THE ROLE OF PLN IN CLEAN ENERGY DEVELOPMENT: CURRENT STATUS AND FUTURE DIRECTIONS

Draft Report

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Office of Environment
USAID/Indonesia

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Foreword

This report presents findings and recommendations on the role of PLN in renewable energy development. The report was prepared by Castlerock Consulting with inputs from Tetra Tech and its other subcontractors Deloitte Consulting.

The authors gratefully acknowledge the guidance and support of PLN counterparts, particularly Mr. M. Sofyan, Division Head of PLN's New & Renewable Energy Division, Mr. Hadi Susilo, former PLN Senior Manager for Hydro Projects, and Mr. Krisna Simbaputra, General Manager of PLN North Sumatra.

LIST OF ABBREVIATIONS

AMDAL	*Analisis Mengenai Dampak Lingkungan* (Environmental Impact Assessment)
APBN	*Anggaran Pendapatan dan Belanja Negara* (State Budget)
Art	Article
BABEL	Bangka Belitung
Bapeptal	*Badan Pengawas Pasar Tenaga Listrik* (Electrical Power Market Supervisory Body)
BI	Bank Indonesia
BOOT	Build Own Operate Transfer
BPK	*Badan Pemeriksa Keuangan* (The State Financial Auditor)
BPP	*Biaya Pokok Produksi* (Basic Production Costs)
BPU	Board of General Administration
BUMN	*Badan Usaha Milik Negara* (State Owned Enterprise)
COD	Commercial Operating Date
DGB	Directorate General of Budget
DGE	Directorate General of Electricity
DKI	*Daerah Khusus Ibokota* (Special Region of Jakarta)
DPR	*Dewan Perwakilan Rakyat* (national legislature)
DPRD	*Dewan Perwakilan Rakyat Daerah* (regional legislature)
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
EBT	Earnings Before Taxes
EPC	Engineering, Procurement and Construction
ETAM	Electricity Tariff Adjustment Mechanism
FIT	Feed-In Tariff
GIS	Geographical Information System
GOI	Government of Indonesia
GWh	Giga Watt Hour
HPS	*Harga Perkiraan Sendiri* (Own Cost Estimate)
ICED	Indonesia Clean Energy Development
HTJL	*Harga Tarif Jual Listrik* (Retail Electricity Sales Tariff)
IIGF	Indonesia Infrastructure Guarantee Fund (*PT Penjaminan Infrastruktur Indonesia)*
IMB	*Izin Mendirikan Bangunan* (Building Permit)
IPP	Independent Power Producers
IPPT	*Izin Peruntukan Penggunaan Tanah* (Land Use Permit)
IUPL	*Izin Usaha Penggunaan Tenaga Listrik* (Electrical Power Utilization Permit)
JABAR	*Jawa Barat* (West Java province)
JATENG	*Jawa Tengah* (Central Java province)
JATIM	*Jawa Timur* (East Java province)
KALBAR	*Kalimantan Barat* (West Kalimantan province)
KALSEL	*Kalimantan Selatan* (South Kalimantan province)
KALTIM	*Kalimantan Timur* (East Kalimantan province)
Kepdir	*Keputusan Direksi* (Board of Directors Decision)
Kepmen	*Keputusan Menteri* (Ministrial Decree)
KKF	*Kajian Kelayakan Finansial* (Financial Feasibility Study)
KKO	*Kajian Kelayakan Operasional* (Operational Feasibility Study)
Km	kilometer
KMK	*Keputusan Menteri Keuangan* (Ministry of Finance Decree)

KPIs	key performance indicators
kV	Kilo Volt
KVARH	Kilo Volt Ampere Reactive Hour
LWBP	*Lewat Waktu Beban Puncak* (Off Peak Time)
MCC	Millennium Challenge Corporation
MEMR	Ministry of Energy and Mineral Resources
MESDM	*Menteri Energi dan Sumber Daya Mineral* (Ministry of Energy and Mineral Resources)
MOU	Memorandum of Understanding
MSOE	Ministry of State Owned Enterprises
MVa	Mega Volt Ampere
MW	Mega Watt
NAD	*Nangroe Aceh Darussalam* province
NDA	Non-Disclosure Agreement
NTB	*Nusa Tenggara Barat* province
NTT	*Nusa Tenggara Timur* province
O & M	Operation and Maintenance
Permen	*Peraturan Menteri* (Ministry Regulation)
Perpres	*Peraturan Presiden* (Presidential Regulation)
PGN	*Perusahaan Gas Negara* (State Gas Company)
PJB	PT Pembangkit Jawa Bali (one of the generation subsidiaries of PT PLN (Persero))
PMK	*Peraturan Menteri Keuangan* (Ministry of Finance Regulation)
POME	palm oil mill effluent
PP	*Peraturan Pemerintah* (Government Regulation)
PPA	Power Purchase Agreement
PPP	Public Private Partnership
RJP	*Rencana Jangka Panjang* (Long Term Strategic Plan)
RKAP	*Rencana Kerja dan Anggaran Perusahaan* (Corporate Plan and Budget)
RKAP	*Rencana Kerja dan Anggaran Pemerintah* (Government Work Plan and Budget)
RKM	*Rencana Kerja Manajemen* (Management Work Plan)
RUKN	*Rencana Umum Ketenagalistrikan Nasional* (National Public Electricity Plan)
RUPS	*Rapat Umum Pemegang Saham* (General Meeting of Shareholders)
RUPTL	*Rencana Usaha Penyediaan Tenaga Listrik* (Electricity Supply Business Plan)
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SJKU	*Surat Jaminan Kelayakan Usaha* (Guarantee Letter for Business)
SULSEL	*Sulawesi Selatan* (South Sulawesi province)
SULUT	*Sulawesi Utara* (North Sulawesi province)
SUMBAR	*Sumatera Barat* (West Sumatera province)
SUMUT	*Sumatera Utara* (North Sumatera province)
TDL	*Tarif Dasar Tenaga Listrik* (Electricity Base Tariff)
TTLB	*Tarif Tenaga Listrik Berkala* (Periodic Electricity Tariff)
TWh	Tera Watt Hour
UK4P	*Unit Kerja Presiden untuk Pengawasan dan Pengendalian Pembangunan* (Presidential Work Unit for Development Supervision and Control)
UKL/UPL	*Upaya Pengelolaan Lingkungan/Upaya Pemantauan Lingkungan* (Small Scale Environmental Impact Assessment)

US	United States
USAID	United States Agency for International Development
WBP	*Waktu Beban Puncak* (Peak Time)

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1 Introduction

1.1 Background and Objectives

The Indonesia Clean Energy Development (ICED) Project supports government, the private sector and civil society in increasing the contribution of clean energy resources (renewable energy, energy efficiency and energy conservation) in Indonesia. The use of clean energy displaces fossil fuel consumption, helps Indonesia reduce the growth of its greenhouse gas emissions, and provides rural communities with access to modern energy.

This project, which is funded by the U.S. Agency for International Development (USAID), began in March 2011 and will be completed in September 2014. ICED has specific targets in terms of "grid-connected" renewable energy projects reaching financial closure and/or commissioning by September 2014.

PLN is the state-owned utility of Indonesia, and is a principal counterpart of ICED. PLN supplies virtually all consumers in the country, and at present is the sole buyer of all power produced by private generators. Consequently, it has a critical role in the expansion of renewable power supply in Indonesia, both from development of its own renewable generation as well as purchases of renewable power generation from private parties. Renewable power capacity can be added to Indonesia's generation mix only as quickly as PLN can build it itself or purchase it from others.

This report thus aims to:

- Review the regulatory environment within which PLN operates
- Describe the internal structure, operations and performance of PLN, particularly as they relate to renewable energy
- Describe the development process leading to PLN's purchases of renewable power generated by private parties
- Identify key issues for PLN to accelerate the development of its own renewable resources as well as accelerate and expand purchases of renewable energy from private parties. This will help guide ICED activities in support of PLN going forward.

The report incorporates work previously conducted under ICED on related topics.

1.2 Report Organization

This report is organized as follows:

- Chapter 2 describes the regulatory environment within which PLN operates
- Chapter 3 reviews PLN's current structure, operations and performance
- Chapter 4 describes the development process for private small renewable power projects, highlighting PLN's role and discussing the current allocation of risks
- Chapter 5 discusses initiatives or measures to accelerate and expand renewable energy development, focusing on support that can be extended to PLN.

2 Power Sector Regulatory Environment

2.1 Sector Structure

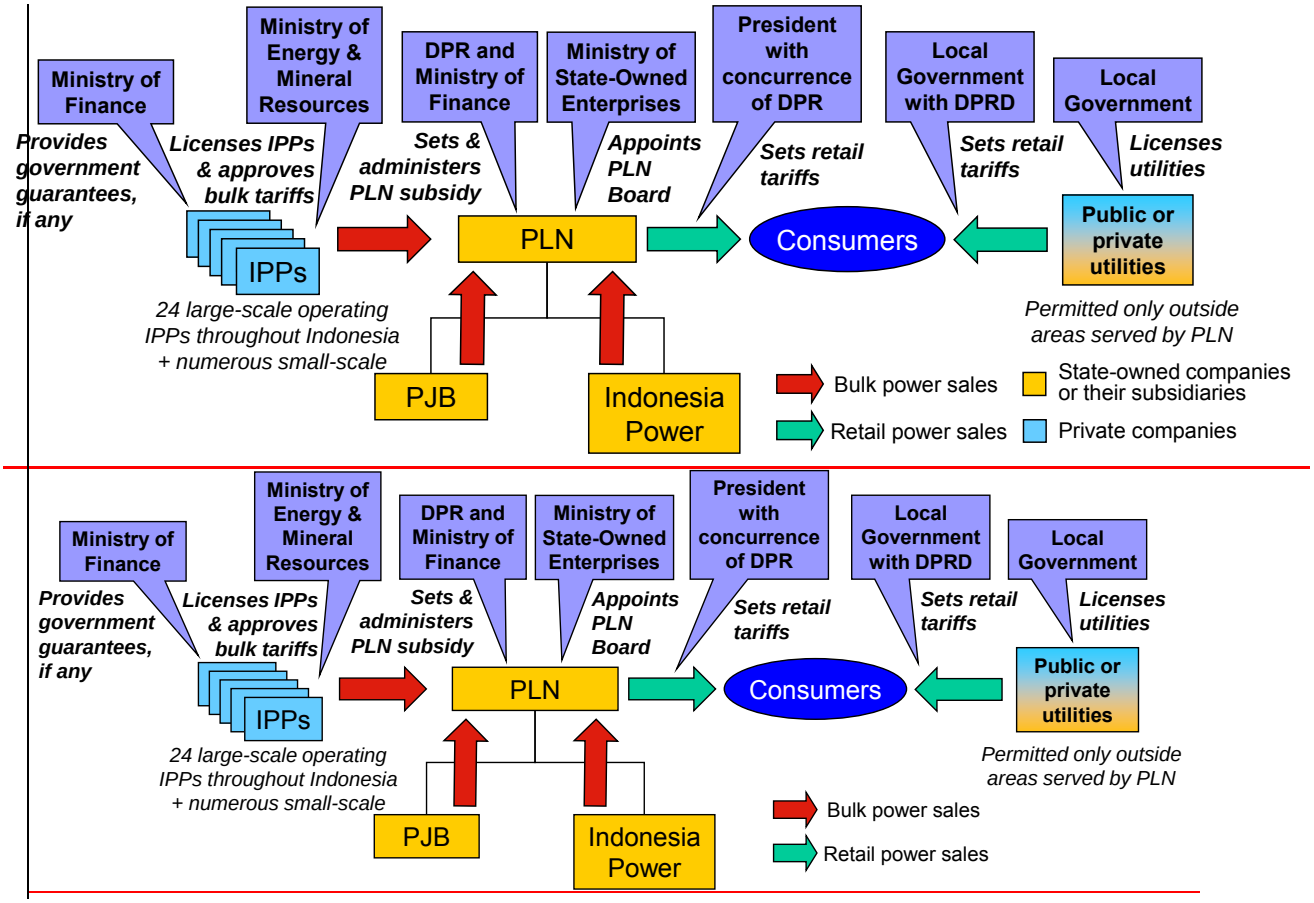
Exhibit 1 shows the overall structure of the Indonesian power sector, highlighting the role of various government agencies in policy making, regulation and ownership.

PT PLN (Persero) is a 100% state-owned vertically-integrated electricity company that, together with its subsidiaries, is responsible for most generation in the country, all transmission, and virtually all distribution and retail. Other public or private electric utilities are allowed by law to supply electricity in areas that are not served by PLN, but there are few instances of such arrangements.[1]

Independent power producers (IPPs) and PLN subsidiaries PJB and Indonesia Power operate under generating licenses and sell bulk power to PLN, which acts as a single buyer. In addition, PLN has two subsidiaries, PLN Batam and PLN Tarakan, which undertake supply on Batam and Tarakan Islands respectively. Retail sales in these two service territories follow their own tariff schedules, whereas PLN sells power to consumers elsewhere in the country under a uniform national tariff (*tarif dasar listrik*, TDL), which is prepared by the Ministry of Energy and Mineral Resources, proposed by the President, and approved by the national legislature (DPR, *Dewan Perwakilan Rakyat*). Retail tariffs for any other utility are set by the local government with approval by the local legislatures (DPRD, *Dewan Perwakilan Rakyat Daerah*).

[1] Notably, private utilities performing generation, distribution and retail have been reported in Riau Province.

Exhibit 1. Structure of the Indonesian Power Sector



The Government of Indonesia exercises its control of the sector through the Ministry of Energy and Mineral Resources (MEMR) and the Ministry of State-Owned Enterprises (MSOE). MEMR functions as the policy maker and regulator for the sector, and is responsible for code development and enforcement, licensing, approval of bulk tariffs, setting of feed-in tariffs (FIT) and other terms for small scale renewable power projects, development of retail tariffs, and preparation of the National Electricity Plan (*Rencana Umum Ketenagalistrikan Nasional*, RUKN). Many of these functions are conducted by the Directorate General of Electricity (DGE) within MEMR. Under certain circumstances, these functions have been devolved to regional governments, as discussed in the following section, but until now such cases have been rare.

MSOE functions as the shareholder of PLN. It appoints PLN's Board of Directors and sets the company's performance targets. The Ministry of Finance also has a role in the sector in terms of establishing arrangements for loan guarantees that may be used by IPPs, and for working with the line ministries, other government agencies and the DPR to prepare the state budget, which includes electricity subsidies.

2.2 Electricity Legislation

Indonesia's first electricity sector legislation was Law 15/1985 (see Annex A), which required that a single, state-owned enterprise provide electricity supply, although other enterprises were granted the opportunity to engage in electricity supply so long as such participation does not harm the interests of the State. Indonesia's IPP program began in the 1990's under this law.

This law was replaced by Law 20/2002, which provided for the introduction of a competitive electricity market. However, in 2004 the Constitutional Court struck down the law on the basis that it did not comply with Article 33 of the Constitution, which requires that the State control productive sectors of that affect the welfare of the people. Sector legislation thus reverted to Law 15/1985, with implementing regulations updated under Government Regulation 3/2005.

Law 30/2009 was enacted to replace Law 15/1985. Law 30/2009 incorporates the principal changes in Indonesian infrastructure regulation that have occurred since the period of *reformasi* that began in the late 1990s including sector liberalization and regional autonomy. Among other things, the Law:

- Stipulates that the Government of Indonesia (GOI) or regional government must license any enterprise that engages in the electricity supply business, which includes power generation, bulk power procurement, transmission, distribution and retail. The electricity supply business may be conducted in a vertically-integrated manner. In such a case, or if the business entails distribution and/or retail, only one enterprise may be licensed to serve a given area. These areas are determined by the Government (Art 10, Art 11).

- No longer designates a special role for a state-owned enterprise (BUMN, *Badan Usaha Milik Negara*) to carry out electricity supply apart from being given priority to serve an area. Regional government-owned enterprises (BUMD, *Badan Usaha Milik Daerah*), private enterprises, cooperatives and self-reliant communities (through a legal establishment) are eligible to supply electricity (Art 4, Art 11, Art 56).

- Devolves authority for tariff setting and licensing to regional governments under certain conditions, i.e., where the electricity business activity is entirely within a province or a *kabupaten*/city, and does not entail the sale of electricity to an entity licensed by the GOI, e.g. PLN. Tariffs shall be set on commercial principles, but there is no further guidance given on tariff formation (Art 5, Art 18-24, Art 33, Art 34).

- Gives precedence to the use of new and renewable energy resources, taking into account economic considerations (Art 6).

- Obliges the GOI to create national electricity policies and a national electricity plan that incorporates inputs from regional government (Art 5, Art 7).

- Requires the GOI and regional government to provide funds for the supply of electricity in poor areas, areas not already served, rural electrification, etc. (Art 4).

- Conveys the right to access and cross land to holders of electricity supply licenses, but licensees must compensate land owners (Art 27, Art 30).

In practice, existing regulations remain in use provided they do not conflict with the Law.

Other relevant electricity regulations include:[2]

- Government Regulation No. 14 Year 2012 on the Provisions of Electricity Business (GR 14/2012 or *Peraturan Pemerintah* (PP) 14/2012). PP 14/2012 replaces PP 10/1989 (revised twice by PP 3/2005 and PP 26/2006). This regulation stipulates as follows:

    - A "Business Entity" engaged in electricity supply must be State-Owned Enterprise, Regional Government-Owned Enterprise, Private Entity with Indonesian Legal Deed, Cooperative, and Community-managed entity as the **Permit Holder** for electricity supply business;

    - Electricity businesses include Electricity Generation; Electricity Transmission; Electricity Distribution and/or Electricity Sales;

    - Business permits consists of Electricity Commercial Supply License for public use (*Ijin Usaha Penyediaan Listrik* /IUPL) and Operation License for own use (*Ijin Operasi*/IO) replaced *Ijin Usaha Penyediaan Tenaga Listrik Untuk Kepentingan Umum*/IUKU dan *Ijin Usaha Penyediaan Tenaga Listrik Untuk Kepentingan Sendiri*/IUKS;

    - Regulates the time period for the business license, which valid for the period of maximum 30 years for IUPL and 15 years for IO, and both are extendable;

    - The distribution business, sales business, and integrated business is conducted by one entity in one business area

    - The amount of compensation for the holder of rights for land, building and plant is determined by an independent appraisal institution appointed by the Minister, Governor, or Municipal Government/City Mayor according to its respective authority.

- Ministerial Regulation (Permen) 9/MESDM/2005 provides specific guidelines for the tendering of independent power producers (IPPs).

- Permen 1/MESDM/2006 modifies the timing of various milestones in the IPP procurement process.

- The above two Permen do not apply to small renewable power plants. Permen 2/MESDM/2006 specifically describes the appointment process for renewable power generators from 1 up to and including 10 MW of installed capacity. That process remains largely in place, but the pricing provisions of Permen 2/MESDM/2006 were replaced by Permen 31/MESDM/2009. That regulation was in turn replaced by Permen

[2] Legislation and regulations regarding geothermal power are not discussed in this report, since ICED does not focus on geothermal power.

4/MESDM/2012, which stipulates that:

- PLN must purchase power from renewable power plants up to and including 10 MW capacity, or any excess power from renewable plants (i.e., if the principal use of the plant is captive) subject to the needs of the electricity system at that location. Excess power purchases may be larger than the own-use power.

- Electricity purchased at medium voltage (20 kV) is priced at Rp 656/kWh x F, whereas purchases at less than 20 kV are priced at Rp 1,004/kWh x F, where F is a regionally defined factor as follows: for Java and Bali, F = 1; for Sumatra and Sulawesi, F = 1.2, for Kalimantan, Nusa Tenggara Barat (NTB) and Nusa Tenggara Timur (NTT), F = 1.3, and for Maluku and Papua, F = 1.5. Exceptions are as follows:

  - For biomass and biogas powered electricity, the base prices are Rp 975/kWh for medium voltage and Rp 1,325/kWh for low voltage, with regional factors of F=1 for Java, Madura, Bali, and Sumatra; F = 1.2 for Sulawesi, Kalimantan, NTB and NTT; and F = 1.3 for Maluku and Papua.

  - For electricity produced from a "zero waste" technology utilizing city waste in gasification or incineration, and anaerobic digestion, (also known as municipal solid waste-to-energy) the prices are Rp 1,050/kWh for medium voltage and Rp 1,398/kWh for low voltage. There is no regional differentiation.

  - For electricity produced from a sanitary landfill (also known as landfill gas), the prices are Rp 850/kWh for medium voltage and Rp 1,198/kWh for low voltage. There is no regional differentiation.

- The above pricing is applied without negotiation or approval from the Minister of Energy and Mineral Resources or local government authority. However, PLN can purchase power from renewable energy at prices higher than those stipulated above, but these prices are to be based on PLN's own cost estimate (i.e., the *harga perkiraan sendiri*, HPS, which is ultimately negotiated with the seller) and approved by the Minister of Energy and Mineral Resources.

- In the event that a regulation stipulates that an electricity supply crisis exists in a particular region, PLN can purchase excess power at prices higher than those above, based on its HPS. The purchase requires the approval of the Directorate General of Electricity (DGE) if the price is higher than PLN's cost of production (*biaya pokok penyediaan*, BPP) for that province. PLN is required to determine the BPP and report it to the DGE every three months.

- Excess power under these conditions cannot be contracted for a period of more than one year, but these contracts can be extended. PLN must report these purchases to DGE every three months.

- Under other conditions that may be specified by PLN, PLN may purchase excess power at prices higher than the prices specified above, based on PLN's HPS and the

approval of DGE.

- PLN must create a standard power purchase contract for purchase of power from renewable generators under 10 MW or excess power from renewable power plants.

2.3 State-owned Enterprise Legislation

As a state-owned enterprise, PLN is also subject to Law 19/2003 on state-owned enterprises (*badan usaha milik negara*, BUMN). Relevant provisions of the law include:

- As a "*persero,*" PLN is a state-owned limited liability company with the main objective of earning profit. This is consistent with Art 33 of Law 30/2009, which stipulates that tariffs shall be set on commercial principles.

- Further to the objective of profitability for state-owned limited liability companies, the Government may assign to a BUMN a function to provide certain services for the benefit of the public. The GOI remains obliged to ensure such an assignment does not compromise the profitability of the company. This gives rise to Government subsidies for performance of a public service obligation. These subsidies must compensate the BUMN for all costs incurred in delivering that service plus a margin. Ministry of Finance regulations (PMK, *Peraturan Menteri Keuangan*) 111/2007 and 162/2007 specify how the subsidy is calculated for PLN. This is discussed further in Section 3.4 of this report.

- The GOI's shareholder representative is a minister, currently designated as the Minister of State-Owned Enterprises. The shareholder has the highest authority with respect to corporate matters.

- State-owned enterprises can be capitalized by the Government through the state budget (APBN), the capitalization of capital reserves (e.g., retained earnings), or other sources as may be determined. The GOI issues a government regulation each time it capitalizes a company.

- State-owned enterprises follow the same governance structure as private Indonesian companies. The shareholders appoint a Board of Directors, which is responsible for day-to-day management of the company and legally represents the company. Directors are subject to "fit and proper" testing, and once appointed must sign a management contract.

- "Fit and proper" tests are defined under Kepmen 09A/MBU/2005. Candidates can be either from within or outside the enterprise. The test entails the evaluation of three criteria: formal (e.g., whether the candidate has ever been convicted of causing losses to the State), material (ethical values), and competency (management experience and sector expertise). MSOE stipulates the assessment procedure and evaluates the results, but appoints a professional organization (e.g., an HR consulting firm) to conduct the test.

- Management contracts are defined under Kepmen 59/MBU/2004. These contracts lay out indicators and targets for financial, operational, and administrative performance, as well as the terms and conditions of the appointment. While these contracts provide for bonuses (as decided by the shareholders), they do not explicitly link those bonuses to the

achievement of the targets. The contracts also require the candidates to report their wealth.

- The shareholder also appoints a Board of Commissioners, which supervises the Board of Directors. The Board of Commissioners is analogous to the Board of Directors in English company law, except that one cannot serve as both a Commissioner and a Director. The appointment of Commissioners and Directors is to be staggered.

- The law prohibits Commissioners and Directors from conflicts of interest or profiting personally from company activities (other than by virtue of their salary). They may not represent the firm if they face personal legal proceedings.

- The Minister as shareholder must approve:

    - changes in capital
    - amendments to the Articles of Association
    - use of profits
    - merger, consolidation, acquisition, division and dissolution
    - long-term investment and funding
    - cooperation of the company with other partiers, e.g., joint ventures
    - establishment of subsidiaries
    - transfers of assets.

- The Board of Directors must prepare the following, which are subject to shareholder approval:

    - A long-term (five-year) strategic plan (*Rencana Jangka Panjang*, RJP). This is defined in Kepmen 102/M-BUMN/2002.
    - An annual work and budget plan, consistent with the long-term plan (*Recana Kerja dan Anggaran Perusahaan*, RKAP). This is defined in Kepmen 101/MBU/2002.
    - An annual report within five months of the close of the book year.

- Kepmen 117/M-MBU/2002 requires that at least 20% of Commissioners be independent in the sense that: 1) they should not have worked for the company or its affiliates for at least the past three years, 2) they have never worked for the Government, institutions or military, and 3) they have no financial links to the company, its affiliates or suppliers. Also, a person cannot be both a Commissioner and a Director.

- State-owned companies must establish an internal audit division, reporting directly to the President Director. The Directors and Commissioners must also set up an audit committee. External audits are required, and auditors are to be appointed by the shareholders. The State Financial Auditor (BPK) also has the authority to audit the company.

- The appointment of Directors and Commissioners for subsidiary companies is defined by Permen 1/MBU/2004. The same “fit and proper” testing process is used, except that the candidates are shortlisted, evaluated, and selected by the Directors and Commissioners of

the parent company, and approved by MSOE.

2.4 Public-Private Partnership Regulations

Regulations regarding public-private partnerships are important because they determine whether, and if so, how, private companies can obtain government guarantees for the infrastructure projects they develop. This has become an increasingly important issue given the greater authority extended to regional governments. Some developers are beginning to seek guarantees from the GOI that the regional government licensing their project will not change the terms of their license or apply new regulations that disadvantage the developer. For example, this has stalled the development of some geothermal projects.

There are two frameworks under which a renewable energy project can receive a Government guarantee:

PMK 139/2011
Minister of Finance Regulation No. 139/PMK.011/2012 replaces PMK 77/2011 and sets out the details under which the GOI (through the Ministry of Finance) will guarantee PLN payments to power developers on a case-by-case basis for power projects developed under Perpres 4/2010. The most recent list of these projects is provided in Permen ESDM 1/2012, and includes 8 hydro and 45 geothermal projects to be developed by the private sector (all of the listed hydro projects are greater than 10 MW). The GOI would guarantee PLN's ability to fulfill its payment obligations to developers as stipulated in the power purchase agreement (PPA). The guarantee may be granted for the entire period of the PPA or for a portion of that period, and is effective only if the project reaches financial closure within specified periods, the duration of which depends on whether the project is a geothermal or other type of project. PLN may request that the GOI provide the guarantee upon fulfilling certain documentation requirements, which vary depending on the type of project (geothermal or otherwise) and whether the PPA has already been signed.

The application of this guarantee would also presumably exempt these loans from counting against a bank's legal lending limit, since under Bank Indonesia Regulation No. 73/2005, loans secured by government guarantees are exempted.

PMK 260/2010
Minister of Finance Regulation No. 260/PMK.011/2010 replaces PMK 38/2006. It lays out the conditions and processes by which the Government can provide contingent support (i.e., guarantees) to infrastructure projects, and defines the role of the Indonesia Infrastructure Guarantee Fund (IIGF). Coverage includes government actions, inactions, policies or breach of contract, as well as any other risks that are supported by a risk analysis and principle of risk allocation to the party best able to manage it. This guarantee mechanism is available for all infrastructure projects developed under Indonesia's framework for public-private partnerships, as defined by Perpres 67/2005, Perpres 13/2010 and Perpres 56/2011.

Differences in Guarantees

Guarantees available under PMK 139/2011 and PMK 260/2010 differ principally in three ways:

- **Project eligibility**. Guarantees under PMK 139/2011 may only be issued to projects listed under Permen ESDM 1/2012, whereas guarantees issued under PMK 260/2010 may be issued to any infrastructure project that fulfills the requirements of the presidential regulations governing PPP. One condition of PPP eligibility is that the project must be competitively tendered by a competent government authority after the preparation of a pre-feasibility study demonstrating the financial viability of the project. Consequently, under current practice and regulations, most renewable energy project are ineligible for guarantees under PMK 260/2010 since they do not fulfill this condition.

- **Scope of guarantees**. The events guaranteed under PMK 139/2011 are limited to PLN's inability to pay for the electricity it purchases.[3] PMK 260/2010 can guarantee any event whose risk is allocated to the Government under the principles of sound risk allocation, e.g., the allocation of risk to the party that can best manage it.

- **Guarantee administration**. Guarantees issued under PMK 260/2010 are administered by a state-owned enterprise, *PT Penjaminan Infrastruktur Indonesia* (Indonesia Infrastructure Guarantee Fund, IIGF). On the other hand, the Minister of Finance issues guarantees under PMK 139/2011.

ICED is focusing on projects that are neither awarded on the basis of competitive tenders nor are on the Permen 1/2012 list. These projects are thus unlikely to be eligible for any sort of government guarantee, at least under prevailing regulations. However, ICED should explore whether the development of these sorts of renewable energy projects could be accelerated through the application of a similar guarantee framework.

2.5 Water Use Legislation

The use of water resources is governed by Law No. 7/2004, Government Regulation No. 42/2008 and Ministry of Public Works Regulation No. 6/2011. In addition, regional governments may issue permitting requirements, such as the watershed licensing implemented by the Provincial Government of West Java (which the province classifies as a forestry license, highlighting the interdependence of water and land management).

Water use legislation affects the steps and permits required to develop hydro power, as well as the nature of risks related to resource availability. Upstream diversions of water can undermine the commercial feasibility of hydro power projects, and a regulatory framework that secures or at least clarifies water use rights is instrumental in accelerating hydro power development.

To date no regulations specifically address these issues for hydro power development. The Directorate of New and Renewable Energy within the Ministry of Energy and Mineral Resources

[3] However, it is understood that the guarantees issued under PMK 139/2011 (*Surat Jaminan Kelayakan Usaha*, SJKU) to Supreme Energy for geothermal projects at Muara Laboh and Rajabasa in March 2012 include broader protections for local government instrumentality as well.

had started drafting new hydro power regulations within the framework of Law No. 7/2004 and Law No. 30/2007 on Energy, which prioritize the development of renewable resources. However, the Directorate has suspended those efforts.

Due to the importance of securing water rights, ICED plans to produce a separate report or report on regulatory and institutional framework governing water use for energy including protection from subsequent upstream development or diversion of this water resource.

2.6 Land Use Legislation

Land use planning is governed by Law No. 26/2007 on Spatial Planning. In addition, there are industry-specific laws governing plantations (Law No. 18/2004) and forests (Law No. 41/1999 as amended by Law No. 19/2004, and Government Regulation 24/2010), as well as legislation governing construction (Law No. 28/2002) and commercial use of land in general (Law No. 5/1960 and Ministry of Land/National Land Agency Regulation No. 2/1999). Each of these laws gives rise to subsidiary regulations and permitting requirements, many of which are within the authority of regional governments. Examples include the Location Permit (*Izin Lokasi*), the Land Use Allocation Permit (*Izin Peruntukan Penggunaan Tanah*, IPPT), and the Building Permit (*Izin Mendirikan Bangunan*, IMB). Depending on the type of facility to be constructed, environmental and industry permits might also be required. [4]

Land use legislation affects renewable energy development in several ways:

- Land use regulations and permitting requirements directly affect the speed and process by which renewable energy projects can be developed, whether by PLN or private developers who in turn sell power to PLN.

- In the case of hydro power, upstream land use can affect river flows over time as well as resource availability.

- In the case of biomass, land use regulations govern the clearance of primary forest for plantations that are either developed to produce fuels (e.g., plantations for jatropha or fuel wood), or developed to produce products from which energy may be produced as a byproduct (e.g., palm oil mill effluent, POME).

Given that forestry regulations are one of the most common industry-specific regulations encountered in renewable energy development, these are discussed in further detail. In

[4] An "Environmental Impact Assessment" (*Analisis Mengenai Dampak Linkungan*, AMDAL) is required for larger developments, which may require mitigation or offsets for environmental impact, issued by the related authority depending on the area, and must obtain the central government approval for strategic business. An "Environmental Review" (*Upaya Pengelolaan Lingkungan / Upaya Pemantauan Lingkungan*, UKL/UPL) is required for projects or activities smaller than those requiring an AMDAL (not materially impact the environmental). The requirements for an AMDAL and UKL/UPL are spelled out in Law No. 23/1997 on Environmental Management, Government Regulation No. 27/2012, Ministry of Environment Decrees No. 40/2000, No. 17/2001 and No. 86/2002, and subsequent regional regulations. In addition to an AMDAL or UKL/UPL, a business entity shall also obtain an Environmental Permit pursuant to GR 27/2012.

particular, since most hydropower projects are located in mountains, and most mountains are designated as some form of forest classification, forestry legislation and permitting are key aspects of hydro development.

Forestry regulations distinguish between three types of forest land classifications:

- Conservation Forest (*Hutan Konservasi; Kawasan Konservasi*) is a forest of a distinctive nature, with the principal function of conserving the natural plants and animal within its ecosystem.

- Protected Forest (*Hutan Lindung*) functions to protect life support systems, e.g. to manage watersheds, prevent floods, manage erosion, prevent sea intrusion and protect the fertility of the land.

- Production Forest (*Hutan Produksi*) has the principal function of producing forest products.

The Forestry Law designates activities that may be conducted in conservation, protected and production forest areas as follows:

- Article 1 states that conservation forest shall serve as a preservation area for flora and fauna. Article 7 states that conservation forest areas consist of *hutan suaka alam* (natural forest preserves) and hunting parks.

- Article 26 provides that protected forest may be used in several ways such as for the cultivation of medicinal and ornamental plants or mushrooms, environmental services, and collection of non-timber forest products.

- Article 28 provides that production forest may be used in several ways such as for growing plants below the forest canopy, environmental service, for timber and non-timber forest products, and the collection of timber and non-timber forest products.

- Article 38(1) provides that the use of forest areas for non-forest activities may only be conducted in production and protected forest areas, and the impacts must not change the main function of the forest area.

- Article 38 also provides that the use of forest areas for mining activities (including geothermal) may be conducted through the issuance of *izin pinjam pakai* (borrow-and-use permit) from the Minister of Forestry by considering the boundary for the area to be used, the period of time as well as environmental conservation. Ministry of Forestry Regulation No. 43/2008 lays out the process for borrow-and-use permits in general, while Presidential Regulation No. 28/2011 lays out the process specifically for underground mining, including geothermal. If the mining activity is considered to have a substantial effect, massive coverage and strategic value, a borrow-and-use permit may only be issued by the Minister of Forestry following approval by the DPR.

3 PLN Overview

3.1 Organizational Structure

PLN has 11 (eleven) subsidiaries (see Exhibit 2, based on the PT PLN (Persero) Annual Report 2011). All of them are effectively wholly owned, with the exception of Geo Dipa Energi, which is owned 67% by the GOI and 33% by PLN. Many of these subsidiaries also have subsidiaries of their own (e.g., Cogindo is a subsidiary of Indonesia Power). PLN is established as a state-owned limited liability company (*persero*). The board of directors of each of these subsidiaries reports to the board of PLN, which in turn reports to its owner, the Government of Indonesia, through the Ministry of State-Owned Enterprises.

Decisions regarding the creation of subsidiaries are ad hoc. Although Law 19/2003 delineates the approval processes for the establishment of subsidiaries, PLN has no policies prescribing the criteria for deciding whether subsidiaries should be created in the first place.

Exhibit 2: PLN and its Subsidiaries

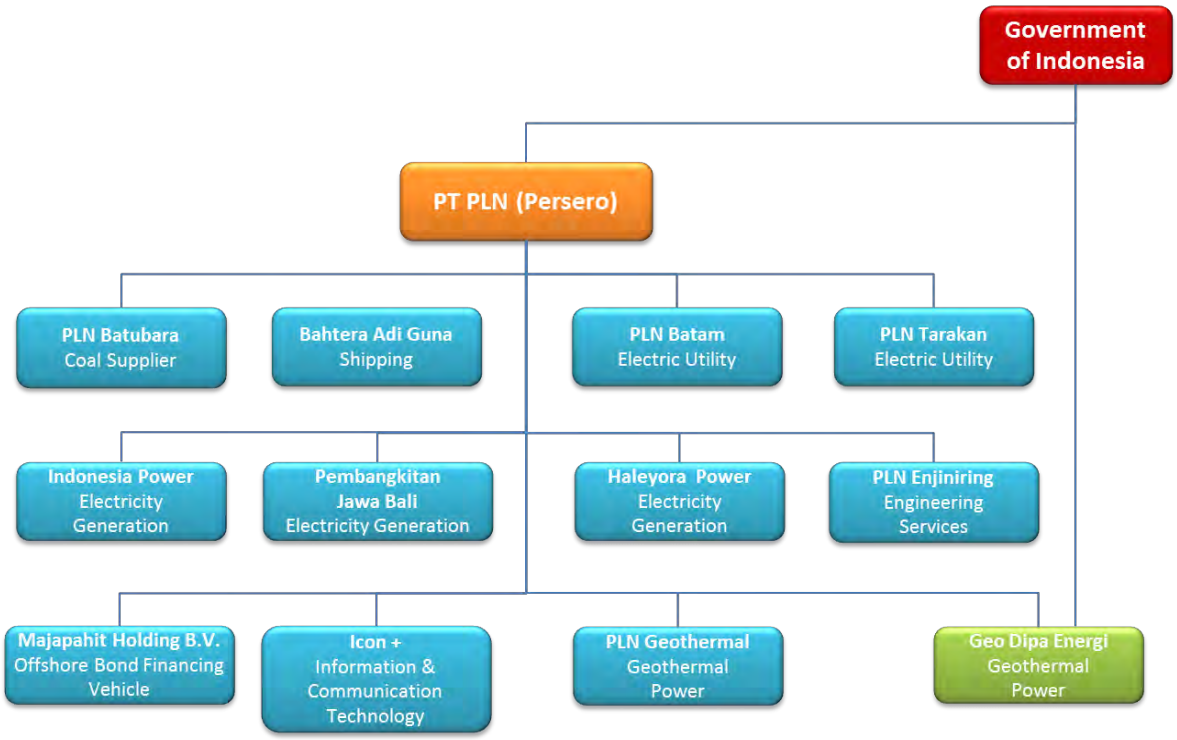


Exhibit 3 shows PLN's current internal organization. All PLN personnel other than those in the subsidiaries and business units are based in Jakarta at PLN headquarters (*PLN Pusat*). Like the directors of subsidiaries, the heads of the business units report to the PLN board.

In addition, within PLN Pusat there are divisions that report up to individual directors. This structure is currently being revised to accommodate the reduction in PLN directors from 9 to 8. The previous divisional structure is shown in Exhibit 4.

As shown in Exhibit 4, the Renewable Energy Division was previously located under the Director of Planning and Technology. It has been moved to under the Director of Construction. This unit sets standards for smaller projects (e.g., standard PPAs) that are implemented or contracted by the regional business units, and is responsible for the development or contracting of larger projects by PLN Pusat, as discussed further in Section 3.6.

Exhibit 3: PLN's Current Organizational Structure

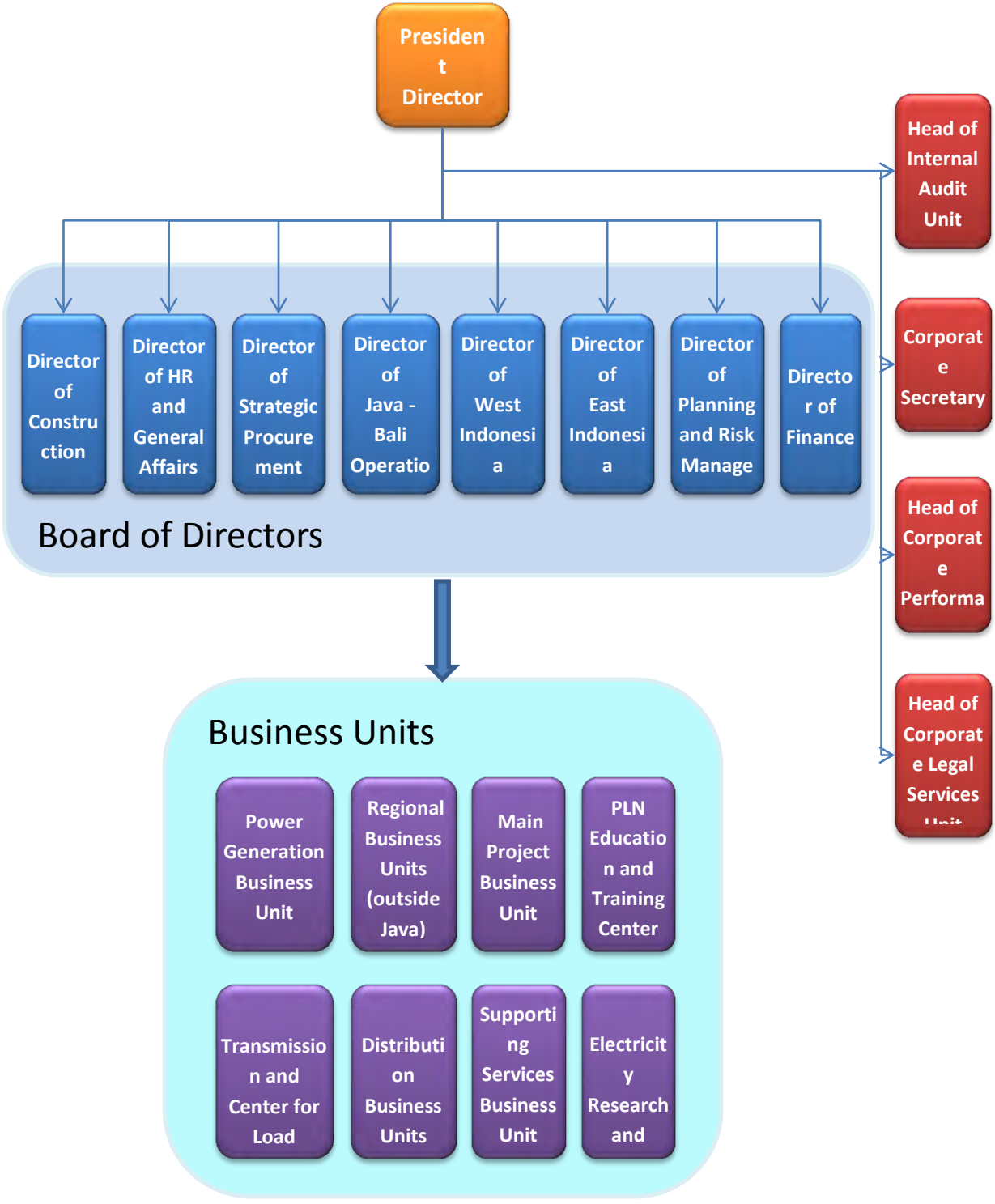
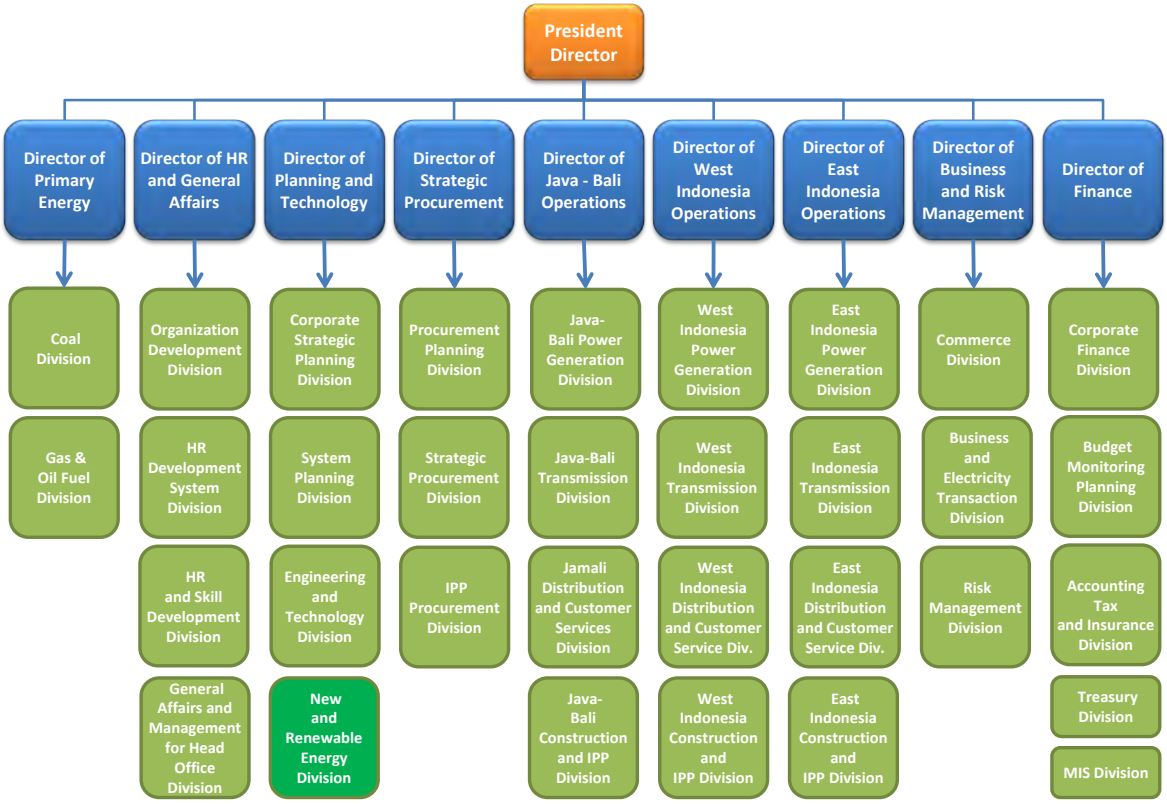


Exhibit 4: Previous Organizational Structure of PLN Pusat



Note:

The references from the Exhibit 3 and Exhibit 4 are taken from the PT PLN (Persero) Annual Report 2011

Although PLN retains a Director of Planning and Risk Management, the responsibility for planning has been pushed down to the business units; the planning function in Pusat is limited to setting planning standards, consolidating the plans prepared by the business units, and reconciling them with the budget. This process is discussed further in Section 3.6, Planning and Procurement. In addition, PLN Pusat establishes policies and procedures used by the business units, serves as the "single buyer" for electricity generated by both IPPs and PLN generating subsidiaries, develops its own generation, plans and procures fuels, and conducts borrowing and treasury operations.

The span of PLN's organization is vast. Geographically, its operations cover an area nearly 5,000 km wide, from Aceh to Papua. The company serves more than 44 million customers, and sells more than 170 TWh of energy annually. It is virtually impossible for a single Board of Directors to manage such an enormous undertaking without delegating substantial authority. PLN operations within this environment are described in the following sections.

3.2 Corporate Governance and Performance Management

Corporate governance consists of the rules that structure the relationship between a company and its owner. In the private sector, the challenge of corporate governance is to align the interests and actions of the management (the agent) with those of the owners (the principals). In the public

sector, however, a greater challenge is to align the interests and actions of the government acting as owner, with those of the citizens, who are the ultimate or "true" owners. Although the government serves as the agent of the people, interests may diverge between the government and the people when it comes to exercising ownership control of a state-owned company.

The state-owned enterprise legislation discussed earlier sets the foundation for PLN's corporate governance. In form, many of these directives should contribute to better corporate governance (i.e., better alignment between the public interest and how the government exercises ownership control):

- The use of "fit and proper" tests to select Directors and Commissioners
- The appointment of independent Commissioners
- The use of management contracts for Directors
- The requirement for an audit committee and use of independent auditors
- The requirement that Commissioners cannot be executives of the firm.

In addition, over the past several years PLN has implemented a compensation system in which bonuses are paid to PLN personnel based on performance against clear key performance indicators (KPIs) that are derived from strategic objectives established by MSOE as shareholder representative. The system works as follows:

1. As part of the annual shareholder's meeting (*Rapat Umum Pemegang Saham*, RUPS), MSOE establishes strategic objectives for PLN.

2. The plan to achieve these objectives is documented in PLN's Management Work Plan (*Rencana Kerja Manajemen*, RKM), which is approved as part of the Government Work Plan and Budget (*Rencana Kerja dan Anggaran Pemerintah*, RKAP).

3. The RKM is to be implemented by the PLN Board of Directors. Based on the RKM, specific KPIs are developed for the Board.

4. From these Board-level KPIs, KPIs are established for individual divisions and business units, which are in turn used to establish performance targets for individual employees. However, sometimes the translation from the Board-level KPIs derived from the RKM are not fully aligned with the KPIs that flow down to other organizational units.

5. PLN then evaluates performance against KPIs and determine bonuses and career paths.

PLN has set strategic objectives and specific KPIs for renewable energy development. For example, in 2009 the Presidential Work Unit for Development Supervision and Control (*Unit Kerja Presiden untuk Pengawasan dan Pengendalian Pembangunan*, UK4P) identified renewable energy development as one of the Government's key policy objectives. Working with MSOE and MEMR, specific renewable energy capacity targets were included in PLN's RKM for 2010. These flowed down to specific targets for PLN units. The realization of 788 MW was subsequently reported.

However, this particular annual target was not continued for 2011 and 2012, although renewable energy development has been retained as one of 65 programs in PLN's Medium Term Plan 2011-2015.

While a framework exists to align PLN's performance with GOI policy objectives, this framework could be further tightened up, particularly with respect to:

- Ensuring that Government policy objectives are conveyed consistently over time, and do not vary greatly from year-to-year

- Ensuring that Board-level KPIs translate accurately and effectively to KPIs for units within the organization.

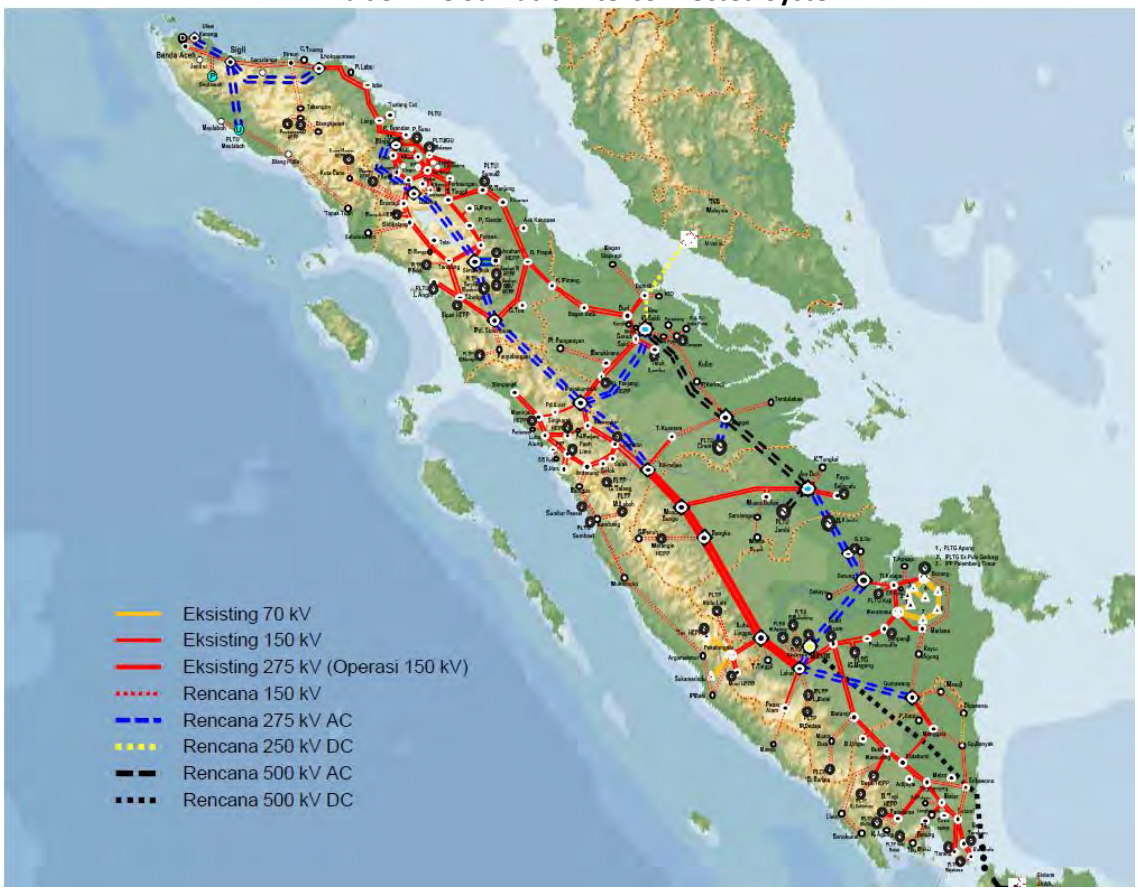
3.3 System Configuration and Expansion Plan in Target Provinces

The following information was taken from PLN's Electricity Supply Business Plan (*Rencana Usaha Penyediaan Tenaga Listrik*, RUPTL) for the years 2011-2020.

According to PLN, the current electrication ratios (2010) for the three target provinces are: Aceh, 90.66%; North Sumatera, 77.78% and Riau, 40.19%.

Over the time period of the ICED Project, Sumatra is expected to become entirely interconnected, as shown in Exhibit 5. Moreover, as discussed further below, many isolated systems in the ICED target provinces of North Sumatera, Riau and Aceh are to be interconnected.

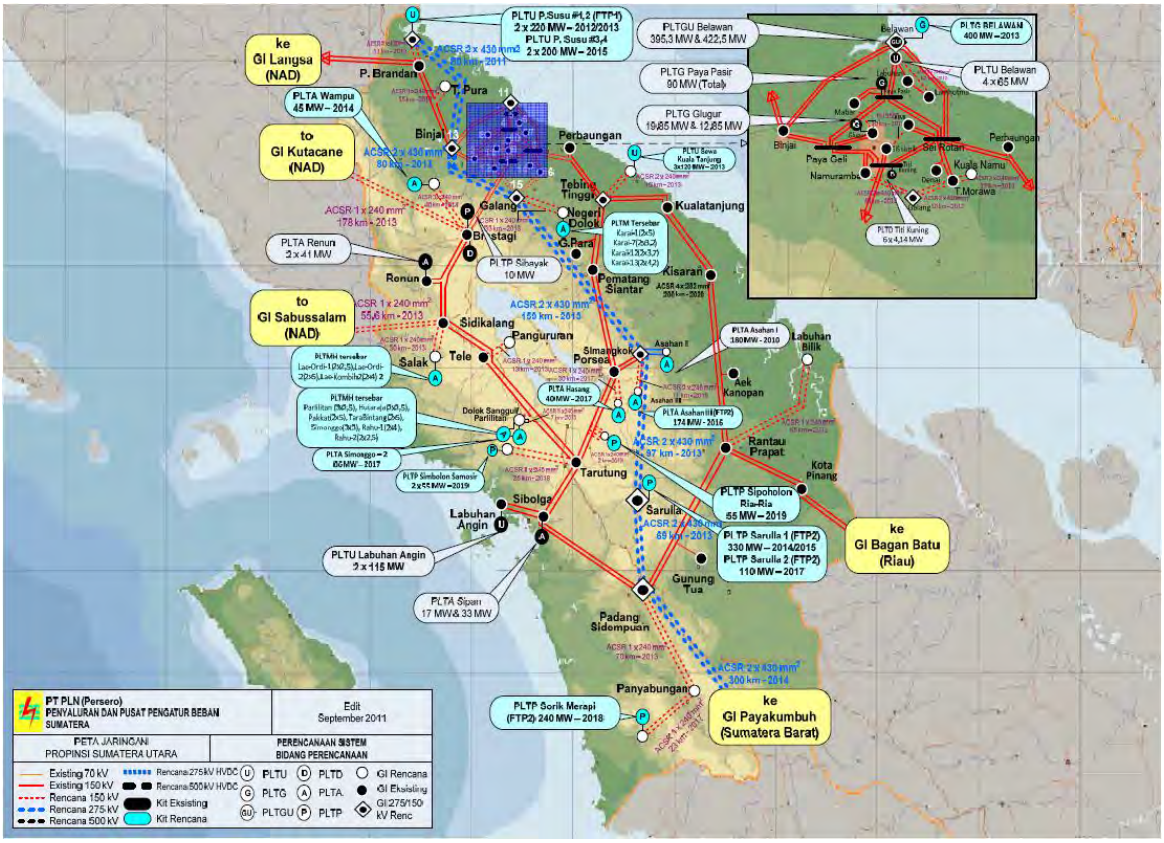
Exhibit 5: The Sumatra Interconnected System



3.3.1 North Sumatra

Electricity supply in North Sumatra is delivered principally from the 150 kV Sumatra interconnected system, though there are four isolated systems supplying islands within the province. Large generators are connected directly to the 150 kV system, while several mini-hydro generators (each 10 MW or less as well as the 10 MW Sibayak geothermal plant) are connected to the 20 kV network. Peak demand in 2010 was 1,339 MW. In 2011 sales were expected to reach 7,257 GWh, and the number of customers 2,676,942. Over the period 2011 to 2020, sales are expected to increase 9.2% annually, while peak demand and customers are forecast to increase by 8.9% and 3.9%, respectively. In some areas 20 kV lines are run up to 200 km, resulting in poor supply to the served areas. The existing and planned systems are shown in Exhibit 6.

Exhibit 6: The Existing and Planned North Sumatra System



PLN plans to meet this growth and improve service to remote areas served by long 20 kV lines by a mix of large and small capacity additions. Exhibit 7 shows the planned large scale additions, totaling 3,396 MW over the period 2011-2020.

Exhibit 7: Generation Expansion Plan for North Sumatra

No	Proyek	Jenis	Pemilik	Kapasitas (MW)	COD
1	Pangkalan Susu #1,2 (FTP1)	PLTU	PLN	440	2012-13
2	Belawan	PLTG	PLN	400	2013
3	Sumbagut	PLTU	Sewa	360	2013
4	PLTM Tersebar Sumut	PLTM	Swasta	154	2013-15
5	Wampu	PLTA	Swasta	45	2014
6	Nias	PLTGB	PLN	8	2014
7	Sarulla I (FTP2)	PLTP	Swasta	330	2014-15
8	Nias (FTP2)	PLTU	Swasta	21	2014-15
9	Pangkalan Susu #3,4 (FTP2)	PLTU	PLN	400	2015
10	Asahan III (FTP2)	PLTA	PLN	174	2016
11	Hasang	PLTA	Swasta	38	2017
12	Sarulla II (FTP2)	PLTP	Swasta	110	2017
13	Simonggo-2	PLTA	PLN	86	2017
14	Sorik Marapi (FTP2)	PLTP	Swasta	240	2018
15	Simbolon Samosir	PLTP	Swasta	110	2019
16	Sipoholon Ria-Ria	PLTP	Swasta	55	2019
17	Pembangkit Peaker	PLTG	PLN	200	2020
18	Sumut-2	PLTU	Sewa	225	2020
	Jumlah			3396	

In addition, PLN has identified a number of small hydro sites (Exhibit 8) along with their expected commissioning dates. As discussed in Section 4.3, given the current regulatory arrangements under Permen 4/2012, which mandate PLN to purchase power from renewable sources of 10 MW or less at the specified feed-in tariff, greater development is expected than shown in Exhibit 8.

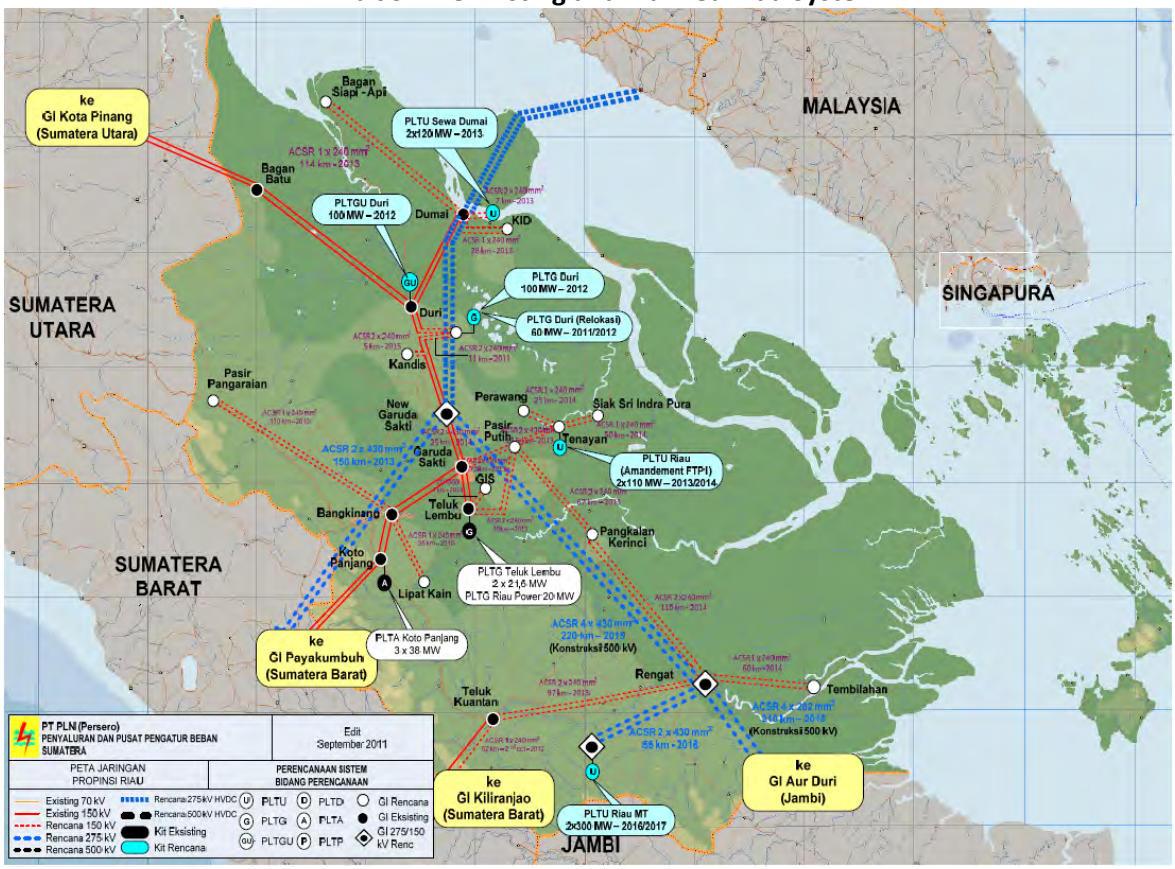
Exhibit 8: Small-Scale Hydro Potential in North Sumatra as Noted in RUPTL

NO	NAMA PEMBANGKIT	DAYA (MW)	LOKASI	COD
I	**IPP**			
1	Parluasan	4,2	Tobasa	2012
2	Huta Raja	5,0	Humbahas	2012
3	Pakkat 1	10,0	Humbahas	2012
4	Lau Gunung	10,0	Dairi	2013
5	Lae Ordi	10,0	Pakpak Barat	2013
6	Lae Kombih 3	8,0	Pakpak Barat	2013
7	Batang Toru	7,5	Taput	2013
8	Karai 1	10,0	Simalungun	2013
9	Karai 7	6,7	Simalungun	2013
10	Karai 12	6,0	Simalungun	2013
11	Karai 13	8,3	Simalungun	2013
12	Lae Ordi 2	10,0	Pakpak Barat	2013
13	Tara Bintang	10,0	Humbahas	2013
14	Raisan Huta Dolok	7,0	Tapteng	2014
15	Raisan Naga Timbul	7,0	Tapteng	2014
16	Sei Wampu 1	9,0	Langkat	2014
17	Rahu 1	9,2	Humbahas	2014
18	Rahu 2	5,0	Humbahas	2014
19	Sidikalang 1	8,6	Dairi	2014
20	Sidikalang 1	8,6	Dairi	2014
21	Sidikalang 2	7,4	Dairi	2014
22	Simbelin 1	6,0	Dairi	2014
23	Simonggo	7,0	Humbahas	2015
24	Sei Wampu 2	9,0	Langkat	2015
25	Lae Kombih 4	10,0	Pakpak Barat	2015
26	Aek Sisiran	7,0	Humbahas	2015
27	Aek Rambe	3,0	Humbahas	2015
28	Batang Toru 3	10,0	Taput	2015
29	Batang Toru 4	10,0	Taput	2015
	Total IPP	**78,0**		
II	**EXCESS POWER**			
1	PT.Evergreen Paper Int	2,0	Deli Serdang	2012
2	PTPN III Sei Mangkei	3,5	Simalungun	2012
3	PT Nubika Jaya	15,0	Labuhan Batu	2012
4	PT Victorindo Alam Lestari	8,0	Padang Lawas	2012
5	PLTU Nias	31,0	Gunung Sitoli	2014
	Total Excess Power	**59,5**		
	Total	**137,5**		

3.3.2 Riau

Electricity in Riau is supplied by both the interconnected Sumatra system and isolated systems. The current and planned interconnected system is shown in Exhibit 9. Peak demand on the interconnected system in 2010 was 379 MW. Because of the prevalence of hydro generation, there is often insufficient capacity during the dry season. There are also a number of isolated systems, which together represent 130.6 MW of nameplate capacity (66.1 MW derated) and serve a peak demand of 61.9 MW. Total sales in 2011 were expected to reach 2,663 GWh, and peak demand 470 MW.

Exhibit 9: The Existing and Planned Riau System



During the period 2011-2020, sales are expected to grow 11.4% annually, and peak demand by 10.3% annually. The number of consumers was expected to reach 801,630 by 2011, and during the period until 2020, to grow by 9.2% annually. To meet this growth, PLN plans to add 1,632 MW over the period 2011-2020, as shown in Exhibit 10. All of this new capacity will be fired by fossil-fuel, mostly coal.

Exhibit 10: Generation Capacity Expansion Plan for Riau

No	Proyek	Jenis	Pemilik	Kapasitas (MW)	COD
1	Duri 1 (Relokasi)	PLTG	PLN	60	2011-12
2	Duri	PLTG	PLN	100	2012
3	Duri	PLTGU	Swasta	100	2012
4	Rengat	PLTG	PLN	20	2012
5	Selat Panjang	PLTGB	PLN	6	2012
6	Bengkalis (FTP1)	PLTU	PLN	20	2013
7	Dumai	PLTU	Sewa	240	2013
8	IPP Kemitraan	PLTU	Swasta	14	2013
9	Tembilahan	PLTU	PLN	14	2013
10	Riau (Amandemen FTP1)	PLTU	PLN	220	2013-14
11	Pembangkit Peaker	PLTG	PLN	200	2014
12	Selat Panjang Baru #1,2	PLTU	Swasta	14	2014
13	Bengkalis PLTGB	PLTGB	PLN	24	2015/17/19
14	Riau Mulut Tambang	PLTU	Swasta	600	2016-17
	Jumlah			1632	

3.3.3 Aceh

Although Aceh is interconnected with the 150 kV Sumatra system, 29% of its electricity is still supplied by isolated diesel sets operating on local 20 kV networks. This current situation is shown in Exhibit 11. Peak demand is approximately 325 MW, of which approximately 240 MW is on the interconnected system and the rest on the isolated systems. Total sales in 2010 amounted to 1,492 GWh.

Over the period 2011-2020, sales are expected to increase at an annual rate of 12.9%, and peak demand at a rate of 11.0%. To meet this increasing demand and reduce costs, isolated systems will be interconnected to the main Sumatra system as shown in Exhibit 12, and new capacity will be added, as shown in Exhibit 13. The interconnection will entail installation of 2,600 MVa of 150/20 kV transformers and 2,097 km of transmission line.

Of the new capacity, there will be two mini-hydro plants scheduled for commissioning in 2013 as IPPs totaling 11.5 MW. In addition, between 2016 and 2019 PLN and IPP hydro plants totaling 171 MW will be added along with three private geothermal power plants totaling 72 MW. Outside the main interconnected system, two geothermal plants are planned for Sabang on Weh Island, totaling 17 MW.

Exhibit 11: Current System Configuration in Aceh

Exhibit 12: Planned System Configuration for Aceh

Exhibit 13: Generation Expansion Plan for Aceh

No	Proyek	Jenis	Pemilik	Kapasitas (MW)	COD
1	Meulaboh #1,2 (FTP1)	PLTU	PLN	220	2012
2	Tapaktuan	PLTU	PLN	14	2012
3	Aceh	PLTG	Swasta	66	2012-13
4	Aie Tajun / Sinabang	PLTGB	PLN	6	2013
5	Lhokseumawe	PLTG	PLN	120	2013
6	Sabang (FTP2)	PLTGB	PLN	8	2013
7	Singkil	PLTGB	PLN	8	2013
8	Meulaboh	PLTM	Swasta	10	2013
9	Takengon	PLTM	Swasta	1.5	2013
10	Aceh Timur	PLTG	PLN	70	2014
11	Meulaboh #3,4	PLTU	PLN	400	2015-16
12	Peusangan 1-2	PLTA	PLN	88	2016
13	Lho Pria Laot	PLTP	Swasta	7	2017
14	Seulawah (FTP2)	PLTP	Swasta	55	2017
15	Peusangan-4	PLTA	Swasta	83	2018
16	Jaboi (FTP2)	PLTP	Swasta	10	2019
	Jumlah			1167	

3.3.4 Total PLN Renewable Power Expansion Plan

The 2011 RUPTL summarizes the generation capacity expansion plan for all of Indonesia, distinguishing between PLN and IPP projects. Exhibit 14 shows projects that will be commissioned on the large interconnected systems and are included in the first and second fast-track programs. Exhibit 15 shows only the small-scale projects planned by PLN, regardless of whether they are already included in either fast-track programs or are connected to an interconnected system. Based on this information, hydro and geothermal will account for 17% of new capacity added to interconnected systems over the period 2011-2020. Looking only at small systems, PLN plans to add nearly 3,000 MW of small-scale renewable energy capacity over this same period from both PLN itself and private developers. Of this, some 1,874 MW will be biomass and mini-hydro systems (see Exhibit 15).

Exhibit 14: Fast-Track Capacity Additions on Interconnected Systems, All Indonesia

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
PLN total, of which	4,477	5,372	4,283	2,357	2,254	1,992	1,780	1,718	3,019	4,102	31,353
Mini hydro	4	17	30	49	7	3	5	5	2	2	123
Hydro	8	20	-	4	242	558	541	279	294	-	1,945
Pump. Stor.	-	-	-	-	-	1,040	-	-	450	950	2,440
Geotherm.	24	63	55	13	235	83	20	20	20	220	752
IPP total, of which	1,106	1,505	688	1,917	3,690	5,172	4,656	2,463	2,015	780	23,992
Mini hydro	16	22	204	90	44	1	1	-	-	-	378
Hydro	10	200	8	45	70	246	40	83	-	135	837

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Geotherm.	-	-	60	245	855	343	937	1,270	1,590	195	5,495
Total Addn., of which	5,583	6,877	4,971	4,274	5,944	7,164	6,436	4,181	5,034	4,882	55,345
Mini hydro	20	38	234	139	51	4	6	5	2	2	501
Hydro	18	221	8	49	312	804	581	362	294	135	2,782
Geotherm.	24	63	115	258	1,090	426	957	1,290	1,610	415	6,247

Exhibit 15: Total Planned Small-Scale NRE Capacity Additions, All Indonesia

No	Type of New &	Units	YEAR										
			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	TOTAL
1	PLTMH (mini-	MW	23	37	198	126	46	193	203	214	225	235	1500
2	PLT Surya (solar)	MWp *	2	30	50	60	70	70	75	75	80	80	592
3	PLT Bayu (wind)	MW	0	0	10	10	15	15	20	20	25	25	140
4	PLT	MW	16	33	35	35	35	40	40	45	45	50	374
5	PLT Kelautan	MW	0	0	2	0	0	5	5	5	5	5	27
6	PLT Bio-	MW*	-	10	15	15	14	8	7	7	8	9	93
7	PLT Gas-Batubara	MW	6	32	81	43	22	7	22	14	6	10	243
Total		**MW**	47	142	391	289	202	338	372	380	394	414	**2,969**

* For solar energy, the values indicated through 2014 are for the 1,000 Island Program; subsequent years are indicative only.

** For biofuel, the equivalent capacity is given for existing capacity that will be converted to biofuel.

3.4 Cost of Service, Tariffs, and Subsidies

3.4.1 Legal Basis for Electricity Subsidies

The Government of Indonesia subsidizes electricity out of the state budget. The subsidy is administered as payments to PLN calculated on the basis the difference of the PLN's production cost and the average tariff. The legal basis for this subsidy is found in Law 19/2003 Art. 66(1), which states that:

> The Government may give special assignments to a State-Owned Entity (BUMN) to perform functions of public benefit with due regard to the objectives and purposes of the activities of the State-Owned Entity (BUMN).

The elucidation of this article in the law goes on to say:

> Notwithstanding that a State-Owned Entity (BUMN) is established with the objectives and purposes to make a profit, in case of urgency, this does not preclude the State-Owned Entity (BUMN) to be assigned a special duty by the Government. If upon a study that the assignment is financially unfeasible, the Government must give compensation for all costs incurred by the State-Owned Entity (BUMN), including the expected margin.

To implement this legal requirement, the Ministry of Finance issued Ministerial Regulation PMK 111/PMK.02/2007, which determines the annual subsidy for each tariff class as follows:

S = - (HJTL - BPP (1 + m) x V where:

S = power subsidy

HJTL = *harga jual tenaga listrik*, or sales price of electricity (Rp / kWh) for the tariff class. This is the average price per unit energy taking into account the fixed plus variable charges (including block rates) that may apply to each tariff class

BPP = *biaya pokok penyediaan* or cost of supply (Rp / kWh) at the voltage for that tariff class. Only certain costs are allowed as discussed below.

m = margin (%), specified in the annual state budget or budget amendment. The current margin is 8%.

V = volume of sales of electricity (kWh) for the tariff class.

BPP is a financial (not economic) cost based on PLN's accounts. Under PMK 111/2007, the calculation of BPP excludes:

1. Electricity supply costs arising in regions that are not subject to the national electricity tariff
2. Costs associated with business units or activities that are not directly involved in the generation and supply of electricity, such as PLN's research, engineering and training units
3. Indirect personnel costs such as staff quarters and staff insurance.

Costs specifically included in the calculation of BPP comprise:

1. Electric power purchases (including all purchases of renewable energy)
2. Fuel and lubricants
3. Maintenance costs
4. Personnel costs (except as noted above)
5. Administrative expenses
6. Depreciation of fixed operational assets
7. Financing costs.

3.4.2 Process for Calculating and Administering the PLN subsidy

The calculation and administration of the subsidy follows this process:

1. **Proposal**. In July of each year, PLN prepares a subsidy proposal for the following year to the Directorate General of Electricity (DGE) based on its investment plan, and expected

operations and sales forecast for the coming year.

2. **DPR approval**. After the DGE reviews the proposal, the proposal (with any updates or revisions) is then forwarded to the Ministry of Energy and Mineral Resources (MEMR), which in turn submits it to the Ministry of Finance for inclusion in the state budget to be considered and approved by the legislature, the DPR (*Dewan Perwakilan Rakyat*).

3. **Government budgeting**. Once the DPR approves the state budget (APBN, *Anggaran Pendapatan dan Belanja Negara*), the budget is executed by the Directorate General of Budget (DGB) in the Ministry of Finance.

4. **Monthly payments**. Each month PLN submits supporting documents regarding actual sales and budgeted costs to the DGB, and requests payment. DGB pays 95% of the difference between actual sales and budgeted costs. There is typically a lag of two months (e.g., PLN receives payment in March for its January payment request).

5. **Quarterly reconciliation payments**. At the end of each quarter, PLN submits an unaudited report of its actual costs to DGB, which then pays the remaining balance between actual costs and actual revenues for the quarter.

6. **Budget amendment**. Typically after the middle of each year, the DPR will amend the APBN to reflect actual expenditure and income. This amendment may include revision of the budget for the PLN subsidy for the year based on actual costs and revenue to date and the outlook for costs and revenue for the rest of the year.

7. **Year-end reconciliation payments**. After PLN closes its annual books, the State Auditor (BPK, *Badan Pemeriksa Keuangan*) audits the allowable costs and revenues that PLN has claimed or recognized for the year. A final reconciliation payment is then made for the year based on this audit. Typically this payment is expected to be made by September, but can occur sooner. For example, BPK completed the audit of the 2008 subsidy in April 2009.

3.4.3 Determination of the Subsidies by Region for 2010

The costs used for the calculation of the BPP are taken from the PLN consolidated income statement. Because PMK 111/2007 excludes certain expenses from the calculation, and some allowable expenses must be allocated across business units, PLN classifies costs according to six different types of organizational units as follows:

1. *Operating units that provide electricity supply service directly to the public and are responsible for generation-transmission-distribution-sales.* These are the regional (*wilayah*) PLN business units. Their respective costs are fuel, power purchases, O&M, personnel, administration, depreciation and interest expense associated with their respective assets and operation.

2. *Distribution-sales units on the Java-Bali System.* Their respective costs are power purchases, O&M, personnel, administration, depreciation and interest expense associated

with their respective assets and operation.

3. *Generating units that sell output to PLN distribution or regional units*, e.g. Indonesia Power is a separate generation entity, a wholly owned subsidiary of PLN that produces and sells power to PLN's Java - Bali distribution units. This category also includes IPPs selling capacity and energy to PLN's system. Their respective costs are fuel, O&M, personnel, administration, depreciation and interest expenses associated with their respective assets.

4. *Operational support units within PLN other than generation or retail units that are necessary or directly involved in the power supply business.* This includes Load Dispatching Centers and the PLN Head Office. Their respective costs include O&M, personnel, administration, depreciation and interest expenses associated with their respective assets.

5. *Supporting units like the PLN laboratory, training centers, etc., and other staff benefit costs such as maintenance of official residential housing.*

6. *Independent subsidiary power supply entities that are not subject to the national uniform tariff, like PLN Batam and PLN Tarakan.*

Applying this classification, subsidies are calculated on a national and regional basis as follows:

- Sales are compiled for each sales region in terms of kWh and rupiah, as shown in Exhibit 16.

- Costs for each sales unit are calculated as follows:

  - Base operating costs for each unit are those reported under items 1. and 2. above. These are the operating units that provide electricity supply services to end users, e.g. regional units (*wilayah*) and distribution units (*distribusi*) in Java-Bali.

  - The costs associated with items 3. and 4. above are then allocated to the units listed under items 1. and 2., according to the system these systems are connected to, and the proportion of sales on that system each unit is responsible for. This allocation covers both operating and financial costs (e.g. interest costs) associated with items 3. and 4.[5]

  - Per PMK 111/2007, items 5. and 6. are excluded from the determination of PLN costs for the purpose of determining subsidies.

[5] Some regions may show a very small interest expense (borrowing costs). This means that the region has either repaid most or all of the debts for its assets, or that most of its assets were financed principally through equity, as is often the case for the eastern parts of Indonesia where diesel plants were mostly financed through government-to-government loans to Indonesia and such financing as in turn provided to PLN as equity.

Exhibit 16: Sales and Revenue by PLN Unit Conducting Retail Activities, 2010

	UNIT	JML PELANGGAN	DAYA TERSAMBUNG (VA)	PEMAKAIAN / MUTASI BULAN INI				RUPIAH PENJUALAN				HJTL Rp/kWh
				KWH TERJUAL			PEMAKAIAN KVARH	BIAYA BEBAN	BIAYA PEMAKAIAN		JUMLAH	
				JUMLAH	LWBP	WBP			Rp. KWH	Rp. KVARH		
	1	2	3	4=5+6	5	6	7	8	9	10	11=8+9+10	
1	ACEH	987,027	864,577,038	1,491,936,028	1,481,295,459	10,640,569	3,592,258	147,937,077,080.00	781,005,938,640.00	794,222,355.00	929,737,238,075.00	623.18
2	SUMUT	2,551,931	3,219,330,503	6,636,453,365	6,365,924,716	270,528,649	18,255,697	588,702,435,460.00	3,789,845,990,617.93	12,502,950,960.00	4,391,051,377,037.93	661.66
3	SUMBAR	899,597	1,008,719,700	2,187,294,329	2,067,130,037	120,164,292	5,907,985	193,787,967,064.00	1,180,912,462,412.00	3,136,674,515.00	1,377,837,103,991.00	629.93
4	RIAU	702,285	1,102,468,213	2,509,892,876	2,454,116,408	55,776,468	3,730,260	204,961,193,950.00	1,569,605,306,165.00	2,757,233,390.00	1,777,323,733,505.00	708.13
5	S2JB	1,570,008	2,012,496,961	4,154,916,241	4,023,859,276	131,056,965	8,303,019	352,215,566,603.00	2,431,939,033,853.00	4,604,385,625.00	2,788,758,986,081.00	671.19
6	BABEL	150,812	182,145,746	436,761,747	431,900,266	4,861,481	2,927,051	31,973,347,642.00	257,512,185,568.00	1,194,242,871.00	290,679,776,081.00	665.53
7	LAMPUNG	1,037,981	1,226,600,935	2,259,448,997	2,172,501,389	86,947,608	7,471,060	229,848,352,965.00	1,277,150,142,012.00	2,839,981,118.00	1,509,838,476,095.00	668.23
8	KALBAR	577,830	613,955,595	1,288,968,666	1,268,614,744	20,353,922	4,959,320	99,222,293,973.00	736,587,592,027.92	3,264,995,660.00	839,074,881,660.92	650.97
IND. BARAT		**8,477,471**	**10,230,294,691**	**20,965,672,249**	**20,265,342,295**	**700,329,954**	**55,146,650**	**1,848,648,234,737**	**12,024,558,651,296**	**31,094,686,494**	**13,904,301,572,527**	**663.19**
10	KALSELTENG	993,504	1,000,291,501	1,902,005,883	1,887,793,677	14,212,206	5,366,163	168,358,285,870	1,090,867,717,201	2,465,960,035	1,261,691,963,106	663.35
11	KALTIM	480,964	790,151,105	1,939,974,223	1,885,050,867	54,923,356	6,800,289	159,961,536,860	1,250,205,260,085	3,777,743,020	1,413,944,539,965	728.85
12	SULUTTENGGO	844,879	864,848,432	1,571,286,266	1,544,971,926	26,314,340	6,577,486	147,548,003,717	923,587,613,333	4,511,467,705	1,075,647,084,755	684.56
13	SULSELRABAR	1,592,101	1,888,215,665	3,505,496,237	3,388,230,045	117,266,192	26,952,828	369,207,996,382	1,968,184,004,785	14,303,577,060	2,351,695,578,227	670.86
14	MALUKU	316,431	301,286,650	462,595,487	459,586,975	3,008,512	2,112,732	44,882,260,500	285,414,392,002	1,218,446,760	331,515,099,262	716.64
15	PAPUA	249,195	392,195,995	745,445,387	738,423,675	7,021,712	4,942,711	63,616,962,292	516,707,258,466	2,759,612,455	583,078,630,413	782.19
16	NTB	389,798	372,939,485	745,151,177	737,117,601	8,033,576	962,287	62,397,471,151	432,949,189,933	642,786,385	495,989,447,469	665.62
17	NTT	274,442	301,937,066	429,365,742	427,652,512	1,713,230	1,035,899	53,574,815,272	257,155,090,138	561,040,225	311,290,945,635	725.00
IND. TIMUR		**5,141,314**	**5,911,865,899**	**11,301,320,402**	**11,068,827,278**	**232,493,124**	**54,750,395**	**1,069,547,332,044**	**6,725,070,525,942**	**30,240,633,645**	**7,824,853,288,831**	**692.38**
19	DISBALI	783,825	1,605,857,976	3,090,928,979	2,955,746,085	135,182,894	5,946,044	240,504,866,803	2,347,959,156,511	2,748,009,235	2,591,212,032,549	838.33
20	DISJATIM	7,459,745	10,891,304,975	22,469,536,809	20,880,510,632	1,589,026,177	76,969,786	1,877,055,481,096	13,450,360,731,643	50,085,019,012	15,377,501,231,751	684.37
21	DISJATENG	7,567,539	7,963,479,945	16,202,937,557	15,314,596,088	888,341,469	33,080,656	1,248,000,707,520	9,268,529,184,607	22,427,796,570	10,538,957,688,697	650.43
22	DISJABAR	9,032,550	14,837,151,556	38,671,248,689	35,207,948,924	3,463,299,765	182,003,359	2,950,337,868,490	21,765,790,260,702	52,756,769,101	24,768,884,898,293	640.50
23	DISJAYA	3,720,664	15,046,792,175	32,965,991,561	30,400,643,069	2,565,348,492	141,221,042	3,070,659,130,341	22,244,693,219,575	99,527,534,770	25,414,879,884,686	770.94
JAWA BALI		**28,564,323**	**50,344,586,627**	**113,400,643,595**	**104,759,444,798**	**8,641,198,797**	**439,220,887**	**9,386,558,054,250**	**69,077,332,553,036**	**227,545,128,688**	**78,691,435,735,975**	**693.92**
25	BATAM	217,066	870,768,850	1,452,919,023	1,308,060,136	144,858,887	36,086,782	325,514,443,181	1,282,700,431,177	9,099,539,175	1,617,314,413,533	1113.15
26	TARAKAN	35,213	81,773,580	176,911,865	173,980,465	2,931,400	681,779	26,039,959,685	144,474,316,450	566,501,003	171,080,777,138	967.04
ANAK PERUSAHAAN		**252,279**	**952,542,430**	**1,629,830,888**	**1,482,040,601**	**147,790,287**	**36,768,561**	**351,554,402,866**	**1,427,174,747,627**	**9,666,040,178**	**1,788,395,190,671**	**1097.29**
HOLDING		**42,183,108**	**66,486,747,217**	**145,667,636,246**	**136,093,614,371**	**9,574,021,875**	**549,117,932**	**12,304,753,621,031**	**87,826,961,730,274**	**288,880,448,827**	**100,420,590,597,333**	**689.38**
SE-INDONESIA		**42,435,387**	**67,439,289,647**	**147,297,467,134**	**137,575,654,972**	**9,721,812,162**	**585,886,493**	**12,656,308,023,897**	**89,254,136,477,901**	**298,546,489,005**	**102,208,985,788,003**	**693.90**

Exhibit 17: Calculation of Allowable Costs by PLN Retailing Unit, 2010

	DKI	JABAR	JATENG	JATIM	BALI	JAWA BALI
OPERATING EXPENSES	28,153,063,579,953	32,313,004,860,425	14,911,371,634,851	19,984,168,103,575	2,946,714,023,687	98,308,322,202,490
BORROWING COSTS	92,052,189,888	147,371,552,921	85,539,240,037	83,170,383,909	25,402,406,954	433,535,773,709
	28,245,115,769,841	**32,460,376,413,346**	**14,996,910,874,888**	**20,067,338,487,484**	**2,972,116,430,641**	**98,741,857,976,199**
NON-ALLOWABLE COSTS	(119,380,521,742)	(148,016,925,671)	(81,143,538,621)	(99,709,007,091)	(23,438,225,210)	(471,688,218,335)
	28,125,735,248,099	32,312,359,487,675	14,915,767,336,267	19,967,629,480,393	2,948,678,205,430	98,270,169,757,863
BPK ADJUSTMENTS	(90,219,622,578)	(29,785,024,317)	(30,256,905,133)	(47,443,683,901)	(4,964,620,900)	(202,669,856,829)
BPP after BPK adjustments	28,035,515,625,521	32,282,574,463,358	14,885,510,431,134	19,920,185,796,492	2,943,713,584,530	98,067,499,901,034
BPP + MARGIN 8 %	**30,278,356,875,562**	**34,865,180,420,427**	**16,076,351,265,624**	**21,513,800,660,211**	**3,179,210,671,293**	**105,912,899,893,117**
						-
KWH SALES	32,965,991,561	38,671,248,689	16,202,937,557	22,469,536,809	3,090,928,979	113,400,643,595
BPP/KWH	**918**	**902**	**992**	**957**	**1,029**	**934**
AVERAGE PRICE	771	640	650	684	838	693
SUBSIDY / KWH	**148**	**262**	**342**	**274**	**190**	**241**
TOTAL SUBSIDY ALLOCATION	**4,863,476,990,877**	**10,116,307,909,833**	**5,543,021,140,260**	**6,149,393,430,938**	**587,998,638,745**	**27,260,198,110,652**
kWh sales by tariff group						
Households	11,506,585,397	12,619,405,889	7,848,041,220	8,433,934,244	1,316,032,558	41,723,999,308
Commercial	9,785,087,126	3,166,058,082	1,882,692,130	2,856,311,464	1,465,514,394	19,155,663,196
Industry	9,104,078,629	21,490,682,199	5,088,431,819	9,838,656,903	116,018,660	45,637,868,210
Other	2,570,240,409	1,395,102,519	1,383,772,388	1,340,634,198	193,363,367	6,883,112,881
	32,965,991,561	**38,671,248,689**	**16,202,937,557**	**22,469,536,809**	**3,090,928,979**	**113,400,643,595**
Subsidy by tarff group						
Households	1,697,568,029,110	3,301,206,967,454	2,684,813,061,771	2,308,173,073,521	250,353,650,280	10,242,114,782,135
Commercial	1,443,595,166,945	828,233,364,676	644,068,536,367	781,706,499,014	278,790,122,513	3,976,393,689,516
Industry	1,343,125,895,465	5,621,912,032,525	1,740,751,332,545	2,692,613,231,988	22,070,650,802	11,420,473,143,325
Other	379,187,899,356	364,955,545,177	473,388,209,577	366,900,626,415	36,784,215,151	1,621,216,495,675
Calculated subsidy allocation	**4,863,476,990,877**	**10,116,307,909,833**	**5,543,021,140,260**	**6,149,393,430,938**	**587,998,638,745**	**27,260,198,110,652**
Adjustment to actual subsidy	118,777,611,443	247,064,166,728	135,373,686,861	150,182,732,419	14,360,317,520	665,758,514,971
FINAL SUBSIDY ALLOCATION	**4,744,699,379,434**	**9,869,243,743,105**	**5,407,647,453,399**	**5,999,210,698,518**	**573,638,321,224**	**26,594,439,595,681**

Exhibit 17: Calculation of Allowable Costs by PLN Retailing Unit, 2010 (continued)

	NAD	SUMUT	SUMBAR	S2JB	RIAU	LAMPUNG	BABEL	KALBAR	INDO BARAT
OPERATING EXPENSES	3,367,129,479,103	11,646,017,953,698	1,899,154,743,491	3,214,125,872,610	3,226,030,456,099	1,790,899,308,820	1,040,087,576,396	3,172,089,312,266	29,355,534,702,483
BORROWING COSTS	22,798,865,050	21,118,001,353	10,633,942,515	2,367,938,444	(13,513,525,364)	8,672,374,964	11,758,424,567	12,100,200,679	75,936,222,208
	3,389,928,344,153	**11,667,135,955,051**	**1,909,788,686,006**	**3,216,493,811,054**	**3,212,516,930,735**	**1,799,571,683,784**	**1,051,846,000,963**	**3,184,189,512,945**	29,431,470,924,691
NON-ALLOWABLE COSTS	(20,791,256,276)	(58,100,025,397)	(22,884,615,155)	(36,692,579,701)	(18,704,007,097)	(11,762,490,579)	(7,265,848,497)	(18,235,093,837)	(194,435,916,540)
	3,369,137,087,876	11,609,035,929,654	1,886,904,070,851	3,179,801,231,353	3,193,812,923,638	1,787,809,193,205	1,044,580,152,466	3,165,954,419,108	29,237,035,008,151
BPK ADJUSTMENTS	-	(16,779,529,942)	-	(13,232,412,434)	-	-	-	-	(30,011,942,376)
BPP after BPK adjustments	3,369,137,087,876	11,592,256,399,712	1,886,904,070,851	3,166,568,818,919	3,193,812,923,638	1,787,809,193,205	1,044,580,152,466	3,165,954,419,108	29,207,023,065,775
BPP + MARGIN 8 %	**3,638,668,054,906**	**12,519,636,911,689**	**2,037,856,396,519**	**3,419,894,324,433**	**3,449,317,957,529**	**1,930,833,928,662**	**1,128,146,564,663**	**3,419,230,772,637**	31,543,584,911,037
KWH SALES	1,491,936,028	6,636,453,365	2,187,294,329	4,154,916,241	2,509,892,876	2,259,448,997	436,761,747	1,288,968,666	20,965,672,249
BPP/KWH	**2,439**	**1,886**	**932**	**823**	**1,374**	**855**	**2,583**	**2,653**	**1,505**
AVERAGE PRICE	623	662	630	671	708	668	666	651	663
SUBSIDY / KWH	**1,816**	**1,225**	**302**	**152**	**666**	**186**	**1,917**	**2,002**	**841**
TOTAL SUBSIDY ALLOCATION	**2,708,930,816,831**	**8,128,585,534,651**	**660,019,292,528**	**631,135,338,352**	**1,672,801,237,395**	**420,926,896,763**	**837,466,789,248**	**2,580,503,546,449**	**17,639,215,301,927**
kWh sales by tariff group									
Households	958,954,940	3,073,724,662	997,273,815	2,384,006,942	1,433,307,085	1,252,620,491	309,782,599	815,499,414	11,225,169,948
Commercial	270,842,614	1,101,400,083	294,037,842	835,993,422	668,476,585	272,101,253	63,959,361	292,895,224	3,799,706,384
Industry	45,045,920	1,845,338,307	720,504,908	608,336,410	126,121,878	353,116,616	29,162,429	70,201,021	3,797,827,489
Other	217,092,554	615,990,313	175,477,764	326,579,467	281,987,328	381,610,637	33,857,359	110,373,005	2,142,968,427
	1,491,936,028	**6,636,453,365**	**2,187,294,329**	**4,154,916,241**	**2,509,892,876**	**2,259,448,997**	**436,761,748**	**1,288,968,664**	**20,965,672,248**
Subsidy by tarff group									
Households	1,741,188,992,132	3,764,817,207,456	300,928,845,792	362,132,697,917	955,274,979,292	233,358,512,097	593,991,209,925	1,632,622,410,043	9,444,161,253,677
Commercial	491,773,031,689	1,349,037,549,145	88,726,352,864	126,988,117,365	445,528,360,904	50,691,445,650	122,638,580,569	586,373,574,631	3,196,837,105,964
Industry	81,790,558,422	2,260,241,946,086	217,413,419,555	92,406,822,108	84,058,102,877	65,784,304,742	55,917,364,442	140,541,805,579	3,195,256,320,066
Other	394,178,234,588	754,488,831,963	52,950,674,317	49,607,700,962	187,939,794,450	71,092,634,274	64,919,636,229	220,965,752,192	1,802,960,621,541
Calculated subsidy allocation	**2,708,930,816,831**	**8,128,585,534,651**	**660,019,292,528**	**631,135,338,352**	**1,672,801,237,523**	**420,926,896,763**	**837,466,791,165**	**2,580,503,542,445**	**17,639,215,301,248**
Adjustment to actual subsidy	66,158,497,838	198,519,284,871	16,119,232,232	15,413,817,754	40,853,762,809	10,280,030,415	20,452,919,856	63,022,000,035	430,791,358,762
FINAL SUBSIDY ALLOCATION	**2,642,772,318,993**	**7,930,066,249,780**	**643,900,060,296**	**615,721,520,598**	**1,631,947,474,715**	**410,646,866,348**	**817,013,871,309**	**2,517,481,542,410**	**17,208,423,942,487**

Exhibit 17: Calculation of Allowable Costs by PLN Retailing Unit, 2010 (continued)

	KALSEL	KALTIM	SULUT	SULSEL	MALUKU	PAPUA	NTT	NTB	INDO TIMUR	JUMLAH
OPERATING EXPENSES	3,092,362,150,260	3,511,398,453,707	3,042,776,056,268	4,605,384,355,662	1,531,093,395,480	2,005,105,357,342	1,249,182,967,619	1,945,554,588,790	20,982,857,325,127	148,646,714,230,100
BORROWING COSTS	38,620,143,867	34,781,716,389	19,153,077,960	22,800,100,422	7,445,843,537	6,989,429,586	5,974,397,015	6,857,195,601	142,621,904,377	652,093,900,294
	3,130,982,294,127	**3,546,180,170,096**	**3,061,929,134,228**	**4,628,184,456,084**	**1,538,539,239,017**	**2,012,094,786,928**	**1,255,157,364,634**	**1,952,411,784,391**	**21,125,479,229,504**	149,298,808,130,394
NON-ALLOWABLE COSTS	(34,946,727,039)	(18,090,216,246)	(26,366,804,537)	(50,620,828,847)	(20,348,154,372)	(17,907,623,069)	(10,420,147,405)	(12,069,179,504)	(190,769,681,018)	(856,893,815,894)
	3,096,035,567,088	3,528,089,953,850	3,035,562,329,691	4,577,563,627,237	1,518,191,084,645	1,994,187,163,859	1,244,737,217,229	1,940,342,604,887	20,934,709,548,486	148,441,914,314,500
BPK ADJUSTMENTS	(39,906,537,663)	(25,852,093,052)	(20,941,236,514)	(18,322,575,282)	-	(10,578,208,119)	-	(3,483,094,029)	(119,083,744,659)	(351,765,543,864)
BPP after BPK adjustments	3,056,129,029,425	3,502,237,860,798	3,014,621,093,177	4,559,241,051,955	1,518,191,084,645	1,983,608,955,740	1,244,737,217,229	1,936,859,510,858	20,815,625,803,827	148,090,148,770,636
BPP + MARGIN 8 %	**3,300,619,351,779**	**3,782,416,889,662**	**3,255,790,780,631**	**4,923,980,336,112**	**1,639,646,371,416**	**2,142,297,672,199**	**1,344,316,194,608**	**2,091,808,271,727**	**22,480,875,868,133**	159,937,360,672,287
										-
KWH SALES	1,902,005,883	1,939,974,223	1,571,286,266	3,505,496,237	462,595,487	745,445,387	429,365,742	745,151,177	11,301,320,402	145,667,636,246
BPP/KWH	**1,735**	**1,950**	**2,072**	**1,405**	**3,544**	**2,874**	**3,131**	**2,807**	**1,989**	**1,098**
AVERAGE PRICE	663	728	684	670	717	782	725	666	692	689
SUBSIDY / KWH	**1,072**	**1,222**	**1,388**	**735**	**2,828**	**2,092**	**2,406**	**2,142**	**1,297**	**409**
TOTAL SUBSIDY ALLOCATION	**2,038,927,388,720**	**2,370,881,095,719**	**2,180,507,545,258**	**2,577,004,537,584**	**1,308,131,272,154**	**1,559,219,042,568**	**1,033,186,256,341**	**1,595,818,824,258**	**14,663,675,962,601**	**59,563,089,375,181**
kWh sales by tariff group										
Households	1,220,185,021	1,105,787,756	966,848,357	1,773,210,315	296,859,109	401,938,914	257,904,377	466,167,809	6,488,901,658	59,438,070,914
Commercial	361,171,714	476,234,850	317,092,241	720,057,884	98,645,568	242,268,709	102,509,894	179,651,871	2,497,632,731	25,453,002,311
Industry	144,678,440	142,988,539	95,127,191	664,596,701	6,267,461	7,237,414	3,865,681	18,318,748	1,083,080,176	50,518,775,875
Other	175,970,708	214,963,078	192,218,477	347,631,336	60,823,349	94,000,351	65,085,790	81,012,749	1,231,705,838	10,257,787,146
	1,902,005,883	**1,939,974,223**	**1,571,286,266**	**3,505,496,237**	**462,595,487**	**745,445,388**	**429,365,742**	**745,151,177**	**11,301,320,403**	**145,667,636,247**
Subsidy by tarff group										
Households	1,308,023,640,126	1,351,405,217,397	1,341,716,136,122	1,303,544,696,665	839,460,597,476	840,719,950,230	620,597,387,499	998,346,896,344	8,415,144,895,051	24,285,161,010,574
Commercial	387,171,725,185	582,016,085,369	440,035,682,233	529,338,019,435	278,950,737,711	506,744,009,794	246,670,386,712	384,743,185,549	3,239,059,926,064	10,399,567,984,366
Industry	155,093,544,834	174,749,138,417	132,010,036,760	488,566,696,116	17,723,177,077	15,138,216,594	9,302,019,444	39,231,506,032	1,404,594,658,812	20,640,922,346,585
Other	188,638,478,651	262,710,654,536	266,745,690,143	255,555,125,632	171,996,759,891	196,616,868,041	156,616,462,687	173,497,236,332	1,597,340,142,238	4,191,118,732,995
Calculated subsidy allocation	**2,038,927,388,795**	**2,370,881,095,719**	**2,180,507,545,258**	**2,577,004,537,848**	**1,308,131,272,154**	**1,559,219,044,660**	**1,033,186,256,341**	**1,595,818,824,258**	**14,663,675,965,033**	**59,563,089,376,933**
Adjustment to actual subsidy	49,795,429,402	57,902,524,077	53,253,151,695	62,936,546,067	31,947,659,720	38,079,817,009	25,232,852,121	38,973,670,194	358,121,650,285	**1,454,671,524,018**
FINAL SUBSIDY ALLOCATION	**1,989,131,959,394**	**2,312,978,571,641**	**2,127,254,393,563**	**2,514,067,991,781**	**1,276,183,612,435**	**1,521,139,227,651**	**1,007,953,404,221**	**1,556,845,154,063**	**14,305,554,314,747**	**58,108,417,852,915**

- Audit adjustments made by BPK are recognized, and the 8% margin is applied. By combining this information with the sales data, the total subsidy and subsidy per kWh for each region can be calculated as shown in Exhibit 17.

- Exhibit 18 compares the regional BPP with the regional subsidy per kWh along with the total value of the subsidy. The per kWh subsidy and total subsidies paid by region are shown in Exhibits 19 and 20, respectively.

Exhibit 18: 2010 BPP and Subsidy by Region

No	Unit Administrasi	BPP Rata-rata (Rp/kWh)	Harga jual Rata2 (Rp/kWh)	Subsidi (Rp/kWh)	Subsidi (Rp Miliar)
1	Distribusi Bali	1,029	838	190	574
2	Distribusi Jawa Timur	957	684	274	5,999
3	Distribusi Jawa Tengah	992	650	342	5,408
4	Distribusi Jawa Barat	902	640	262	9,869
5	Distribusi Jaya & Tangerang	918	771	148	4,745
				-	
A	JAWA BALI	934	693	241	26,594
				-	
6	Wilayah Nangroe Aceh Darussalam	1,886	623	1,263	2,643
7	Wilayah Sumatera Utara	1,886	662	1,225	7,930
8	Wilayah Sumatera Barat	932	630	302	644
9	Wilayah Riau	1,374	708	666	1,632
10	Wilayah Sumatera Selatan, Jambi dan Bengkulu	823	671	152	616
11	Wilayah Bangka Belitung	2,583	666	1,917	817
12	Wilayah Lampung	855	668	186	411
13	Wilayah Kalimantan Barat	2,653	651	2,002	2,517
				-	
B	INDONESIA BAGIAN BARAT	1,505	663	841	17,208
				-	
14	Wilayah Kalimantan Selatan dan Tengah	1,735	663	1,072	1,989
15	Wilayah Kalimantan Timur	1,950	728	1,222	2,313
16	Wilayah Sulawesi Utara, Tengah dan Gorontalo	2,072	684	1,388	2,127
17	Wilayah Sulawesi Selatan dan Tenggara	1,405	670	735	2,514
18	Wilayah Maluku	3,544	717	2,828	1,276
19	Wilayah Papua	2,874	782	2,092	1,521
20	Wilayah Nusa Tenggara Barat	2,807	666	2,142	1,557
21	Wilayah Nusa Tenggara Timur	3,131	725	2,406	1,008
				-	
C	INDONESIA BAGIAN TIMUR	1,989	692	1,297	14,306
				-	
D	INDONESIA *)	1,098	689	409	58,108
				-	

Sumber Data :
***) BPP Konsolidasi Hasil Audit BPK**

Exhibit 19: BPP and HTJL by Province, 2010

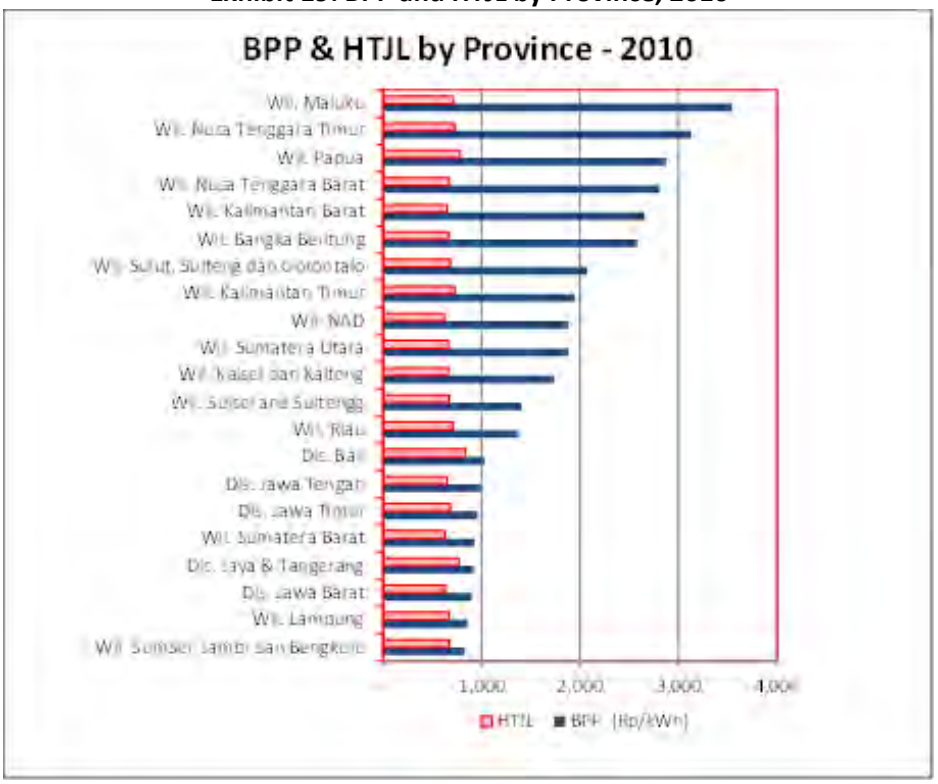


Exhibit 20: Total Subsidy by Province, 2010

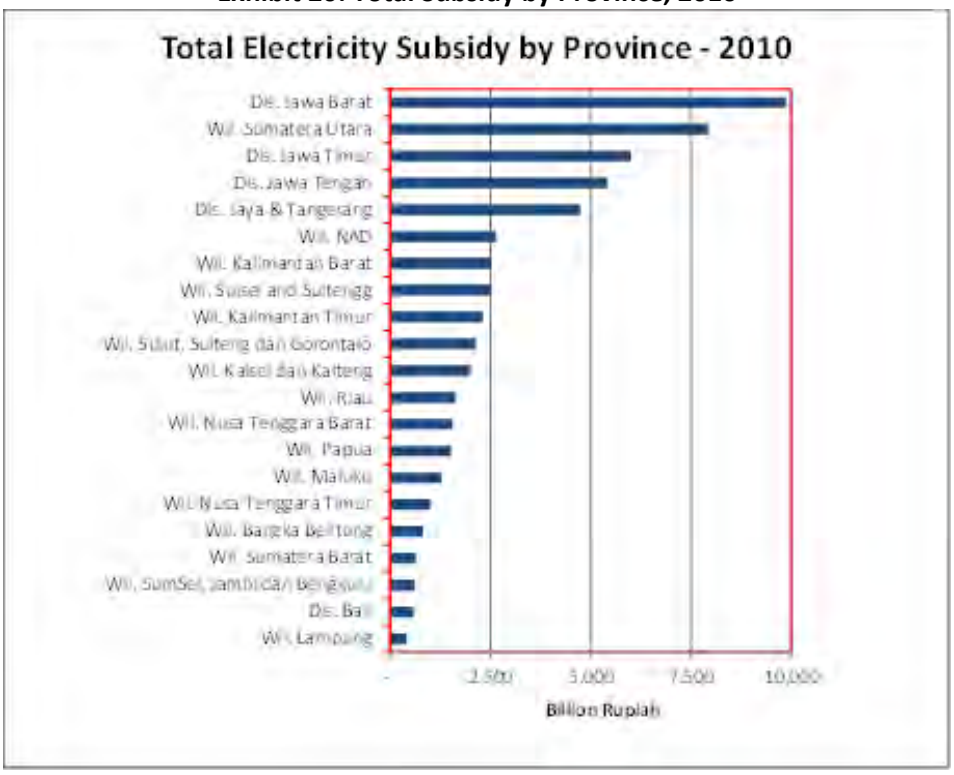


Exhibit 21 shows the portions of the 2012 APBN allocated to fuel and electricity subsidies. A mid-year revision of the 2012 APBN was enacted starting April, 2012. The portion of the national budget allocated for electricity subsidies is likely to change given the high level of fossil fuel prices

that PLN must pa. Meanwhile, the DPR's decision earlier this year not to increase subsidized fuel prices (and thereby reduce the subsidy) will also increase the portion that ultimately must be paid for fuel subsidies.

Exhibit 21: Energy Subsidies in the APBN 2012

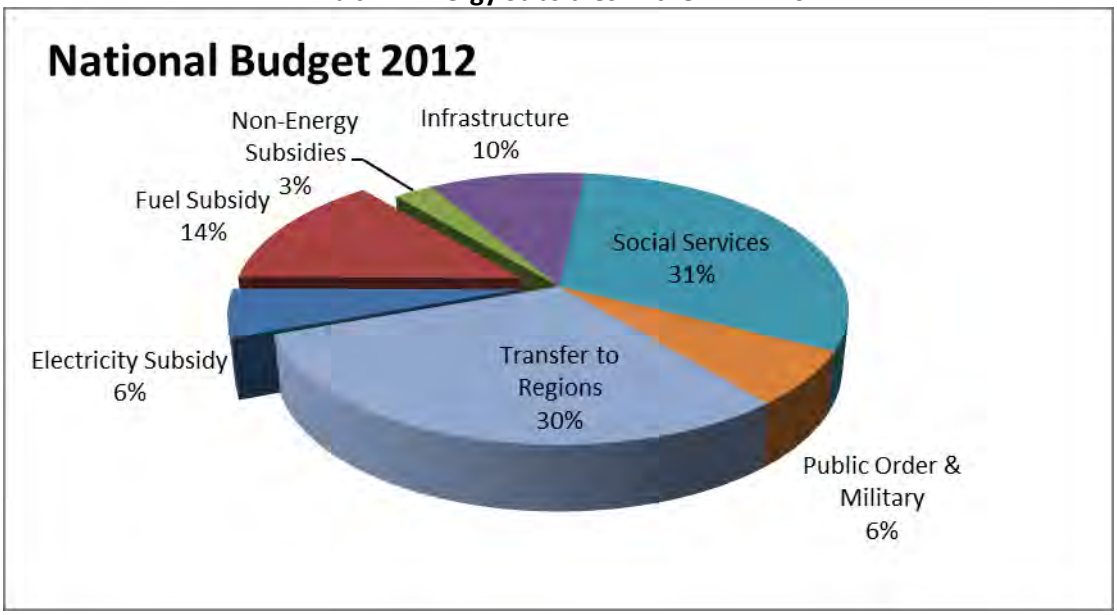
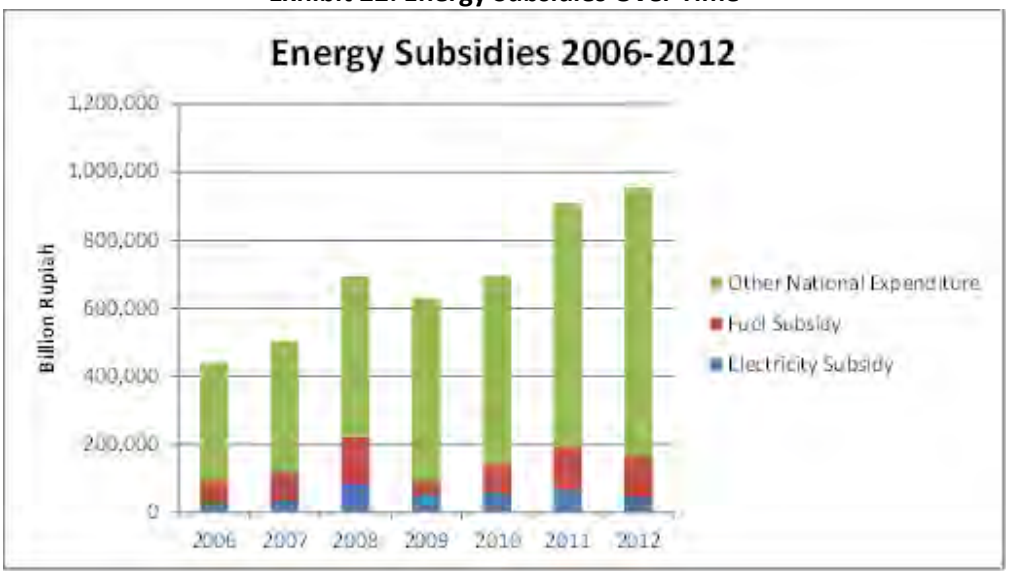


Exhibit 22 shows how these fuel and electricity subsidies have changed annually since the Government began to formally account for these subsidies within the state budget.

Exhibit 22: Energy Subsidies Over Time



3.5 Financial and Operational Performance

Exhibit 23 summarizes PLN's financial and operational performance over the period 1995-2010. Some key observations include:

- Over this 15-year period, PLN's
  - Number of customers has more than doubled, to some 42 million. In recent years PLN has been adding 1.2 to 1.5 million consumers annually
  - Sales have tripled in energy terms, to 147 TWh
  - Total revenues (including Government subsidy) have increased by a nearly a factor of 5 in nominal USD terms, from some USD 4 billion in 1995 to about USD 19 billion in 2010.

- Nonetheless, during this same period, PLN has reduced losses by 40% and improved its quality of service by 3 to 4 times as measured by SAIDI/SAIFI.

- PLN has also made substantial progress in reducing dependence on petroleum fuels. Petroleum-fuelled generation accounted for a high of 39% of PLN generation in 2005. Despite the increase in total generation, the share of petroleum-fuelled generation decreased to 20% by 2010.

- PLN nonetheless remains highly dependent on government subsidies for its financial viability. In recent years, the subsidy has provided one-third to one-half of PLN's revenue. Tariffs would thus need to increase by more than two-thirds on average to compensate for a removal of government subsidies.

Exhibit 23: PLN Operational and Financial Performance, 1995-2010

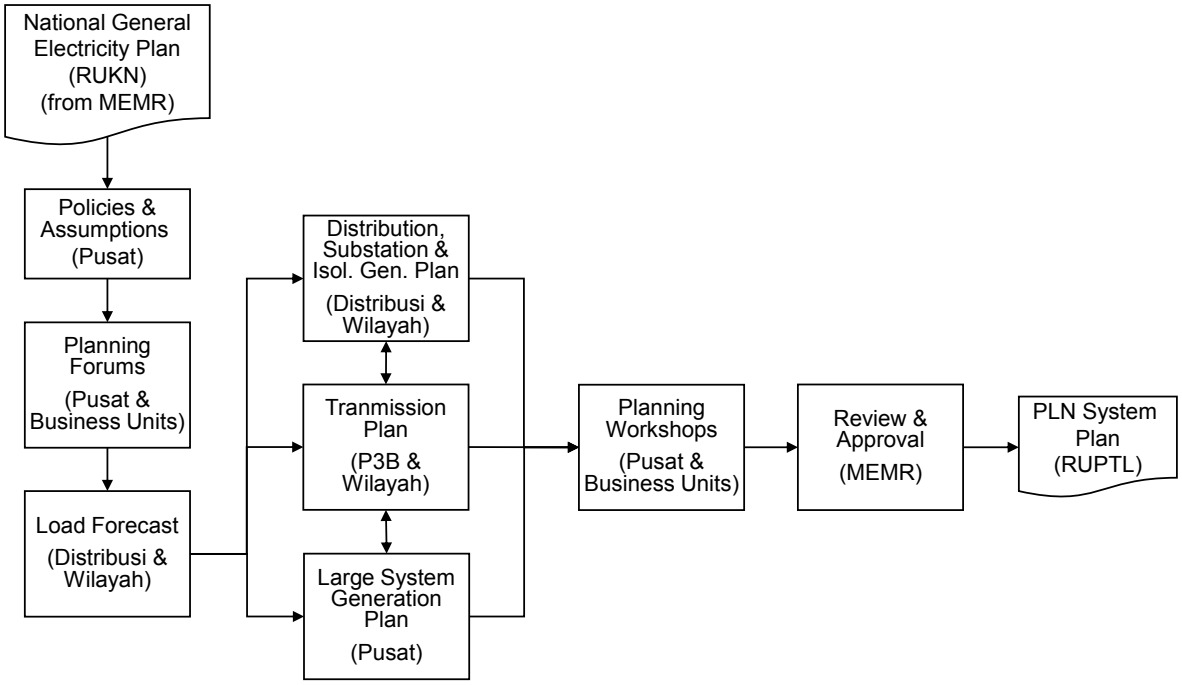
(Financial values in billion Rp)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Operational Statistics																
Gross Production & Purchases (GWh)	59,281	67,387	76,620	77,903	84,776	93,325	101,654	108,360	113,030	120,244	127,370	133,108	142,440	149,434	156,797	169,786
Sales (GWh)	49,748	56,932	64,312	65,261	71,322	79,164	84,520	87,089	90,411	100,097	107,032	112,609	121,246	129,019	134,581	147,297
Losses	16.1%	15.5%	16.1%	16.2%	15.9%	15.2%	16.9%	19.6%	20.0%	16.8%	16.0%	15.4%	14.9%	13.7%	9.9%	9.7%
PLN generator capacity (MW)	14,986	16,109	18,946	20,581	20,592	18,666	21,059	21,112	21,442	21,470	21,564	24,846	25,222	25,571	25,607	26,895
PLN own energy production by fuel (%)																
petroleum	20.7	16.3	23.0	18.8	18.4	21.0	21.9	27.5	28.5	35.2	39.2	27.7	25.5	27.7	22.1	19.9
hydro	12.9	12.5	7.0	13.0	11.7	10.9	12.1	10.0	9.4	9.6	9.7	6.6	7.5	7.2	6.6	9.3
coal	24.7	25.1	29.6	30.1	31.7	34.5	33.5	33.3	35.4	33.4	32.8	28.8	29.3	27.6	27.5	27.5
geothermal	3.8	3.5	3.5	3.5	3.4	3.2	3.4	3.6	3.4	3.4	3.0	2.4	2.2	2.3	2.2	2.0
natural gas	37.9	42.7	37.0	34.6	34.8	30.4	29.1	25.6	23.4	18.4	15.3	13.0	13.5	14.2	18.6	18.9
No. of Customers	19,471,647	21,980,325	24,640,587	26,433,489	27,524,522	28,595,405	29,827,728	30,953,919	32,151,416	33,366,446	34,559,000	35,751,000	37,334,000	38,844,000	40,117,685	42,435,387
No. of Employees (incl. subsidiaries)	36,814	46,375	48,703	47,552	47,039	46,016	49,637	48,238	47,560	47,288	47,155	46,431	46,113	44,750	45,000	40,108
SAIFI (times/customer/year)	21	14	13	19	19	15	18	14	13	12	13	14	13	13	11	7
SAIDI (mins/customer/year)	1,225	1,469	909	935	844	794	1,049	861	654	566	946	1,621	1,734	534	1,002	418
Revenues																
Sale of electricity	8109	9,418	10,877	13,776	15,671	22,139	28,276	39,018	49,810	58,232	63,246	70,735	76,286	84,250	90,172	102,974
Customer connection fees	143	170	201	207	222	241	266	302	342	387	440	480	535	590	652	761
Government subsidy	0	0	0	1,930	0	0	6,735	4,739	4,097	3,470	12,511	32,909	36,605	78,577	53,720	58,108
Others	53	58	48	63	104	175	83	124	182	184	346	602	616	792	679	532
Total Revenues	**8,305**	**9,646**	**11,126**	**15,976**	**15,997**	**22,555**	**35,360**	**44,183**	**54,431**	**62,273**	**76,543**	**104,726**	**114,042**	**164,209**	**145,223**	**162,375**
Operating Expenses																
Fuel & lubricants	2970	3,361	4,339	9,409	9,691	10,375	14,007	17,957	21,478	24,491	37,355	63,401	65,560	107,783	76,234	84,190
Purchased electricity	77	183	325	1,886	5,083	9,395	8,717	11,169	10,838	11,971	13,598	14,845	16,948	20,743	25,448	25,218
Maintenance	809	911	965	925	1,498	1,610	2,630	3,589	4,828	5,202	6,511	6,630	7,269	7,620	7,965	9,901
Personnel	758	886	1,068	1,019	1,336	1,802	2,086	2,583	6,533	5,619	5,508	6,720	7,064	8,344	9,759	12,955
Depreciation	1566	1,887	2,251	3,074	3,224	3,229	3,404	15,627	12,745	9,548	9,722	10,151	10,716	11,373	11,835	12,559
Other	356	414	502	496	670	802	1,094	1,421	2,165	2,880	3,329	3,482	3,950	4,735	4,035	4,285
Total Operating Expenses	**6,536**	**7,642**	**9,449**	**16,808**	**21,501**	**27,213**	**31,938**	**52,346**	**58,587**	**59,711**	**76,023**	**105,229**	**111,507**	**160,598**	**135,276**	**149,108**
Income (Loss) from Operations	**1,769**	**2,004**	**1,677**	**(833)**	**(5,505)**	**(4,658)**	**3,422**	**(8,163)**	**(4,156)**	**2,562**	**520**	**(503)**	**2,535**	**3,611**	**9,947**	**13,267**
Other Income (Charges)																
Interest income	0	114	211	998	775	399	364	665	308	232	212	592	530	465	367	753
Interest expense & financial charges	(718)	(950)	(1,124)	(6,010)	(9,429)	(13,655)	(2,620)	(2,152)	(3,581)	(4,486)	(4,455)	(4,351)	(4,817)	(6,738)	(5,942)	(6,011)
Interest on taxes for asset revaluation	0	(19)	0	0	0	0	0	0	0	4,659	2,796	1,864	0	0	0	0
Gain (loss) on forex - net	0	0	(1,247)	(3,056)	3,454	(5,500)	(459)	2,726	1,010	(1,676)	(699)	1,763	(858)	(9,296)	7,578	2,238
Others	(30)	19	(94)	(245)	(148)	(575)	(140)	346	222	153	(548)	(452)	(490)	(233)	255	1,152
Net Other Charges	**(748)**	**(836)**	**(2,254)**	**(8,313)**	**(5,348)**	**(19,331)**	**(2,855)**	**1,585**	**(2,041)**	**(1,118)**	**(2,694)**	**(584)**	**(5,635)**	**(15,802)**	**2,258**	**(1,868)**
Income (Loss) before tax	**1,021**	**1,168**	**(578)**	**(9,145)**	**(10,853)**	**(23,989)**	**567**	**(6,578)**	**(6,197)**	**1,444**	**(2,174)**	**(1,087)**	**(3,100)**	**(12,191)**	**12,205**	**11,399**
Tax Expenses	**0**	**0**	**0**	**(390)**	**(514)**	**(621)**	**(570)**	**(1,815)**	**(1,389)**	**(3,185)**	**(2,746)**	**(2,973)**	**(2,547)**	**(113)**	**(1,848)**	**(1,313)**
Ordinary Income (Loss)	**1,021**	**1,168**	**(578)**	**(9,535)**	**(11,367)**	**(24,610)**	**(3)**	**(8,393)**	**(7,586)**	**(1,741)**	**(4,920)**	**(4,060)**	**(5,647)**	**(12,304)**	**10,357**	**10,086**
Extraordinary Items	**0**	**0**	**0**	**0**	**0**	**0**	**183**	**2,333**	**1,685**	**(282)**	**0**	**2,130**	**0**	**0**	**0**	**0**
Net Income (Loss)	**1,021**	**1,168**	**(578)**	**(9,535)**	**(11,367)**	**(24,610)**	**180**	**(6,060)**	**(5,901)**	**(2,023)**	**(4,920)**	**(1,928)**	**(5,645)**	**(12,304)**	**10,357**	**10,086**

3.6 Planning & Procurement

3.6.1 System Planning

As mentioned above, system planning has been devolved to the business units and Pusat consolidates the individual plans. Exhibit 24 shows the system planning process.

Exhibit 24: PLN's System Planning Process



Planning process starts by using the 2010-2029 National Electricity Plan (*Rencana Umum Ketenagalistrikan Nasional*, RUKN), which provides guidance on government policy regarding primary energy, renewable energy promotion, electrification, etc. Pusat then determines PLN assumptions and policies, which are discussed and agreed in "planning forums" conducted with the business units. This enables the retailing units (*distribusi* and *wilayah*) to prepare load forecasts, which are then used to create plans for distribution, substations and isolated generation (by *distribusi* and *wilayah*), transmission (by P3B on Java-Bali and the *wilayah* that have transmission) and large system generation expansion (by Pusat). There may be coordination and iterations between these planning streams.

These planning results are then discussed and finalized in "planning workshops" conducted by Pusat with the business units, and documented by Pusat in a draft system plan (RUPTL), which is sent to MEMR for review and approval.

Under Permen 4/2012, PLN is obliged to purchase power from generating facilities with no more than 10 MW capacity from renewable resources, but subject to electricity supply needs. These projects are not identified by PLN through a least-cost planning process, but PLN must nonetheless incorporate them into the generation mix.

On the large interconnected systems planned by Pusat, the contribution of these plants to overall capacity needs is relatively small. Consequently, there is no overall system constraint in introducing

these plants on the system. For example, the interconnected Sumatra system had an installed capacity of 5,311 MW at the end of 2011. This is forecast to double by the end of 2015 to some 10,665 MW.

In contrast, on smaller isolated systems, the addition of projects of 10 MW or less could have a significant impact on the system supply/demand balance. However, PLN's obligation to buy is subject to the electricity supply needs of the system. If PLN has already committed other new plant, then it has no obligation to purchase the renewable power. But if it has not, then the renewable plant will displace the planned conventional plant in the system plan.

More generally, in preparing the RUPTL, PLN has taken small (<10 MW) renewable generation as well as all geothermal and hydro development, regardless of size, as "fixed plant." These plants will be added to the generation mix if there is a need for new capacity, regardless of their economics relative to conventional options. This requirement is exercised in conjunction with the feed-in tariff for small power as well as the prevailing ceiling of 9.7 US cents/kWh for geothermal under Permen 2/2011. (As with Permen 4/2012, PLN retains a right to negotiate an energy purchase price for projects above the specified rate, but will need to be able to justify it).

3.6.2 Procurement and Contracting

Presidential Regulation No. 54/2010 (Perpres 54/2010) governs procurement by government agencies. More generally, these regulations apply to any procurement funded by the APBN (state budget). Since PLN manages some projects funded by the APBN, it has prepared its internal procurement rules accordingly. These are documented in PLN Directors' Decree No. 305.K/DIR/2010 ("**Kepdir 305/2010**").

Kepdir 305/2010 covers the following topics:

- Tender preparation
- Qualification of suppliers
- Tender documents
- Proposals
- Bid bonds
- The *Harga Prakiraan Sendiri* (HPS, or owner's estimate)
- Selection methods
- Methods of bid submission
- Bid evaluation systems
- Award
- Bid protests
- Bid cancellation or failure.

The guidelines discuss the processes around each of these steps, as well as electronic procurement, contract terms and conditions, and aspects of specific types of procurement (e.g., fuel purchases, bulk power purchases, leasing, outsourcing, and insurance).

The guidelines presented in Kepdir 305/2010 are of course subject to laws and government regulations.

Permen 4/2012 obliges PLN to purchase power from any renewable power project at the stated feed-in tariff and PP 14/2012 allows a direct appointment (*penunjukan langsung)* for power purchases from renewable energy projects of no more than 10 MW. These supersede the competitive tendering procedures that would typically be applied under Kepdir 305/2010 for power purchases from IPPs.. The key elements of Kepdir 305/2010 that apply to PLN's procurement and contracting of these projects are as follows. (Clause references are to Kepdir 305/2010, which is referred to below as the "Decree.")

1. **Project origination**. Since Permen 4/2012 applies, PLN is obliged to purchase power from these projects. PLN does not formally solicit these projects or conduct a prequalification process as would typically be required by the Decree for the contracting of goods, services or power from IPPs.

2. **PLN due diligence**. The Decree does not stipulate that PLN must conduct any sort of developer due diligence, and as noted above, there is no prequalification process. However, under Section 4.2 of the Decree, PLN must take into account how the project fits into the RUPTL (which in practice means confirming the project is not already in the RUPTL), and must prepare an Operational Feasibility Study (*Kajian Kelayakan Operasional*, KKO), Financial Feasibility Study (*Kajian Kelayakan Finansial*, KKF) and risk analysis as a basis for the direct appointment. Given that PLN must spend significant resources to see a project through to contracting, additional due diligence at the outset of a developer's contact with PLN may be prudent.

3. **Preparation of the PPA**. Sections 7 and 8 discuss the principal elements of the contracts, including PPAs. The Decree does not stipulate what unit is responsible for preparing PPAs in general or the small renewable power PPAs in particular, but the practice is for Pusat to prepare the PPA. The Wilayah adapt the model PPA from Pusat to the particular project, which entails the preparation of technical appendices and may involve minor modifications elsewhere.

4. **Conditions precedent**. Clause 4.2.2.2 of the Decree identifies some items that should be considered in the PPA, including the responsibility of the developer to prepare a feasibility study and an environmental impact assessment (*Analisis Mengenai Dampak Lingkungan*, AMDAL), and to obtain all permits required by law. This clause also identifies the setup and operation of escrow accounts as an issue that may need to be considered. In addition to that, based on GR 27/2012, AMDAL (or UKL/UPL) shall also be accompanied by an Environmental Permit.

5. **Signatory authority**. Consistent with Clause 2.1.2 of the Decree, the Wilayah General Manager can sign contracts with a present value cost of Rp 50 billion or less. Contracts valued at above Rp 50 billion have to be signed by Pusat. Signatory authority is further defined in Kepdir 304.K/DIR/2009, which for power purchases determines the Rp 50 billion threshold based on 50% of the present value of the power purchases over the life of the contract with a discount rate of 12%. (If a four-part tariff is used rather than an energy-only tariff, only the value of components A and B are counted in the calculation.)

6. **Performance bonds**. Per clause 2.5.2(2) of the Decree, small renewable energy projects (other than excess power purchases) must post a performance bond from a local or foreign bank represented in Indonesia, or a surety bond from an insurance company just like any IPP. The

bonds are for the following amounts:

- For the period from the signing of the PPA to financial close, a minimum of 2% of the expected value of kWh sales during the first year of operation
- For the period from financial close until the commercial operation date (COD), a minimum of 5% of the expected value of kWh sales during the first year of operation.

7. **Duration of PPAs**. Per clause 4.2.1 of the Decree, contracts for purchases of excess power must be for at least 1 year or longer. Per clause 4.2.2, IPP contracts must be at least 15 years. In either case, contracts can be extended. There is no requirement for projects to be transferred to PLN at the end of the contract. This contrasts with PP 14/2012, which stipulates that electricity business licenses arevalid for 30 years for an IUPL and 15 years for an IO, and that both are extendable.

8. **Termination of PPAs**. Clause 7.3.5.2 of the Decree provides for the termination of contracts (including PPAs) if either party does not fulfill its obligations under the contract. One of the conditions included in the PPA is that if the developer does not reach financial close within 12 months from the date of contract signing, or cannot achieve COD within 3 years without notification, then the PPA is automatically terminated. In practice, failures to fulfill these conditions seldom lead to termination of the PPA.

9. **Tariff escalation, front loading/back loading**. Clause 8.9 of the Decree provides for price adjustments under specified circumstances. Permen 4/2012 specifies the feed-in tariff to apply for small renewable power projects. It is understood that MEMR has allowed PLN to front-load tariff trajectories to preserve the feed-in tariff in levelized terms, while exercising the flexibility allowed under the Decree. In addition, under clause 8.4.2 of the Decree, the contract must be adjusted to reflect any changes in the tax regime that occur after contracting. More generally, the PPAs typically include a clause that prices can be adjusted only if there are regulatory changes, including but not limited to the imposition of new taxes, water levies or other levies that directly affect the implementation of the project.

4 The Development Process for Small Renewable Power Projects

4.1 The Prevailing Development Process

Exhibit 25 shows the development process for renewable power projects of 10 MW or less, while Exhibit 26 shows an indicative schedule primarily based on small scale hydropower plants. Since PLN is obliged to purchase power from all renewable power plants with no more than 10 MW of installed capacity, these plants are typically initiated by developers and procured by the direct appointment process shown in Exhibit 25. PLN nonetheless retains the right to tender for renewable energy plants it might identify; most renewable plants larger than 10 MW are tendered, as well as some less than 10 MW. The development process using tendering is not shown, since ICED is dealing almost exclusively with plants developed under direct appointment.

The steps up to the point where the PLN Wilayah evaluates price largely follow the process outlined in Permen 2/MESDM/2006, whereas steps after that follow Permen 4/MESDM/2012. The dotted lines and boxes in the flow chart depict optional processes depending on whether PLN requests a government guarantee for the project under PMK 139/2011. Key milestones in the process include:

- The ***developer's initial proposal to PLN*** includes administrative information, such as the developer's deed of establishment and tax identification number, as well as the regional government's approval in principle for the project and the developer's feasibility study. The feasibility study must include information on: location and site plan, technical data, energy production calculations, financial analysis, and for hydropower plants: water availability, flood projections, etc. Sometimes a MoU between PLN and Developers is signed either prior or subsequent to the proposal made by the Developers.

- ***PLN's review of the developer's proposal*** comprises a review of the items above as well as the developer's financial condition (including a statement that the developer will deposit 10% of the projected cost of the project in a bank at the time the PPA is signed) and past experience in developing renewable energy projects. In addition, for projects between 1 and 10 MW, the average audited EBITDA over the past 3 years must be at least 20% of the projected project cost, the current ratio must be at least 1, the debt service cover ratio must be at least 1.2, and the developer must state that it can provide at least 25% of the required equity at the time the PPA is signed.

- ***Conditions for finalizing the PPA*** include completion of all of the above steps as well as proof of the availability of funds and the posting of the 2% performance bond as discussed in Section 3.6.2.

- ***Conditions for financial close*** include completion of all of the above steps as well as proof of insurance, submission of the credit agreements, initial draw down of the loan(s), all final permits (except for the Permanent IUPL), contracts with the supervising engineer, construction contractor and equipment vendor (or EPC), and posting of the 5% performance bond.

EXHIBIT 25: PREVAILING PROCESS FOR SMALL RENEWABLE POWER DEVELOPMENT

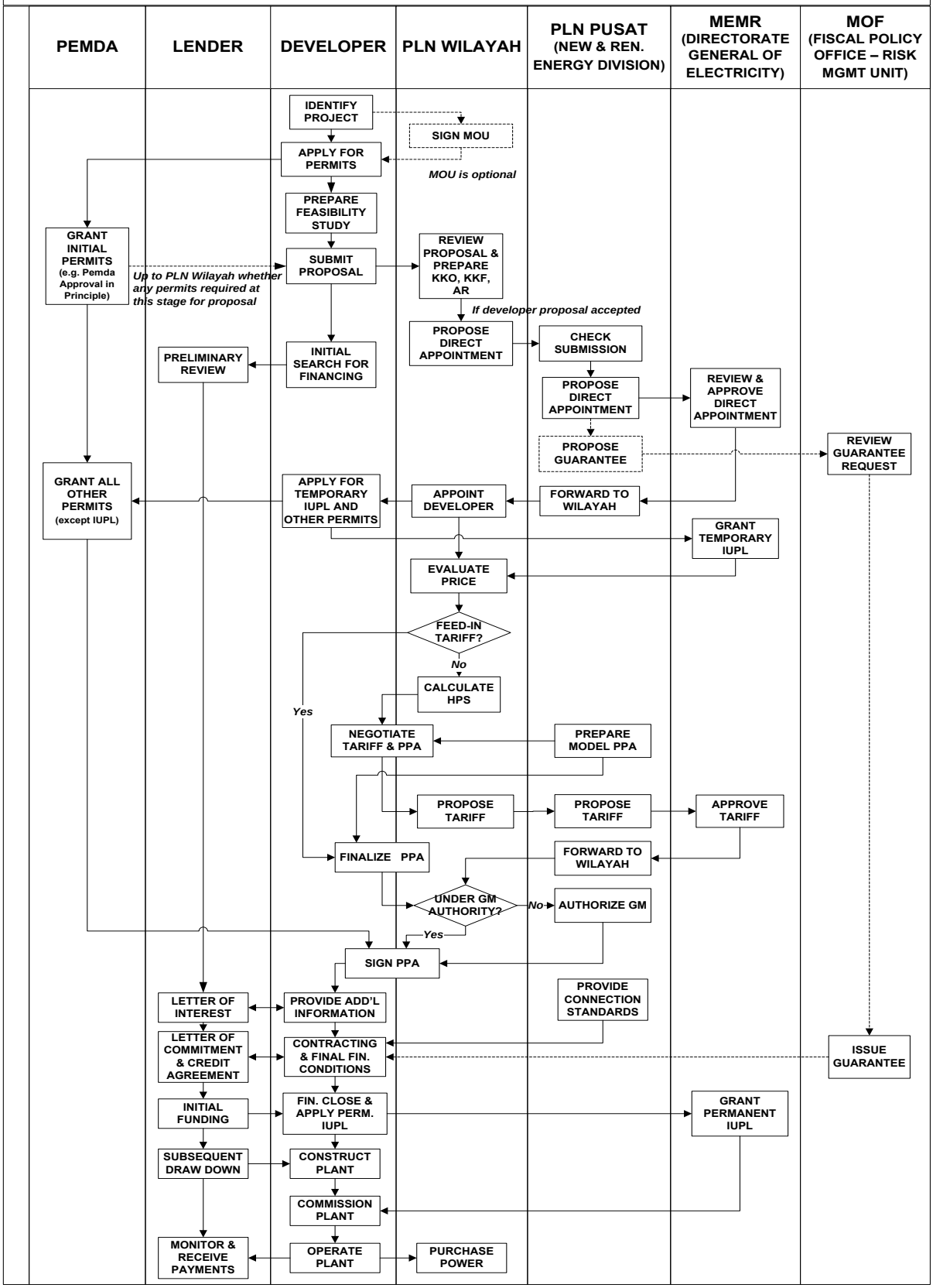
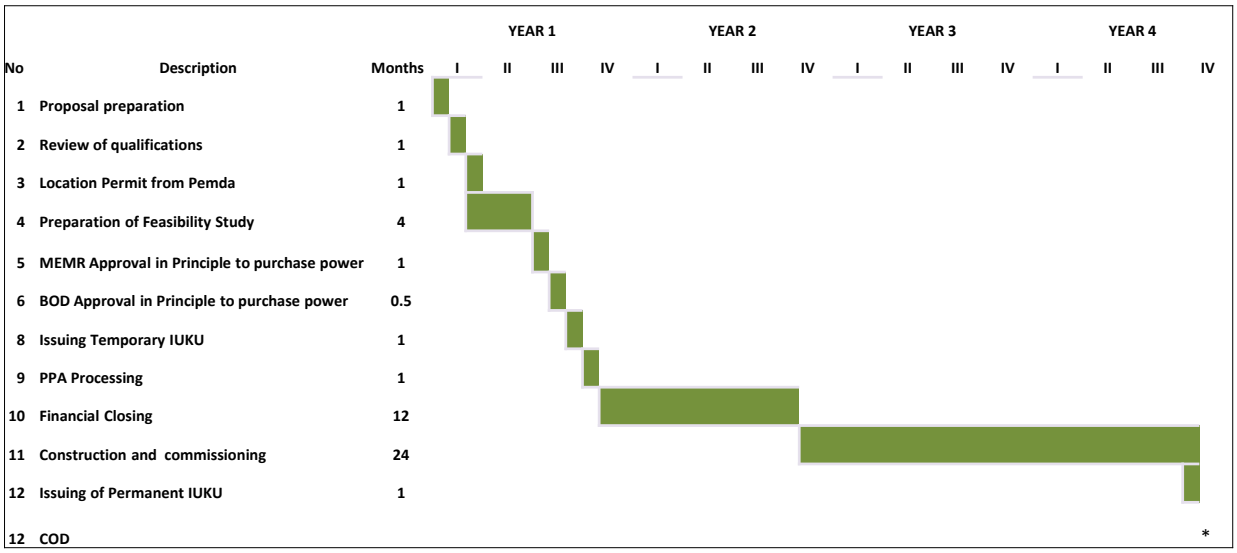


Exhibit 26: Indicative Timetable for Small Renewable Project Development



4.2 Risk Allocation

The allocation of project risks provides the foundation for the PPA, and when considered in conjunction with prices, determines the attractiveness of projects for developers. The risk allocation currently applied to small renewable power projects is shown in Exhibit 27. This risk allocation divides the development process into three stages: pre-construction, construction and operation. Specific events are identified at each stage along with the technologies that may be subject to that event, the potential impacts of the event, the party that bears the risk under the prevailing development framework, ways in which the risk may be further reduced or mitigated, and any additional comments.

Exhibit 27: Current Risk Allocation for Small Renewable Power Projects

Event	Technology	Potential Impacts	Party Currently Bearing Risk	Reduction or Mitigation Options	Comments
A. Pre-Construction					
1. No ready physical access to site	Hydro	Developer cannot readily confirm resource. Increased costs for site visit and subsequent access.	Developer	Thorough reconnaissance during planning stage	-
2. Developer cannot obtain land rights	All	Project does not proceed.	Developer	Investigate and commence land acquisition early	Consider system where government or PLN can initiate at developer expense?
3. Developer has overlapping land rights	All	Depends upon when overlapping rights are claimed. Additional costs to resolve.	Developer	Thorough due diligence with BPN	Apply "clean & clear" approach from mining sector?
4. Developer cannot gain water use rights	Hydro	Project does not proceed	Developer	Thorough due diligence with Public Works	Consider water catchment licensing? (see under Operations also)
5. Developer cannot gain forestry use rights	All	Project does not proceed	Developer	Thorough due diligence with Ministry of Forestry	Only an issue if project is located in a forest area. Consider legal or policy changes with respect to forestry use, as being contemplated with geothermal?
6. Developer cannot gain location or business permits from competent local government authority	All	Project does not proceed	Developer	Thorough due diligence with competent local government authority	Could be from national, provincial or regency/city. Consider additional national policy/regulation to limit local permits.

Event	Technology	Potential Impacts	Party Currently Bearing Risk	Reduction or Mitigation Options	Comments
7. Developer cannot get first appointment letter from PLN	All	Project does not proceed	Developer	Complete application to PLN and follow-up	Confirm with developers whether this risk is a significant concern
8. Developer cannot get Temporary Generation License from DGE	All	Project does not proceed	Developer	Complete application to DGE and follow-up	Confirm with developers whether this risk is a significant concern
9. Developer accepts feed-in tariff, but cannot get PPA with PLN	All	Project does not proceed	Developer	Follow up with PLN	Confirm with developers whether this risk is a significant concern
10. Pre-feasibility study and/or feasibility study concludes price is higher than feed-in tariff	All	Price must be negotiated with PLN. Additional time and costs without any guarantee of agreement.	Developer	Review PLN's production costs for region prior to proceeding with negotiations.	-
11. MEMR does not approve negotiated price	All	Project does not proceed	Developer	Apply and follow up with MEMR	Confirm with developers whether this risk is a significant concern
12. Environmental Permit and AMDAL does not support development	All	Project does not proceed, or requires expensive mitigation	Developer	Conduct an AMDAL or UKL/UPL and obtain an Environmental Permit early in the process	-
13. DGE does not provide final generation license	All	Project does not proceed	Developer	Complete application to DGE and follow-up	Does this in fact come after construction? Confirm with developers whether this risk is significant

Event	Technology	Potential Impacts	Party Currently Bearing Risk	Reduction or Mitigation Options	Comments
14. Local community resistance to developer activities	All	Project cannot proceed, or proceeds on reduced scope, or is delayed. Civil unrest.	Government	• Lead public consultation • Facilitate determination of compensation, if any	Intervention from Provincial Government
			Developer	• Corporate social responsibility activities • Timely & fair compensation for any adverse economic impacts	
15. Developer cannot or does not fund sufficient equity for project preparation	All	Project does not proceed.	Developer	Develop equity funding plan at the outset.	-
		Project site may be "locked up" without development	Government and/or PLN	PLN requires performance bond.	Place time limits for development rights and site allocation (local government)?
16. Developer unable to reach financial close	All	Project does not proceed	Developer	Develop financing plan at outset, and update regularly.	Projects are typically corporate financed. Consider ways to enable project finance.
		Project site is "locked up" and project does not proceed.	Government and/or PLN	PLN requires performance bond, but this does not address licensing.	Place time limits for commissioning on all licenses and PPA?

Event	Technology	Potential Impacts	Party Currently Bearing Risk	Reduction or Mitigation Options	Comments
17. Developer cannot source competent engineers for FS	All	Developer is unable to secure financing or obtain PLN approval. Project cannot proceed, or later is more costly or underperforms.	Developer	Due diligence on selection of engineers. Better to delay project than select unqualified engineers.	Could PLN play a role here by approving the engineers? Develop checklists for developers.
18. Project site is far from the existing grid	All	Additional costs for transmission, which may adversely affect financial viability of project.	Developer	Interconnection study and PLN plan for grid expansion.	PLN could share the cost of the transmission expansion if warranted.
B. Construction					
1. Developer cannot or does not fund project	All	Project does not proceed.	Developer	Develop equity funding plan at the outset.	-
		Project site is "locked up" and project does not proceed.	Government and/or PLN, lenders	PLN requires performance bond Lenders require letter of credit from developer's bank for entire equity commitment or upfront equity contribution or step-in right	-
2. Developer cannot source competent EPC or other vendors	All	Project cannot proceed, or faces subsequent cost and performance problems.	Developer	Due diligence on selection of EPC or other vendors. Better to delay project than select unqualified EPC or other vendors.	Could PLN play a role here by approving the EPC or other vendors? Develop check lists for developers.

Event	Technology	Potential Impacts	Party Currently Bearing Risk	Reduction or Mitigation Options	Comments
3. Project cost escalation on EPC activities	All	Project does not proceed because developer cannot pay higher prices.	Developer & EPC contractor or other vendors	EPC should be lump sum contract with a liquidated damages and a required performance bond provision with EPC Contractor or other vendors to assume price escalation risk during construction.	Developer bears risk for cost changes, but is contractually addressed as far as possible.
4. Project cost escalation due to Developer's Variation Order	All	Project does not proceed because developer cannot pay cannot fund increased costs.	Developer and lenders	Draw on standby finance. Limit scope of variations by developer.	Returns eroded by servicing of standby finance Debt cover factors reduced if standby debt used.
5. Project cost escalation due to changes in law, delays in site approvals, or increased taxes	All	Project does not proceed because developer cannot pay higher prices.	Developer and lenders	Standby finance drawn and future subsidies reduced dramatically.	Debt cover factors reduced if standby debt used. Returns eroded by servicing of standby finance.
6. Project cost escalation due to force majeure or other mishap during construction	All	Project is delayed. Additional costs for remediation.	Developer	Some events can be insured and proceeds from insurance policy could be utilized. Draw on standby finance if insurance proceeds exhausted or for those events that cannot be insured.	Insurance requirement as condition of permitting? Returns eroded by servicing of standby finance.
			Government	Apply and enforce health, safety & environmental regulations	Are existing regulations adequate?

Event	Technology	Potential Impacts	Party Currently Bearing Risk	Reduction or Mitigation Options	Comments
7. Project cost escalation due to increase in insurance cost, financing cost, adverse changes in terms of financing, adverse exchange rate	All	Project does not proceed because developer cannot pay higher prices.	Developer, lender	Negotiate PPA tariff increases provision with PLN outside of FIT (but requires additional time and expense). Draw on standby finance.	Return eroded to the extent dividend payment is postponed or reduced. Debt cover factors reduced depending on timing effect.
8. Construction & transportation delays or problems	All	Project delay and/or cost overrun	EPC contractor or other vendors	EPC contractor or other vendors to mitigate by arranging insurance as appropriate.	An insurance market exists to insure these risks.
9. Grid interconnection not available when plant is ready to operate	All	Project cannot operate.	Developer	Agree with PLN prior to PPA on transmission & interconnection responsibilities; monitor progress	Consider “deemed offtake”? Need to address more broadly the issue of who bears interconnection costs & responsibilities.
10. Cost of grid interconnection threatens project viability	All	Project cannot operate.	Developer	Agree with how the transmission & interconnection costs will be allocated and treated in tariff.	Consider transmission and interconnection costs passed through in tariff?
11. Developer unable to meet schedule	All	Project is delayed.	Developer & EPC contractor or other vendor	Depends on cause of delay. Delay due to EPC contractor can be addressed by liquidated damages in the EPC contract.	-

Event	Technology	Potential Impacts	Party Currently Bearing Risk	Reduction or Mitigation Options	Comments
12. Failure of facilities to meet performance specifications at completion tests due to flawed installation	All	Facility cannot achieve full power or generate guaranteed capacity output	EPC contractor or other vendor	Redesign and replacement by vendor under warranty and performance bond clauses.	-
13. Government Interferences such as nationalization, expropriation, withdrawing all licenses and consents	All	Project delay and/or cost overrun and or project does not proceed.	Developer & Lender	Proceeds from expropriation insurance from either MIGA or U.S. OPIC	-
14. Government Interferences such as changes in governmental regulations for the sector	All	Project delay and/or cost overrun and or project does not proceed.	Developer & lender	Proceeds from business interruption insurance from either MIGA or U.S. OPIC.	-
15. Government Interferences such as minor changes in tax, law, customs, environmental, and legal requirements	All	Project delay and/or cost overrun and or project does not proceed.	Developer & lender	Standby finance may be drawn upon.	-

Event	Technology	Potential Impacts	Party Currently Bearing Risk	Reduction or Mitigation Options	Comments
C. Operation					
16. Equipment failure or lower than expected performance	All	Project ceases to operate, or operates at reduced output.	Developer & EPC contractor or other vendor	Agree warranties with EPC contractor as well as liquidated damages and performance bond. provisions	-
17. Operational failure due to failure of operating staffs	All	Project ceases to operate, or operates at reduced output.	Developer	Working capital or else standby finance drawn upon to make alternative operational arrangements.	-
18. Resource does not materialize as planned, or at higher cost	All	Project ceases to operate, or operates at reduced output, or at higher cost.	Developer	• Thorough hydrological studies for hydro • Secured long-term fuel supply for biomass/biogas • Negotiate two-part tariff (but no longer eligible for FIT).	For hydro, consider catchment licensing system?
19. Facilities face catastrophic event/natural force majeure	All	Project suspends operations, or stops operating.	Developer	Purchase insurance.	-

Event	Technology	Potential Impacts	Party Currently Bearing Risk	Reduction or Mitigation Options	Comments
20. Political events, including change in laws, expropriation, etc.	All	Project suspends operations, or developer is adversely affected.	Developer	Arrange political risk insurance.	Is such insurance available for local government action? National government guarantees for local government actions are not available in absence of project tender, per PPP regulations. Some have suggested mitigating this risk through passage of Perda, but feasibility of this approach uncertain.
21. Operating cost escalation due to exceeding the original estimates	All	Project economics become adverse.	EPC contractor or other vendor, developer	Seek performance penalties from the EPC contractor or vendor. Postpone or reduce dividend payments. Negotiate PPA with PLN outside of FIT (but requires additional time and expense).	Return eroded to the extent dividend payment is postponed or reduced.
22. Operating cost escalation due to increase in insurance cost	All	Project economics become adverse.	Developer, lender	Working capital is drawn down earlier than expected.	-
23. Price escalation & exchange rate volatility during this phase	All	Project may become uneconomic and therefore unsustainable.	Developer	Negotiate PPA with PLN outside of FIT (but requires additional time and expense). Purchase equipment and services and borrow in IDR.	Consider indexing in FiT.

Event	Technology	Potential Impacts	Party Currently Bearing Risk	Reduction or Mitigation Options	Comments
24. Offtaker fails to dispatch power from the project	All	Project does not operate, or operates at less than full capacity.	Developer	Consider dispatch of power by offtaker as part of feasibility study. PLN otherwise legally obligated to purchase power.	Consider "deemed dispatch" for PLN's failure to offtake? But how to confirm plant availability?
25. Offtaker fails to pay	All	Developer fails to receive revenue and shuts down project. Ultimately lenders take over.	Developer, lenders, offtaker	Parties to agree on security package for offtaker payment obligations. However, standard PPA does not appear to make provisions for this.	Consider in standard PPA as well? No effective regulatory provision for Government to guarantee PLN payment to developer. Corporate finance typically used, so risk reverts to developer.
26. Forced outage of facilities due to temporary capacity reduction due to failure of developer	All	Project does not operate, or operates at less than full capacity.	Developer	Increased overtime costs to repair and addition component replacement costs. Standby finance may be drawn upon.	-
27. Foreign exchange non-convertibility due to changes brought about by the Government's fiscal and monetary policies which are beyond the control of the owner	All	Developer fails to receive revenue and shuts down project.	Developer	Proceeds from currency inconvertibility insurance with either MIGA or U.S. OPIC	-

Event	Technology	Potential Impacts	Party Currently Bearing Risk	Reduction or Mitigation Options	Comments
28. Failure to make available sufficient foreign exchange for dividend repatriation due to changes brought about by the Government's fiscal and monetary policies which are beyond the control of the owner	All	Developer fails to receive revenue and shuts down project.	Developer	Proceeds from political insurance from insurers.	-
29. Non-performance of government undertakings and obligations	All	Project does not operate or -project becomes unsustainable.	Developer	Proceeds from political and/or business interruption insurance from insurers	-
30. Government Interferences such as nationalization, expropriation, withdrawing all licenses and consents	All	Project does not operate or -project becomes unsustainable.	Developer & lender	Proceeds from expropriation insurance from either MIGA or U.S. OPIC.	-
31. Government Interferences such as changes in governmental regulations for the sector	All	Project suspends operations, or developer is adversely affected.	Developer & lender	Proceeds from business interruption insurance from either MIGA or U.S. OPIC.	-

Event	Technology	Potential Impacts	Party Currently Bearing Risk	Reduction or Mitigation Options	Comments
32. Government Interferences such as minor changes in tax, law, customs, environmental, and legal requirements	All	Project does not operate or -project becomes unsustainable.	Developer & lender	Standby finance may be drawn upon.	-

4.3 Recent PLN Experience

As of October 2011, PLN North Sumatra reported the pipeline of renewable energy projects as shown in Exhibit 28.

Exhibit 28: Renewable Power Pipeline in PLN North Sumatera, October 2011

Status	Mini-Hydro		Biomass	
	No. of Projects	Total Capacity (MW)	No. of Projects	Total Capacity (MW)
Operating	2	15	3	25 (excess power)
Under Construction	3	19.2	3	25 (excess power)
Signed PPA	17	138.5	-	-
Proposed	13	97	5	30.2 (excess power & IPP)
TOTAL	**35**	**296.7**	**11**	**80.2**

The details of the hydro plants are shown Exhibit 29, and the location of the plants are shown in Exhibit 30.

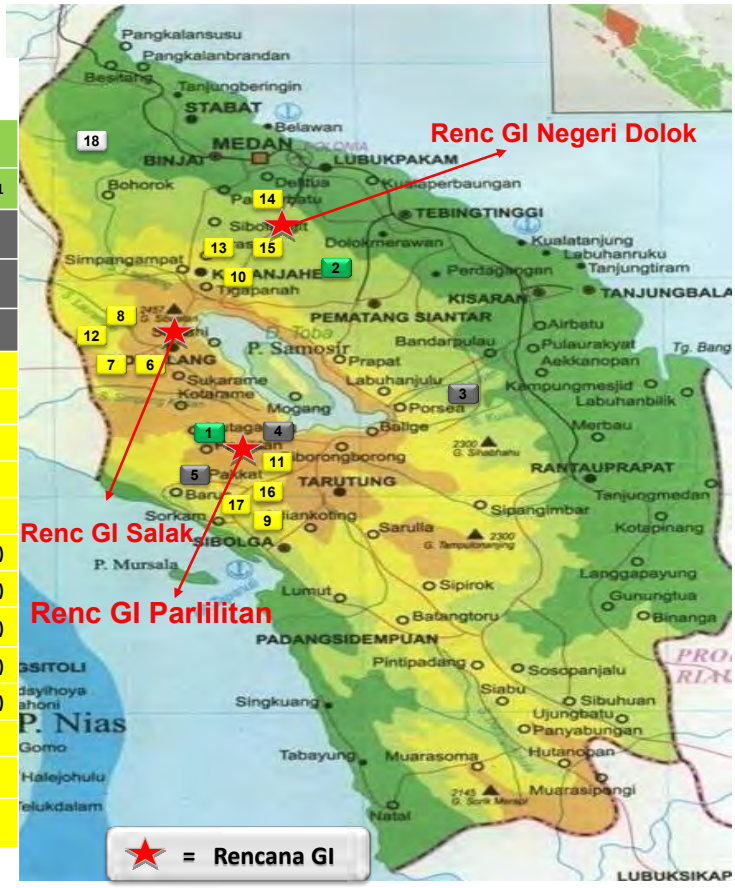
Exhibit 29: Mini-Hydro Plant Details for PLN North Sumatra

No	Nama	Kapasitas (MW)	Pengembang	Nama Sungai	JADWAL			Keterangan
					PPA	FC	COD	
1	Parlilitan	7,500	PT Mega Power Mandiri	Aek Simonggo	31-May-2007	31-May-2008	1-Jul-2010	Operasi
2	Silau-2	7,500	PT Bersaudara Simalungun E.	Aek Silau	7-Apr-2008	12-Feb-2009	Pebruari 2011	Operasi
	Operasi	**15,000**						
1	Parluasan	4,200	PT Inpola Meka Elektrindo	Aek Kualu	21-Mar-2007	5-Dec-2007	Rencana 23 Mei 2012	Konstruksi
2	Hutaraja	5,000	PT Humbahas Bumi Energi	Aek Silang	19-Jul-2007	10-Sep-2008	Rencana Des. 2011	Konstruksi
3	Pakkat	10,000	PT Energi Sakti Sentosa	Aek Sirahar	28-Dec-2009	3-Dec-10	Rencana Des 2012	Konstruksi
	Konstruksi	**19,200**						
1	Lae Ordi 1	10,000	PT Phakpak Bumi Energi	Lae Ordi	28-Dec-2009	24 Maret 2011	Rencana 2013	PPA
2	Lae Ordi 2	10,000	PT Bakara Bumi Energi	Lae Ordi	28-Dec-2009	12 Januari 2011	Rencana 2013	PPA
3	Karai 13	8,300	PT Global Hidro Energi	Karai	7-Jun-2010	6-Jun-11	Rencana 2013	PPA
4	Karai 7	6,700	PT Global Karai Energi	Karai	5-Oct-2010	4 Oct 2011	Rencana 2013	PPA
5	Lau Gunung	10,000	PT Inpola Meka Elektrindo	Lau Gunung	28-Dec-2009	Renc 27 Oct 2011	Rencana 2013	PPA
6	Batang Toru	7,500	PT Bumi Lestari Energi	Batang Toru	28-Dec-2009	Renc 27 Oct 2011	Rencana 2013	PPA
7	Tarabintang	10,000	PT Subur Sari Lastderich	Aek Riman	20-Aug-2010	Renc 20 Des 2011	Rencana 2013	PPA
8	Lae Kombih 3	8,000	PT Inpola Mitra Elektrindo	Lae Kombih	23-Sep-2010	Renc 22 Jan 2012	Rencana 2014	PPA
9	Karai 1	10,000	PT Karai Energi Persada	Karai	5-Oct-2010	Renc 5 Jan 2012	Rencana 2014	PPA
10	Karai 12	6,000	PT Karai Hidro Energi	Karai	5-Oct-2010	Renc 5 Jan 2012	Rencana 2014	PPA
11	Sei Wampu 1	9,000	PT Aek Simanggo Energy	Sei Wampu	30 Juni 2011	Renc 29 Juni 2012	Rencana 2014	PPA
12	Rahu 1	8,000	PT Aspripower Hidro	Aek Rahu	29-Sep-11	Renc. 28 Sept. 2012	Rencana 2014	PPA
13	Rahu 2	5,000	PT Aspripower Prima	Aek Rahu	29-Sep-11	Renc. 28 Sept. 2012	Rencana 2014	PPA
14	Sidikalang 1	8,600	PT Aspripower Kerta	Renun	3-Oct-11	Renc. 02 Oct. 2012	Rencana 2014	PPA
15	Sidikalang 2	7,400	PT Aspripower Prada	Renun	29-Sep-11	Renc. 28 Sept. 2012	Rencana 2014	PPA
16	Raisan Hutadolok	7,000	PT Sumber Alam Energi Hidro	Aek Raisan	3-Oct-11	Renc 02 Okt. 2012	Rencana 2014	PPA
17	Raisan Nagatimbul	7,000	PT Sumber Alam Energi Hidro	Aek Raisan	3-Oct-11	Renc 02 Okt. 2012	Rencana 2014	PPA
	Ststus PPA	**138,500**						

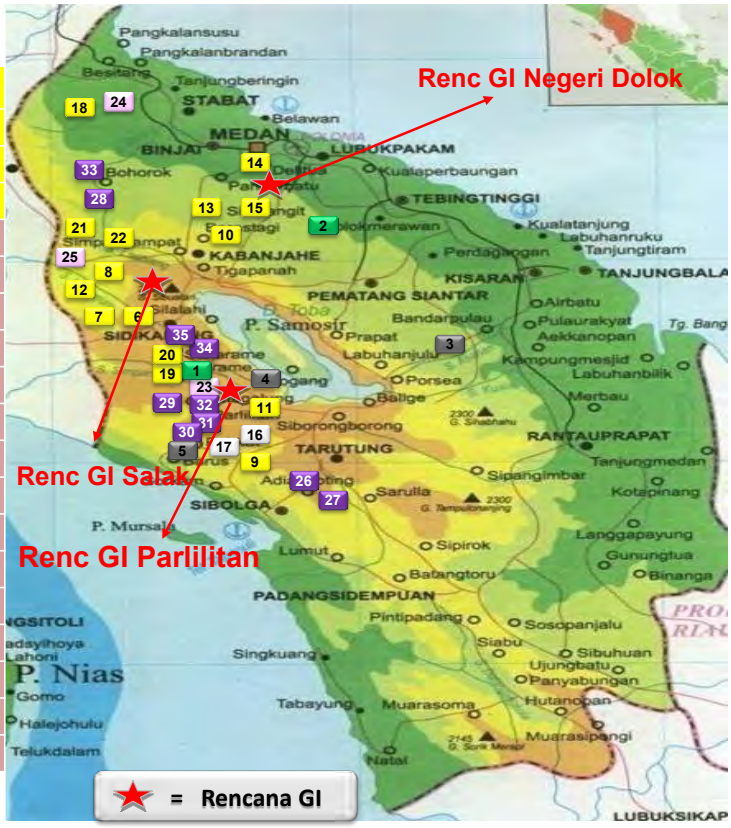
Note: The details in Exhibit 29 above were obtained from PLN Sumut as per October 2011. Currently, ICED is in process of obtaining the current status of the above details.

Exhibit 30: Location of Mini-Hydro Plants in North Sumatra

NO	NAMA PLTM	MW	COD / STATUS
1	PLTM PARLILITAN	7,5	Juli 2010
2	PLTM SILAU-2	7,5	Des10/Jan11
3	PLTM PARLUASAN	4,2	JUNI 2012
4	PLTM HUTARAJA	5	DEC 2011
5	PLTM PAKKAT	10	DEC 2012
6	PLTM LAE ORDI-1	10	Des 2012
7	PLTM LAE ORDI – 2	10	Des 2012
8	PLTM LAU GUNUNG	10	Des 2012
9	PLTM BATANG TORU-1	7,5	Des 2012
10	PLTM KARAI – 13	8,3	Jun 2013
11	PLTM TARA BINTANG	10	Okt 2013 *)
12	PLTM LAE KOMBIH-3	8	Okt 2013 *)
13	PLTM KARAI – 1	10	Okt 2013 *)
14	PLTM KARAI – 7	6,7	Okt 2013 *)
15	PLTM KARAI – 12	6	Okt 2013 *)
16	PLTM RAISAN HUTADOLOK	7	2014 *)
17	PLTM RAISAN N TIMBUL	7	2014 *)
18	PLTM SEI WAMPU-1	9	2014 *)
	TOTAL	143,7	



NO	NAMA PLTM	MW	COD / STATUS
19	PLTM RAHU 01	8	2014 *)
20	PLTM RAHU 02	5	2014 *)
21	PLTMSIDIKALANG 01	8,6	2014 *)
22	PLTM SIDIKALANG 02	7,4	2014 *)
23	PLTM SIMONGGO 1	7	MoU
24	PLTM SEI WAMPU 02	9	MoU
25	PLTM LAE KOMBIH 4	10	MoU
26	PLTM BATANG TORU -3	10	Ijin PPESDM
27	PLTM BATANG TORU-4	10	Ijin PPESDM
28	PLTM SEMBELIN	6	Proses PPA
29	PLTM AEK SISIRA SIMANDAME	7	MOU
30	PLTMAEK RAMBE	3	MOU
31	AEK SIMONGGO ANGGOCI	8	Tdk Disetujui
32	AEKSIMONGGO PARDUAAN	10	Tdk Disetujui
33	PLTM SIMBELIN 2	6.4	MOU
34	PLTM SIMATANIARi	5.6	MOU
35	PLTM SIMONGGO TORNAULI	8	MOU
36	PLTM AEK GODANG	5	Proposal
37	PLTM SIKUNDUR	10	Proposal
	TOTAL	126,0	



PLN North Sumatera has documented the progress with these projects, as shown in Exhibit 31.

Exhibit 31: Processing Time and Attrition for Renewable Power Projects

	Proposal → PPA	PPA → Fin. Close	Fin. Close → COD	PPA → COD
No. of projects	23	16	5	5
Avg. time, months	20.8	13.4	33.6	45.0
Fastest time, months	7	9	24	34
Slowest time, months	29	22	53	62
No. requiring extension	-	9	3	-
% requiring extension	-	56%	60%	-

Based on this analysis, the average time from PPA to financial close is close to the 12 months allowed within the PPA. The difficult periods appear to be from the time of proposal to PPA and from financial close to COD. This would suggest that delays in the development process are principally the result of delays in developers meeting the conditions precedent for the PPA, or in actually constructing the plants. Based on PLN North Sumatera's analysis, these principal issues can be categorized as follows:

- Permitting issues (mostly affecting proposal to PPA)
  - Delayed approvals
  - In particular, difficulty in obtaining forestry use permits which are typically required for hydro projects
  - Overlapping claims

- Issuance of Temporary IUPL (affecting timing from proposal to PPA) or Permanent IUPL (affecting time required from financial close to COD)

- Developer preparation (mostly affecting financial close to COD)
  - Inadequate geotechnical analysis
  - Land acquisition
  - Site access
  - Plant synchronization

- Agreement by PLN and the developer (mostly affecting proposal to PPA)
  - Arrangements for transmission and interconnection
  - Other issues related to preparation of PPA appendices.

Based on these observations, initiatives to help developers prepare better and to help local governments prepare and issue permits more quickly and effectively appear to be principal areas for further assistance. This is discussed further in the next chapter.

5 Accelerating and Expanding Renewable Power Development

Based on the findings of the previous four chapters, Exhibit 32 identifies seven areas within the prevailing small renewable power project development process where further measures could be taken to accelerate or expand renewable power development. Although not all of these areas are under PLN's direct control, each area has a direct impact on PLN's ability to execute its key role in the development process. Referring to the numbered red dots in Exhibit32, the seven areas are:

1. Rationalize & Streamline Permitting
2. Improve Developer Preparation
3. Strengthen PLN Due Diligence
4. Assess Credit Enhancements
5. Clarify Responsibilities for Transmission Infrastructure
6. Update the PPA
7. Review Connection Standards.

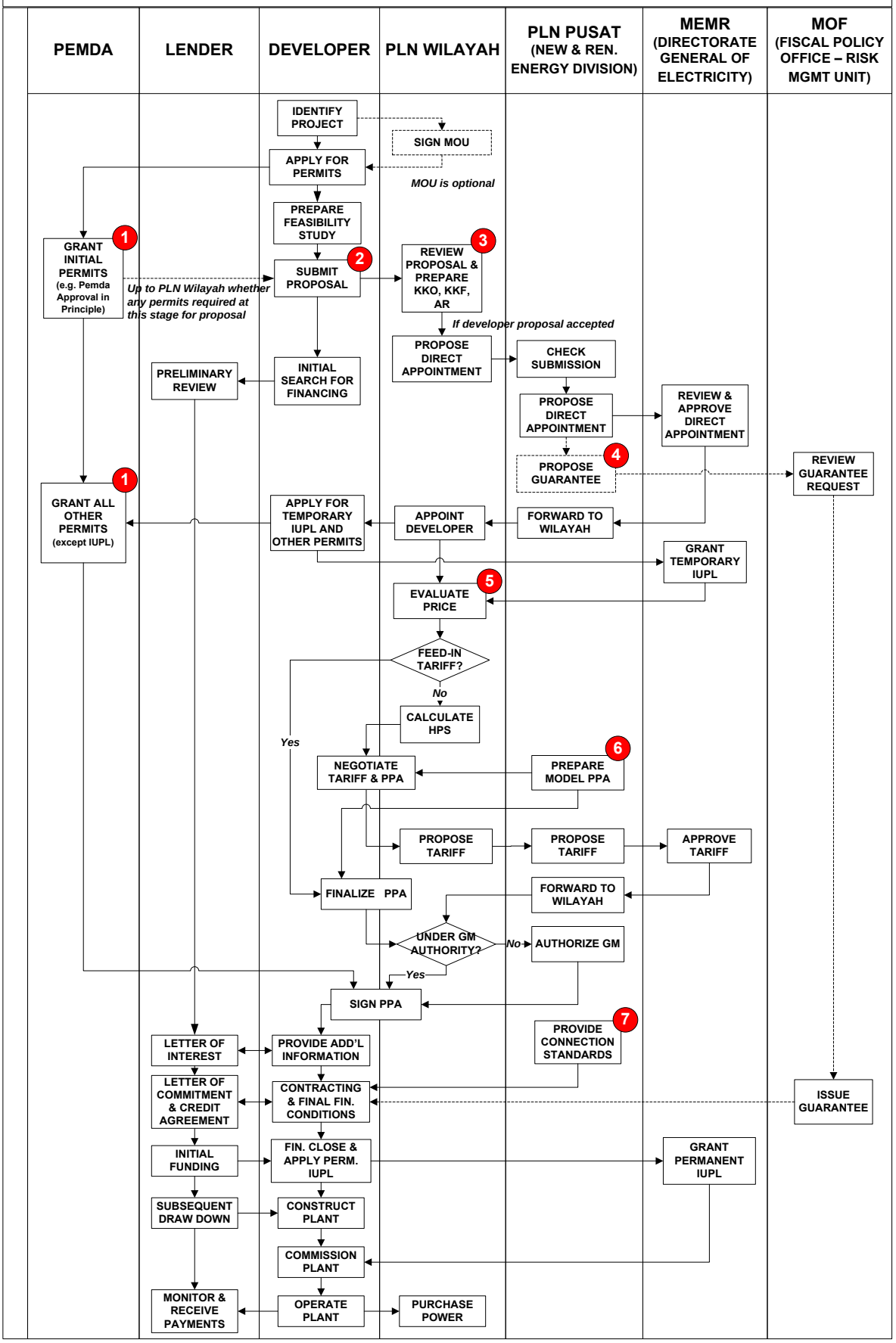
The first step for ICED is to confirm through direct discussions with stakeholders such as PLN, lenders, developers and national and local government whether these are indeed areas that warrant further attention, and whether addressing these issues can quickly help ICED achieve its objectives. For example, a survey of developers in a target province such as North Sumatra could provide empirical evidence of the need to address these areas. Each of these areas is discussed below.

5.1 Rationalize and Streamline Permitting Process

As discussed in Chapter 2, the regional government is responsible for issuing a wide range of permits, which may vary by the type and location of the project. However, this local government permitting is often characterized by:

- Long processing times
- Insufficient recognition of property or use rights. For example, cases have been identified in which a hydro power development has been permitted that potentially reduces the availability of water for downstream hydro power projects that had been permitted earlier.
- Some "developers" have secured permits for prime sites, but have no intention of actually developing the site. Rather, they act as rent seekers who aim to sell the site rights to a bona fide developer. Since many seek exorbitant terms, the sites go undeveloped. Permits are issued by regional governments without sunset clauses under which the permit would expire after a certain amount of time if specified

EXHIBIT 32: PREVAILING PROCESS FOR SMALL RENEWABLE POWER DEVELOPMENT



progress had not been made against the developer's stated purpose for obtaining the permit.

In general, authority to issue these permits has been devolved to regional governments, although under laws such as the Electricity Law (Law 20/2009) the national government retains the authority to set policies and guidelines that regional governments must follow. However, timely improvement will only be achieved by intervention at the regional government level.

Therefore a target province and/or target *kabupatens* should be selected based on the receptivity of the regional government administration, and the existence of evidence from PLN or developers that permitting issues such as those above have been encountered. Technical assistance can then be directed to the selected regional governments to rationalize and streamline their permitting processes.

5.2 Improve Developer Preparation

Small power development is a relatively new activity in Indonesia. Under Presidential Regulation No. 36/2010, the development of power plants of 10 MW or less is subject to "partnership" for foreign investment without a stated limit on the foreign ownership. The Preamble of the Presidential Regulation No. 36/2010 refers the partnership as defined in the Government Regulation No. 44 Year 1997 on Partnership (GR 44/1997) i.e. a business cooperation efforts between the Small Scale Enterprise and the Medium Scale Enterprise and/or Large Scale Enterprise accompanied by coaching and development from the Medium Scale Enterprise and/or Large Scale Enterprise with the principle of mutual need, mutually reinforcing and mutually beneficial. This implies that foreign investment is allowed. Another regulation related to the partnership with the before mentioned enterprises can be found in the Law No. 20 Year 2008 on Micro, Small and Medium Enterprises.

However, there has been little foreign participation to date in smaller projects. Most of the active developers have been local companies that are relatively new at this business. Anecdotal evidence suggests that many developers view the PPA as the key objective, equating that with a successful project when in fact a much broader set of milestones must be achieved. Developers frequently appear to be unfamiliar with bank borrowing requirements, or specialized technical aspects that must be addressed for successful projects (e.g., hydrology and geotechnical considerations for hydro projects).

This lack of experience results in the presentation of projects that either are not approved by PLN, or if they are approved, may take extra time to develop or may fail entirely. Programs to help developers understand the risks, requirements and processes for developing successful projects would result in better proposals, faster development and higher success rates. One approach would be to help a PLN regional office establish a "clearinghouse" for developers where they could get advice or assistance on project preparation, or to at least offer developers a comprehensive document that describes what they must do for their projects to move forward successfully.

5.3 Strengthen PLN Due Diligence

When PLN receives a proposal for a renewable power project, it is obliged by regulation to consider it. This requires time and effort from PLN staff. And if PLN approves the proposal, then both PLN Pusat and the regional office will need to devote resources throughout the rest of the development process until plant commissioning.

Given the high volume of proposals that the PLN regional offices are now receiving, it is important that PLN establish a screening process at the outset that ensures only projects with a reasonable chance of success proceed. Deficiencies in developer proposals should be identified as early as possible so that developers can improve their proposals before consuming significant PLN resources.

PLN has been considering various mechanisms to do this, including the introduction of some form of competitive tendering for projects. However, this would be difficult to implement for these projects, would require more time and additional PLN resources, and would conflict with prevailing regulations.

Initial efforts should perhaps focus on helping PLN develop a more rigorous screening process for proposals within the existing development process. It is understood that the current approach relies more on administrative checklists than on establishing the credibility of the developer and the financial and technical feasibility of the project (including a more detailed and systematic assessment of risks). This screening should entail due diligence that establishes the quality of the developer and the project.

5.4 Assess Credit Enhancements

Thus far, lending for small renewable power projects in Indonesia has been provided by local banks. Due to their unfamiliarity with or the unacceptability of renewable power project risks, these lenders have utilized full-recourse (corporate) finance as opposed to limited- or non-recourse (project) finance.

The relatively small size of these projects attracts relatively small developers. In many cases their balance sheets are unlikely to support corporate financing. As a result, the availability of financing is likely to prove a bottleneck to the expansion of small renewable power development. Otherwise, sound projects may fail to secure financing, resulting in a waste of both PLN and developer efforts.

Further study on the impediments to project finance for these projects is warranted. Some lenders, notably the Government Investment Center (*Pusat Investasi Pemerintah*), have expressed the intention to offer project financing, and a project financed by the United Kingdom's Department for International Development (DFID) is just getting started to assist PIP with this. However, it is likely to be some time before project finance is available for such projects.

In addition, the Ministry of Finance has established guarantees for PLN payment risk through PMK 139/2011. Apart from the direct credit enhancement these guarantees provide, it may also exempt bank lending for these projects from the legal lending limit that would apply for projects

with PLN as the offtaker. Government guarantees for other risks such as local government interference might also facilitate a shift towards project finance. (It is understood that Supreme Energy received such guarantees for geothermal projects at Muara Laboh and Rajabasa, but this documentation has not been released to the public and the legal basis for these guarantees is unclear).

A first step would be to review the risk matrix with banks and assess how risks would have to be reallocated to facilitate a move towards limited- or non-recourse finance. Depending on the outcome of this review, further discussions could be held with the Risk Management Unit in Ministry of Finance as to how these risks could be guaranteed by the Government. Discussions could also be held with groups like Millennium Challenge Corporation (MCC) and possibly USAID to explore the potential of creating a sector-wide development credit authority to be accessed by private developers of small renewable energy projects about whether to see if such credit enhancement guarantee facilities could be extended to PLN to take on these risks as the PPA counterpart.

5.5 Clarify Responsibilities for Transmission Infrastructure

Permen 4/2012 stipulates only that PLN must purchase power from renewable projects at the feed-in tariff. The regulation is silent regarding whether the purchase point is on PLN's existing network, or how the cost of additional transmission that may be required to connect the project should be allocated between the developer and PLN.

PLN has addressed this issue on an ad hoc basis in the past. Sometimes a developer chooses to forego the speed and certainty of the feed-in tariff and opts to negotiate a tariff with PLN, with the aim of recovering the additional cost of the transmission. In other cases, PLN may provide the additional transmission if it in their interest, or alternatively may require the developer to do it.

Since every project is different, flexibility is required. However, a clear PLN policy on the matter, along with tools for PLN to quickly and accurately estimate the cost of transmission connection to a project and assess whether it makes sense for PLN to bear the cost of additional transmission, would be helpful. The geographical information system that ICED has developed would be the core of such a tool. Further assistance to help PLN adapt this tool to transmission extension decision-making appears worthwhile.

5.6 Update the Power Purchase Agreement

The PPA provides the basis for PLN's purchase of power from the project, and allocates development and operating risks between the PLN and the developer. A "bankable" PPA is one that presents and allocates risks so that a financial institution is willing to lend money. Given that numerous small renewable energy projects have already been financed, the PLN PPA is bankable (though on a full-recourse finance basis). However, a detailed review of the PPA from the standpoint of the risk matrix would be useful to:

- Assess whether risks can be allocated in a manner more conducive to limited- or non-recourse financing

- Ensure more generally that risks are being allocated to the party best able to manage them.

In addition, there are a number of changes to commercial terms that PLN is considering, such as duration of the PPA or requirements for transferring the project to PLN at the end of the PPA term. Specific issues to be considered therefore include:

1. Taking into account inputs from financial institutions, whether any risks could be re-allocated to facilitate limited- or non-recourse finance.
2. The duration of the PPA.
3. Whether there should be a transfer of assets to PLN at the end of the PPA term, effectively converting the project to a build-own-operate-transfer (BOOT) arrangement.
4. Clarifying PLN dispatch requirements and assessing whether there is a need for "deemed dispatch" in the event the plant is available but PLN is unable to take power.
5. Establish guidelines for the tariff front-loading.
6. Develop technology-specific model PPAs.
7. Develop guidance of who pays for transmission connection under various scenarios

5.7 Review Connection Standards

Developers must comply with PLN's distribution and connection standards as documented in the *Standar PLN,* or SPLN. The SPLN are issued as directors' decrees. However, two areas that warrant further consideration are:

- Power plant synchronization with the grid, and the potential for use of asynchronous generators.
- Standards for interconnection with pre-existing isolated microgrids.

PLN may benefit from additional technical assistance to help with preparation of these standards, and incorporating them in information that goes to developers at the outset of the process.

5.8 Summary of Potential Areas for PLN Support

Drawing on the above discussion and taking into account that PLN also develops its own renewable energy projects, Exhibit 33 summarizes specific areas of renewable power development support that could be considered for PLN. The table distinguishes between areas of support that could be best handled through ICED or other sources of technical assistance. The table's section references are to this report.

Exhibit 33: Potential Support to PLN

	Activity Area		Specific Activities	Proposed Allocation & Rationale	Comments
1	Updating PLN's renewable Power Purchase Agreement (PPA)	a.	Clarify risk allocation under different financing modalities (Sections 5.4 and 5.6)	ICED requires input and coordination of both financial institutions and PLN	Required as a basis for clarifying PPA and facilitating the use of project finance
		b.	Review specific PPA terms, including: duration, whether project is BOOT or BOO, PLN obligation to off take and provision for "deemed off take," technology-specific conditions, etc. (Section 5.6)	ICED has already started dialogue with PLN	Establish MOU and NDA with PLN Pusat to facilitate open discussion. Currently PLN uses one PPA for all technologies; distinct model contracts by renewable energy technology could be more appropriate.
		c.	Prepare guidelines for tariff front-loading (Section 5.6)	ICED has already started dialogue with PLN	Though tariff front-loading has been tacitly approved by MEMR, no clear guidelines exist. Should be packaged as a proposal to DJEBTKE/DJE for approval.
		d.	Formulate criteria for approving projects and later signing PPA (Section 5.3)	ICED has already started dialogue with PLN.	PLN would like to assess with greater certainty the likelihood that a PPA will lead to project prior to signing PPA
2	PLN system planning & operations	a.	Guidelines and tools for assessing transmission cost responsibility (Section 5.5)	To be used in conjunction with GIS tool	Permen 4/2012 silent on responsibility for transmission investment
		b.	Review of issues associated with PLN connection of isolated micro-grids (Section 5.7)	ICED is planning an interconnection workshop with PLN	Further feedback from PLN required to determine importance
		c.	Technical design guidelines for plant synchronization, including use of asynchronous generators and protection from transient voltage fluctuations. (Section 5.7)	ICED is planning an interconnection workshop with PLN	Need to determine how these are addressed under prevailing connection guidelines. Could be a low-cost way to avoid synchronization issues of grid connection.

	Activity Area		Specific Activities	Proposed Allocation & Rationale	Comments
		d.	Review of overall development process to identify bottlenecks and facilitate PLN planning (Section 5)	ICED has already started working with PLN Sumut as well as developers on this. New assistance could support areas outside ICED target regions.	May be scope for similar engagement with other PLN regions outside ICED target areas.
		e.	Working with PLN & local government units to alleviate local permitting bottlenecks (Section 5.1)	Would cover only ICED target regions. New assistance could support areas outside ICED target regions.	Contingent upon findings of Activity 2(d) above.
		f.	Establishing and operating a "PLN Renewable Energy Resource Center" to familiarize developers with the overall development process and requirements, including permitting (Section 5.2).	ICED could consider such a center for Aceh or Riau. PLN Sumut is already doing so itself. New assistance could support other PLN regions.	MOU and NDA to formalize assistance, facilitate open discussion, and establish role among stakeholders with PLN regional offices.
		g.	Assess water use permitting / licensing (Section 5.1).	ICED has already started a review of water regulations	Any such scheme ultimately must be promulgated by the GOI, but can work with PLN to understand and assess impacts.
3	PLN Program & Project Management	a.	Assist PLN with establishment & operation of a Project Implementation Unit for planned multilateral loan-financed renewable energy projects	New assistance	World Bank project will focus on eastern islands.
4	Monitoring & evaluation of PLN renewable energy efforts.	a.	Compile and evaluate renewable energy development status from PLN regions	New assistance	National in scope
		b.	Develop guidelines & tools to be rolled out by PLN Pusat to regions to address bottlenecks identified in 4(a)	New assistance	Could serve as conduit for adaptation, dissemination and replication of outputs produced by ICED for target regions to all of PLN.

	Activity Area		Specific Activities	Proposed Allocation & Rationale	Comments
		c.	Assessment of impact of RE on BPP and electricity subsidy	ICED is already working with PLN on this.	PLN now required under Permen 4/2012 to provide regional BPP to DGE on quarterly basis.
5	Design input/value engineering for PLN renewable energy projects	a.	Provide support to PLN for specific renewable energy projects. Already providing such support to developers.	ICED could provide support on hydro; new assistance could advise on other technologies.	Many new renewable projects – especially hydro – listed in RUTPL. Many are large projects.

Annex A
A Short History of PLN

A.1 Events Leading to the Formation of PLN

The Indonesian electricity industry had its roots in the late 19th century when several Dutch sugar and tea plantations developed power plants to meet their needs. During World War II, the Japanese continued to operate these plants during their occupation. When the Japanese surrendered in August 1945, local delegations of electricity workers, together with the head of the Indonesian National Commission, took the opportunity to propose to President Soekarno that these companies be handed over to the Republic of Indonesia. On 27 October 1945, President Soekarno established the Bureau of Electricity and Gas under the Department of Public Works and Energy. Its total generating capacity was 157.5 MW.

In the 1950s various separatist movements threatened the unity of Indonesia. During this period the Government promulgated a national uniform electricity tariff to help reinforce national unity. In addition, the Government's efforts to ensure the affordability of electricity to households resulted in pervasive cross-subsidies that continue to this day.

On January 1, 1961, the Bureau of Electricity and Gas was changed to BPU-PLN (Board of General Administration of the State Electricity Company), which focused on electricity, gas and coke sectors. On January 1, 1965, BPU-PLN was dissolved and two state-owned enterprises were established in its place: Perusahaan Listrik Negara (PLN) to manage electricity and Perusahaan Gas Negara (PGN) to manage gas supply.

In 1972, in accordance with Government Regulation No. 17, the state-owned electricity company was designated as the sole authorized agency for electricity business (*pemegang kuasa usaha ketenagalistrikan*, PKUK) responsible to provide electricity to meet public needs.

A.2 PLN during the 1980s

Indonesia's economy began to grow rapidly in the 1980s, resulting in power demand growth of some 15% annually. Indonesian power sector restructuring efforts began during that time in response to this explosive growth. The need for effective sectoral management and the increasing complexity of the sector led to the enactment of Law No. 15/1985. This law established a framework for sectoral planning and licensing while maintaining the Government's responsibility for overall guidance of the sector, including tariff setting.

Government Regulation 10/1989 stated that the President would determine the electricity tariff based on the proposal of the Minister of Mines and Energy. Government Regulation 17/1990 subsequently specified several factors that must be taken into account in tariff design, such as the public interest and the sound commercial standing of PLN. Unfortunately, none of these regulations

provided any guidance as to how conflicts between these various objectives would be resolved, nor how tariffs would be set.

Consequently, there were no transparent, institutionalized processes for regular tariff adjustments during this period. Tariffs were adjusted only when PLN's financial condition had deteriorated to critical levels. Exhibit A.1 shows the history of tariff adjustments during the 1980s.

Exhibit A.1: PLN Financial Performance and Tariff Adjustments in the 1980s

Financial Indicator	1981/82	'82/83	'83/84	'84/85	'85/86	'86/87	'87/88	'88/89	'89/90
Rate of return	-1.9%	-2.9%	-0.8%	-0.4%	-0.3%	3.5%	-0.3%	0.0%	6.4%
Operating ratio	1.05	1.07	1.02	1.01	1.01	0.97	1.01	1.01	0.79
Debt service coverage				3.5	2.1	2.9	1.3	1.9	2.6
Self-financing ratio	29.0	32.4	26.2	12.2	10.1	42.5	9.3	19.0	39.8
Month of tariff increase and percent	2/82 30.5%	2/83 34.5%	3/84 28.7%	none -	none -	8/86 -3.1%	none -	4/89 24.2%	none -

A.3 The Introduction of Private Participation

By the 1990s, it was clear that the Government and PLN alone could not provide the financial and technical resources necessary to meet continued demand growth, particularly the construction of new generating capacity. Presidential Decree No. 37/1992 opened the way for independent power producers (IPPs), particularly through build, own, operate (BOO) schemes.

Certain structural changes in the sector were also required if IPPs were to become a reality. In particular, IPP developers wanted assurances that PLN would collect sufficient revenue to meet its payment obligations to IPPs. In 1994, the Minister of Mines and Energy issued a statement entitled *Goals and Policies for the Development of the Electric Power Sub-Sector*. This policy statement affirmed that the Government would:

- Improve the performance of PLN through decentralization, commercialization, and corporatization
- Ensure electricity tariffs reflect the economic cost of supply
- Reform the regulatory and institutional framework to foster competition and efficient private sector participation
- Promote energy conservation and enhance environmental protection.

As part of these broader reform efforts, Presidential Decree 68/1994 introduced two elements for electricity pricing, the Electricity Base Tariff (*Tarif Dasar Tenaga Listrik*, TDL) and the Periodic Electricity Tariff (*Tarif Tenaga Listrik Berkala*, TTLB). The TTLB, also known as the Electricity Tariff Adjustment Mechanism (ETAM), allowed the Ministry of Mines and Energy to adjust tariffs every three months based on changes in:

- Fuel price
- PLN purchase price of electricity from IPPs
- Inflation
- The Rupiah/US Dollar exchange mid-rate

Exhibit A.2 shows the adjustments resulting from the application of ETAM.

Exhibit A.2: The Application of ETAM

TTLB No.	Tariff Changes (% of TDL 1994)	Effective Date
I	- 0.34	August 1995
II	+ 0.33	November 1995
III	+ 1.06	February 1996
IV	+ 1.83	May 1996
V	+ 1.83	August 1996
VI	+ 2.11	December 1996
VII	+ 1.76	March 1997
VIII	+ 2.25	June 1997
IX	+ 6.74	September 1997
X	+ 6.97	December 1997

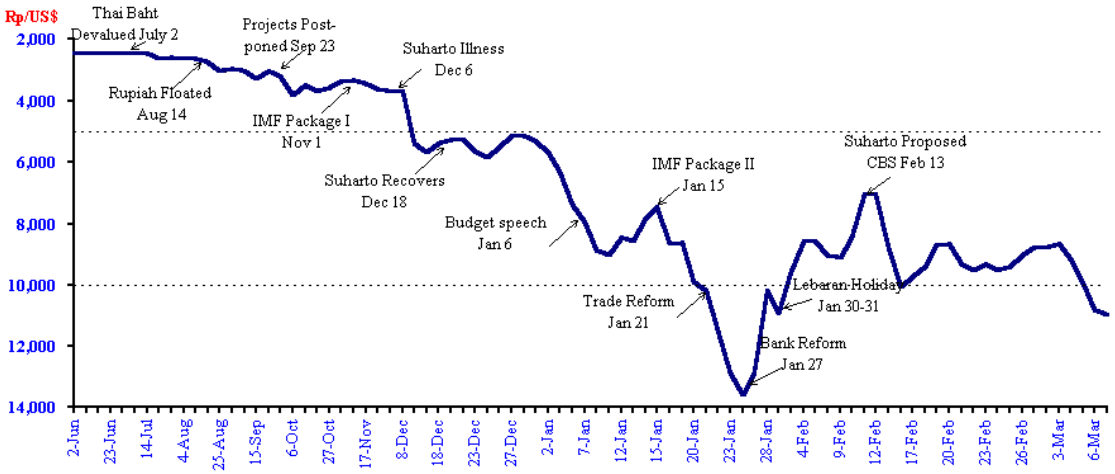
ETAM helped assure investors that PLN would have sufficient funds to pay IPP obligations. By 1998 27 power purchase agreements had been signed representing $17 billion in investment commitments.

PLN also began to gradually re-organize itself in response to the 1994 policy, with support from multilateral development banks. Generation assets in Java-Bali were transferred to two new PLN subsidiaries, and all Java-Bali system and transmission operations were brought under a single unit. PLN also initiated creation of internal transmission and distribution investment centers.

A.4 The Asian Financial Crisis

By mid-1997 the storm clouds of the Asian economic crisis were quickly gathering, and by the end of 1997 the contagion had spread to Indonesia. Exhibit A.3 shows the trajectory of the Rupiah/US Dollar exchange rate during that period. ETAM was suspended after the December 1997, adjustment as the tripling of the Rupiah/US Dollar exchange would have led to huge tariff increases that would not have been socially or politically acceptable.

Exhibit A.3: Depreciation of the Rupiah, 1997-1998



Source: http://www.indoexchange.com/

Meanwhile, PLN's financial situation was deteriorating rapidly. At an exchange rate of Rp 6,000 = US $1, approximately 40% of PLN's operating expenses were dollar-denominated in 1998. This was expected to increase to 60% by 1999 as the first large IPPs came on line. The Electricity Tariff Rationalization Study conducted by Hagler Bailly under ADB financing laid out a four-phase program to adjust tariffs so as to gradually align social, financial and economic objectives for the sector. The first step aimed to "keep the lights on," and proposed a PLN financial performance target of earnings before taxes (EBT) = 0. Despite the relaxed financial performance target, major tariff increases were required.

In May 1998, the Government announced energy price increases. Electricity prices were increased 20%, with further 20% increases scheduled for August and November. Fuel prices were increased between 25 and 71% depending on the fuel. This announcement precipitated serious riots nation-wide that ultimately led President Suharto to step down and hand over power to Vice President Habibie. The price increases were scaled back significantly.

Despite this political turmoil, by mid-1998 the new Government had prepared a detailed blueprint for the sector. The GOI issued the *Power Sector Restructuring Policy*, which described how competition and independent regulation would be introduced to restore the sector's financial viability, enhance efficiency, increase transparency, and facilitate greater private sector participation in a sound manner. These were much the same objectives as put forward in 1994, except that the new policy offered a vision of how those objectives were to be achieved. The 1998 policy aimed for the implementation of a multi-seller/multi-buyer electricity market by 2003.

Still, the reaction to the May 1998, energy price adjustments had made the Government understandably wary of increasing tariffs. The adjustment initially announced in May 1998 would have resulted in a 73% increase in electricity prices by the end of that year. Ultimately, only a 30% increase was implemented. The next tariff increase did not take place until March 2000. Increases took place regularly thereafter until September 2003, reaching an average tariff of Rp 554, somewhat below the target tariff yield of US$ 0.07/kWh the Government had set. (US$ 0.07/kWh was the average tariff yield in 1996 prior to the crisis.)

Meanwhile, the Government was preparing a new electricity law to implement the 1998 policy. In September 2002, President Megawati signed Law 20/2002, which differed from the 1998 Policy in several respects, including:

- Law 20/2002 did not require the unbundling of PLN or the introduction of an MB/MS market, although it stipulated that competition in some form (either in generation or supply) should be implemented by 2007. However, under the Law competition could be introduced only in areas that met certain criteria. Among these criteria was the requirement that tariffs had reached their "economic level."

- The Law created an independent power sector regulatory agency, the *Badan Pengawas Pasar Tenaga Listrik* (Bapeptal), which was never operationalized. The authority of Bapeptal was limited to competitive areas to be defined by subsequent Government Regulation.

- Under Law 20/2002, Bapeptal would set tariffs in competitive areas, and the Government will set tariffs in non-competitive areas. In either case, tariff setting was to take into account factors such as production cost, business efficiency, national and consumer interests, and affordability.

- The implementation of the Law itself was not held to a strict timetable. For example, the Law stipulated the creation of Bapeptal by September 2003. The process to nominate commissioners began in earnest only in the latter half of 2004, and given the presidential and legislative election timetable, it was likely that commissioners would not have been appointed until at least 1½ years later than stipulated by the Law.

PLN has also taken various steps in line with the 1998 Policy, including initial geographical unbundling. PLN established PLN Batam as a subsidiary in 2000 and PLN Tarakan in 2003. Both of these areas are characterized by relatively strong local economies that rely on export-oriented industry. Each operates under its own tariff regime, with an average tariff yield significantly higher than for the rest of Indonesia. The creation of these new subsidiaries with their own tariffs was a milestone in the evolution of Indonesian electricity tariffs from a uniform national tariff to geographically differentiated tariffs. Moreover, the Government's 2003 Power Sector Blueprint identified Batam as a candidate for initial introduction of competition and regulation, given its manageable size and likelihood that Batam's tariffs are already closer to economic levels. (Although how a market would be implemented in such a small system had not been determined.)

In December 2004, the Constitutional Court overturned Law 20/2002, citing inconsistencies with Article 33 of the Constitution, particularly with respect to the Government's ability to control or govern the sector in a free market environment, as required by the Constitution. The Government issued Government Regulation 3/2005 as a temporary measure to guide the sector (particularly the procurement of new private generation) pending preparation of a new law. The fundamental law governing the sector reverted to Law 15/1985.

The Government eventually enacted Law No.30 Year 2009, which is described in Chapter 2 of this report. PLN status was no longer as PKUK, but it was officially a State-owned enterprise providing electricity to meet the public needs.