Component 1-3 will be prepared and implemented in two groups. The first group includes all the subprojects which are of priority and in advanced stage of preparation. All subprojects in the first group will be fully appraised and have the bidding documents for goods and works ready by the time of approval of the Project by the World Bank’s Board of Executive Directors. The second group includes the subprojects that are preliminarily identified but where their precise sitting alignments are not known during preparation and other subprojects that can be brought forward by PLN during implementation. The subprojects in the second group are subject to Bank appraisal in accordance with a set of the eligibility criteria, which will be agreed during project preparation. A Land Acquisition, Resettlement Policy Framework (LARPF), Indigenous People Planning Framework (IPPF), and Environment and Social Management Framework (ESMF), which provide guidance for preparation of safeguards plans for the subprojects in the second group will be prepared and appraised during preparation. The subprojects that meet the eligibility criteria will be financed on a first-come, first-appraised basis until all allocated funds are committed.

A preliminary list of subprojects in two groups is provided by PLN, which will be updated and refined during the project preparation.

PLN will be the implementing agency. The procurement activities will be carried out centrally by the procurement committee to be established at PLN Headquarters, consisting of representatives of related functional departments. Five regional project offices in Java-Bali, Sumatra, Kalimantan and Sulawesi will be directly in charge of managing construction of Components 1-3. Component 4 will be managed by PLN’s Planning Department through the newly established Working Team on Smart Grids, consisting of representatives of related functional departments. Disbursement and financial reporting will be carried out by PLN’s Financial and Treasury Departments, respectively, with the support of the five regional project offices. PLN Planning and Construction Departments at PLN Headquarters will be responsible for overall coordination and oversight during project preparation and implementation.

IV. Safeguard Policies that might apply
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V. Tentative financing

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