



Energy Efficiency and Renewable Energy Development In Power Sector In Indonesia



Presented by:
Bambang Praptono – Director of Planning and Technology of PT PLN (Persero)

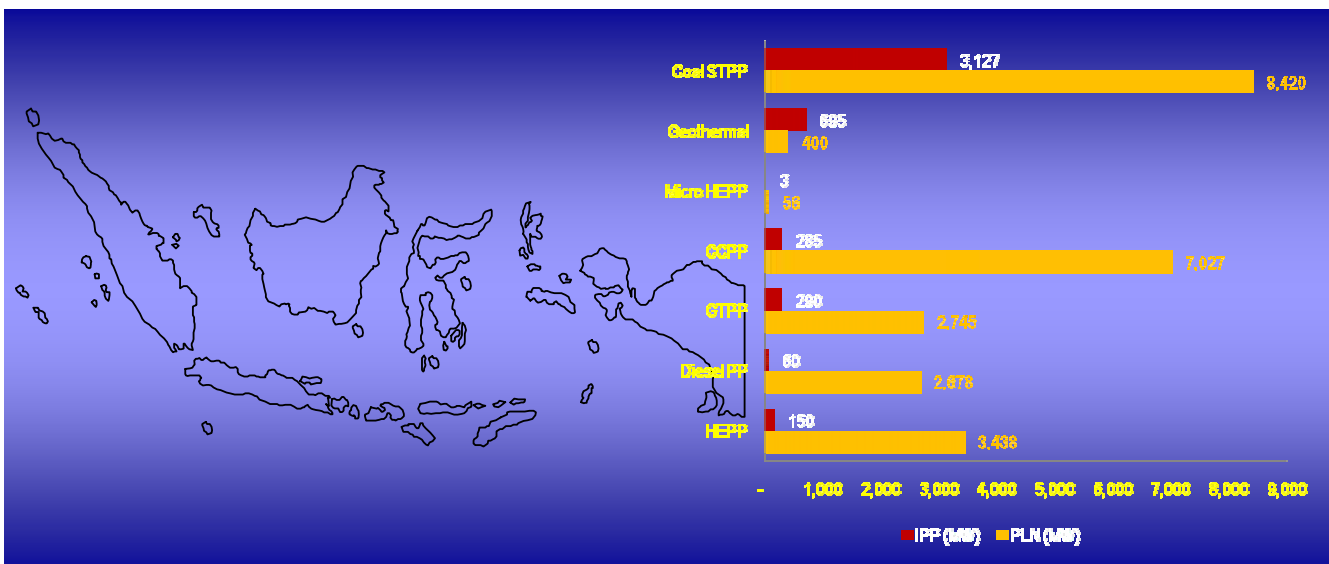
CEO Conference AESIEAP 15th–16th October 2009

Electricity For A Better Life



INSTALLED CAPACITY ON ISLANDS

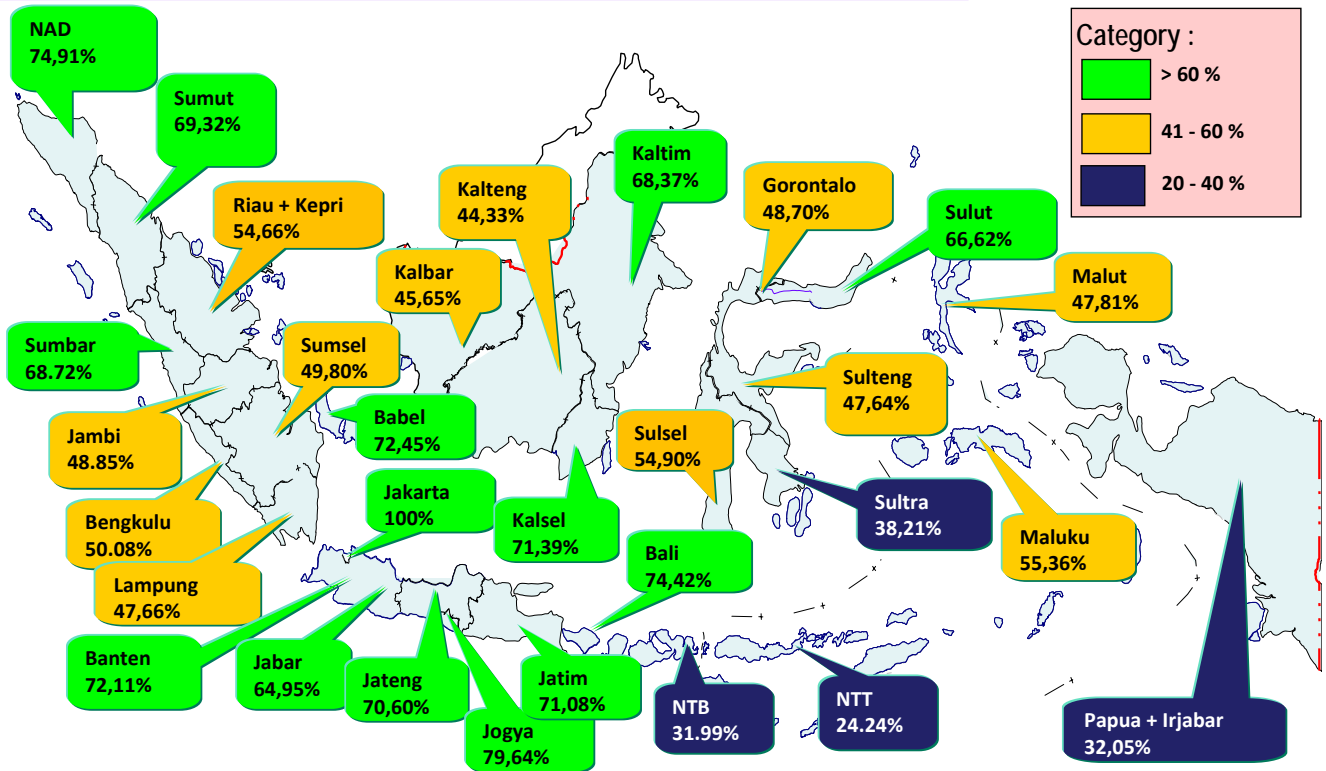
Total Installed Capacity 29,373 MW
(Share of 85% PLN + 15% IPP) using various of primary energy
Serves 39 million customers over the country



Electricity For A Better Life



ELECTRIFICATION RATIO IS ABOUT 65%

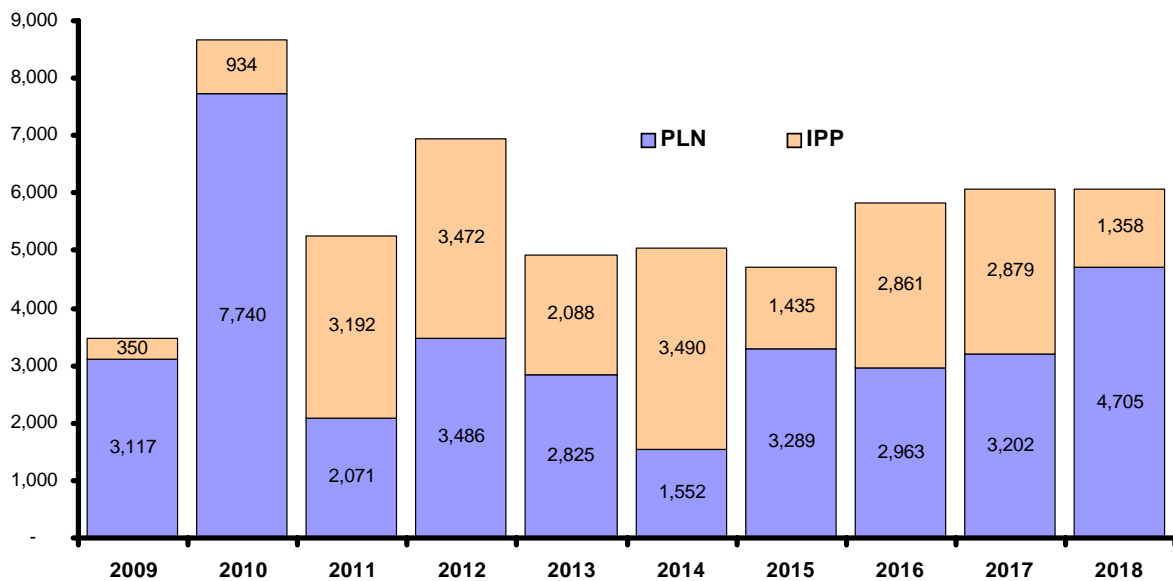


Sumber: ESDM

Electricity For A Better Life



Power Generation Development Plan



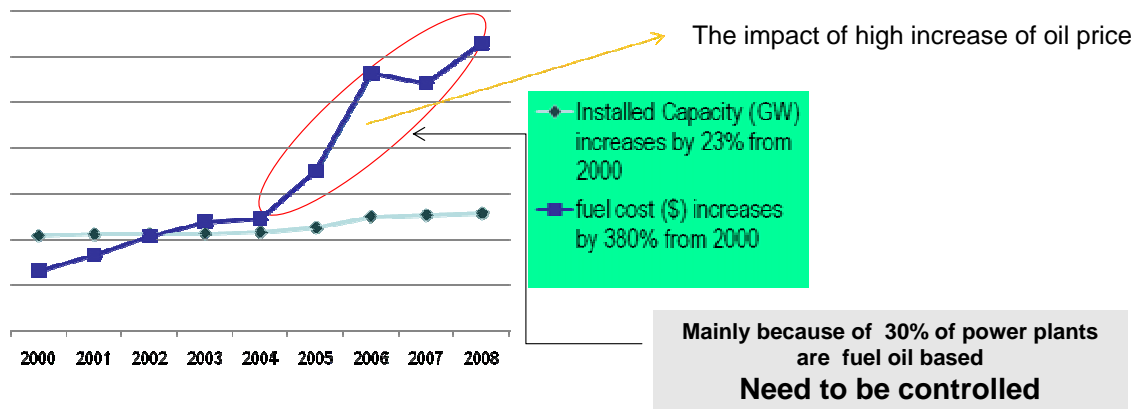
- Total additional generation capacity up to 2018 is 57,4 GW.
- PLN's: 35,3 GW (61.5%) and IPP's: 22.2 GW (38.5%).

Source: REPTL 2009-2018 Better Life



EFFICIENCY, THE CHALLENGES

- Dynamic non-renewable fuel price but maintain sales tariff at a certain level (as the gov policy)



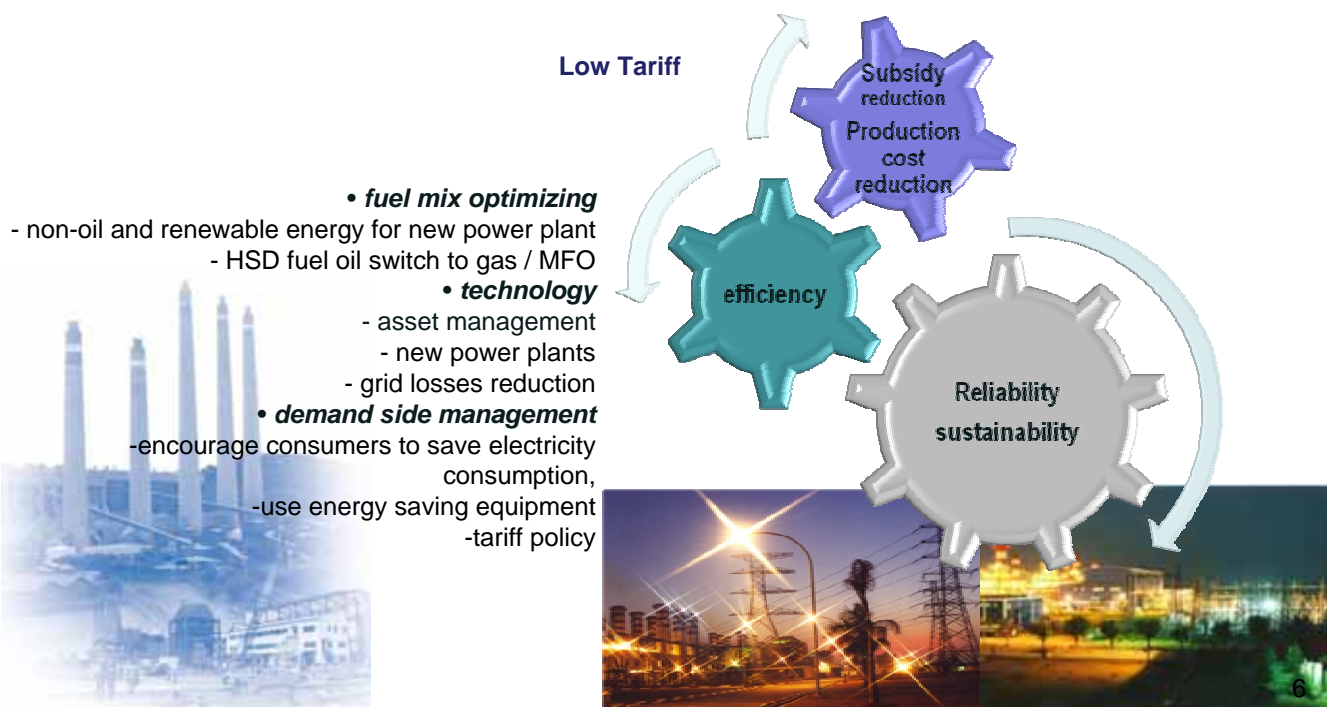
- New technology is available
- To provide low production cost

5

Electricity For A Better Life



EFFICIENCY, DRIVES TO PRODUCTION COST REDUCTION



Electricity For A Better Life

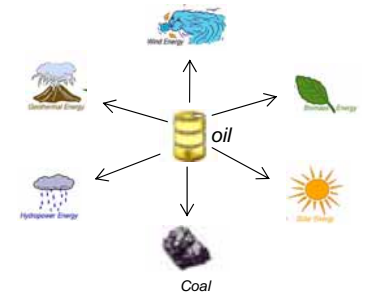


ACTION ADDRESSED TO FUEL MIX IMPROVEMENT

2008 - 2009

Existing Power Plants

- Fuel conversion from HSD to **MFO** in number of Diesel Power Plant Units
- Fuel conversion from HSD to **Gas** in number of Gas Turbine Power Plant Units



2009 - 2011

Existing Power Plants

Repowering the open cycle Gas Turbine Power Plants into **Combine Cycle Power Plants**.

New Power Plants

Build the Fast Track Program phase-1, a 10,000 MW capacity new **Power Plants based on non-oil fuel**

2011 - 2014

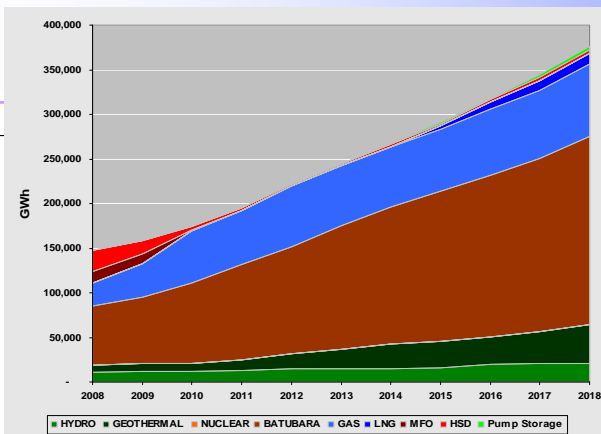
New Power Plants

Enhance more renewable energy source under the Fast Track Program phase-2 as 4,733 MW for **Geothermal Power Plants** and 1,174 MW from **Hydro Electric Power Plants**

Determine regulatory and business process necessary to increase geothermal development

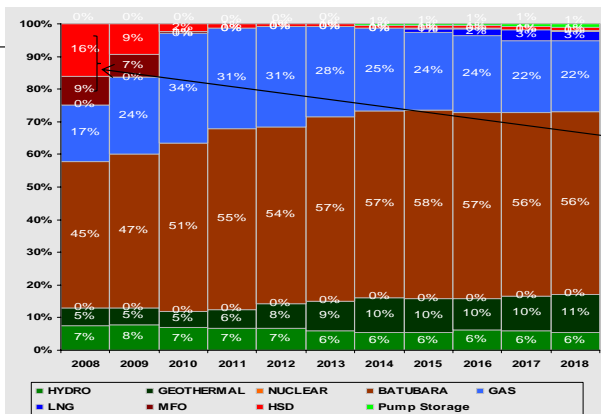


ELECTRICITY PRODUCTION



by GWh

- In term of source of primary energy:
- Important to reduce the high dependency of fuel oil to reduce production costs
 - Optimize usage of domestic energy sources (coal and renewable energy)
 - Expand the contribution of renewable energy (geothermal and hydro power)



by percentage

- Reduce fuel oil consumption from 25% by year 2008 to 2% by year 2018
- Geothermal contribution increases from 5% by year 2008 to 11% by year 2018



INCENTIVES FOR RENEWABLE ENERGY DEVELOPMENT

- Fully supported by Regulation PLN has an obligation to purchase electricity produced by renewable power plant with capacity less than 10 MW
- Fiscal (Free for import duty and VAT import for Geothermal equipments ; tax Incentives, such as Carry Forward of Losses up to next 5 years)
- Government Guaranty for Public Private Partnership (PPP) programs
- Priority on System Development Planning
- Attractive Return on Equity (ROE) and Return on Investment (ROI)

Electricity For A Better Life



SECURE THE PROJECTED DEMAND OF FUEL

Year	HSD (x10 ³ KL)	MFO (x10 ³ KL)	Gas (bcf)	LNG (bcf)	Coal (x10 ⁶ TONS)
2009	5,651	2,657	334	0	32
2010	1,912	513	361	0	52
2011	961	152	353	0	62
2012	702	131	380	0	66
2013	547	125	418	0	70
2014	642	136	416	0	77
2015	807	144	424	17	85
2016	949	156	457	42	92
2017	1,239	166	465	64	100
2018	1,551	184	501	74	107

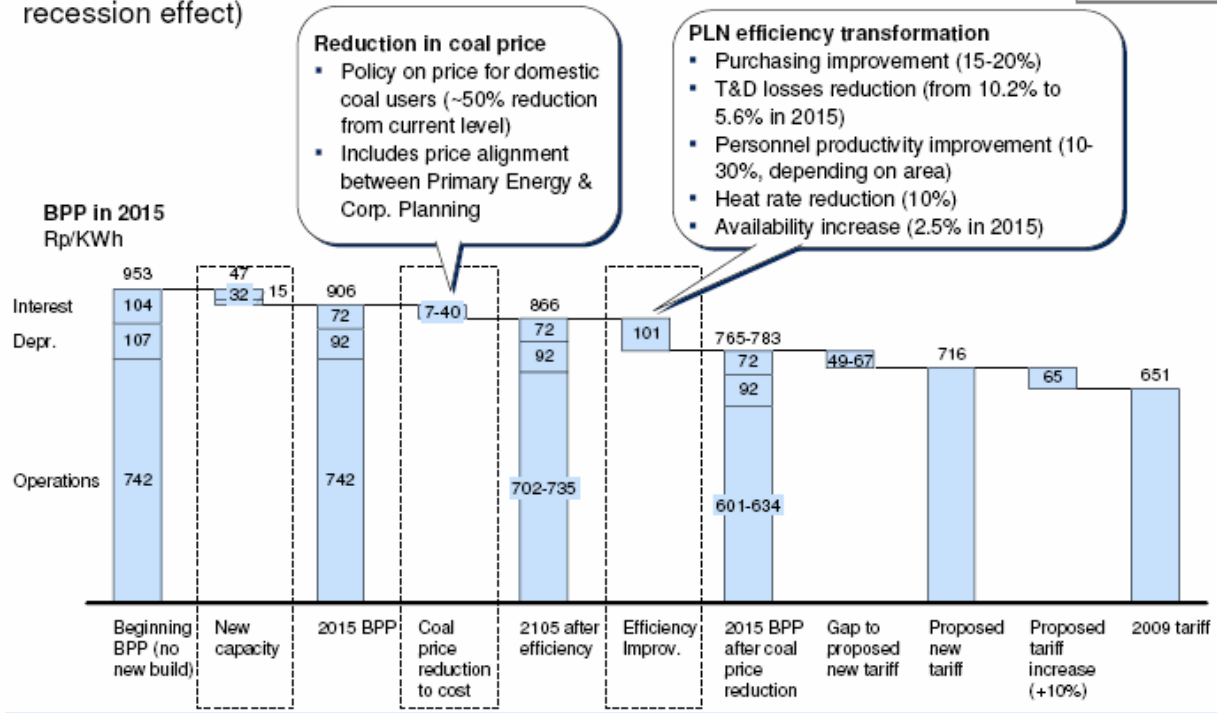
- Require strong regulatory that support to secure the primary energy supply at the adequate quantity to allow optimal fuel and capacity build mix
- As the requirement of coal will be triple in the next nine years, PLN has been preparing the long term contract and upstream integration:
 - establish the coal mining subsidiary
 - Requiring transportation company to secure 20% of coal supply

Electricity For A Better Life



PLN EFFICIENCY TRANSFORMATION

Unit cost estimated at RUPTL volume (i.e. before 15% volume adjustment for recession effect) PRELIMINARY



EFFICIENCY BY TECHNOLOGY SUPPORTING

Optimizing power plant

- Life Extension Program
- Plant Performance Improvement Program
- Convert Steam Power Plant into a Combine Cycle Power Plant

Enhancing efficiency and environment aspect

- Super Critical Boiler
- CFB Boiler
- Study on CCS
- Clean Coal Technology
- Pump Storage HPP (incl : Seawater PS HPP)

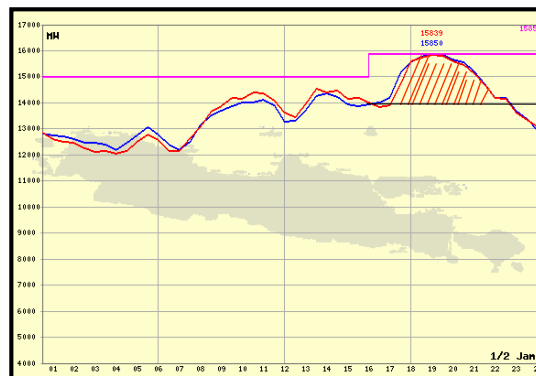
Optimizing Transmission and Distribution Performance

- Automation in transmission and distribution (SCADA, Smart grid)
- Implement IT system in major business process (CIS, EAM, ERP, E-Proc)



DEMAND SIDE MANAGEMENT

- **Energy Saving Campaign**
 - Full support of Government (President Instruction no.2/1998 - Energy and Water Saving Obligation for every Government Offices)
 - Intensive public campaign via various media to save electricity consumption (eg. The use of more efficient electric equipments)
- **Peak Clipping and Load Shifting Policy with Tariff Policy**
 - Encourage industrial customers to shift their activity from peak to off-peak period
- **Interconnection with ASEAN Countries**



Peak Clipping and Load Shifting Program

13

Electricity For A Better Life



ENVIRONMENT COMMITMENT

- **Our mission :**
 - ✓ Running the business with environmental friendly care
- **Programs Approach:**
 - ✓ Environment Management System; Implement ISO 14001
 - ✓ Reduce CO₂ emission using Clean Development Mechanism scheme; PLN has signed Emission Reduction Purchase Agreement for more than 3,2 million ton CERs.
 - ✓ Strategic Planning; to increase renewable energy installed capacity especially Geothermal to 4.733 MW or 48% share in The Fast Track Program phase-2; reduce CO₂ emission .

14

Electricity For A Better Life



Closing Remark

- As the success of efficiency program in year 2008, PLN is continuing efficiency the improvement program to reduce 35% of the Production Cost by managing fuel mix, technology and DSM.
- Energy Saving Program can be controlled not only by Supply Side Management but also by Demand Side Management through shifting load.
- Saving of electricity consumption is responsible of all interested parties to ensure sustainability of energy saving in the future years.
- Shifting the dominant role of fuel oil in power generation to non-oil and renewable energy especially geothermal and hydropower will reduce on oil dependency and taking care the invironmental issues.
- Incentives for renewable energy development stimulates IPP Investors to participate in developing green energy power plants.

15

Electricity For A Better Life



Thank you



16

Electricity For A Better Life