



# The Indonesian experience of social and environmental impact of power sector reform

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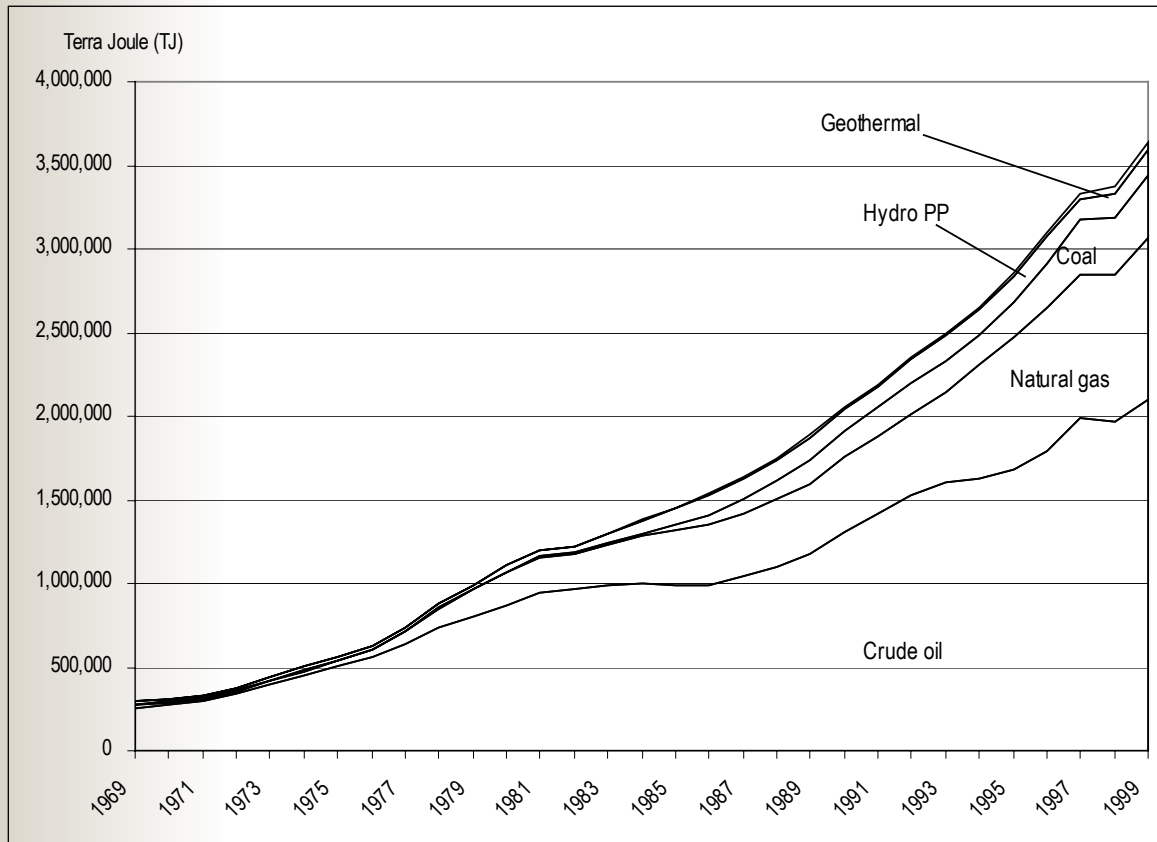


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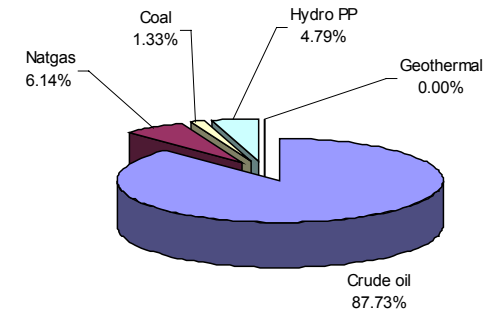
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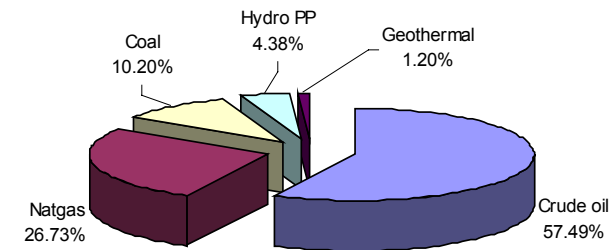
# The development of primary energy consumption in Indonesia



The distribution of primary energy in 1969

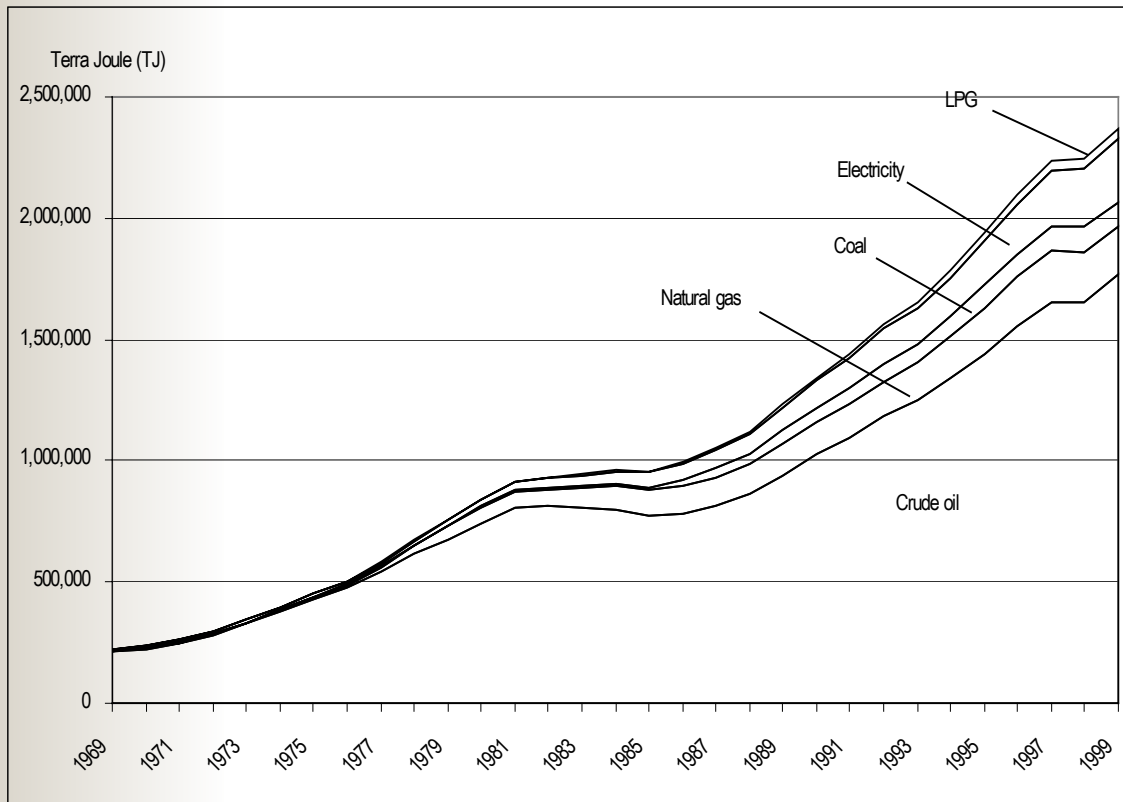


The distribution of primary energy in 1999

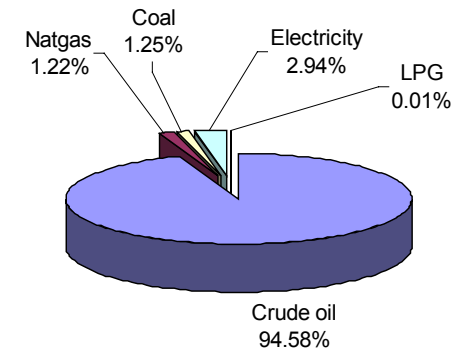




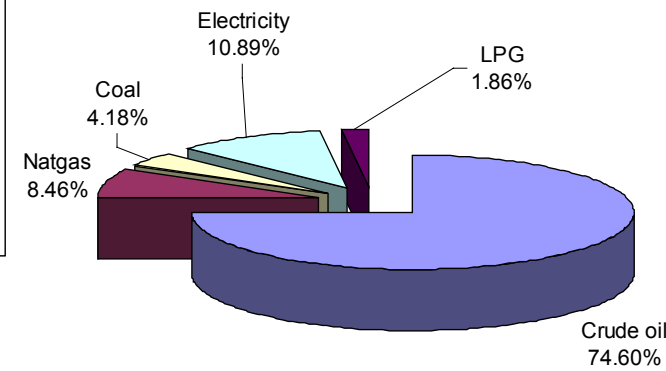
# The development of final energy consumption in Indonesia



The distribution of final energy in 1969



The distribution of final energy in 1999

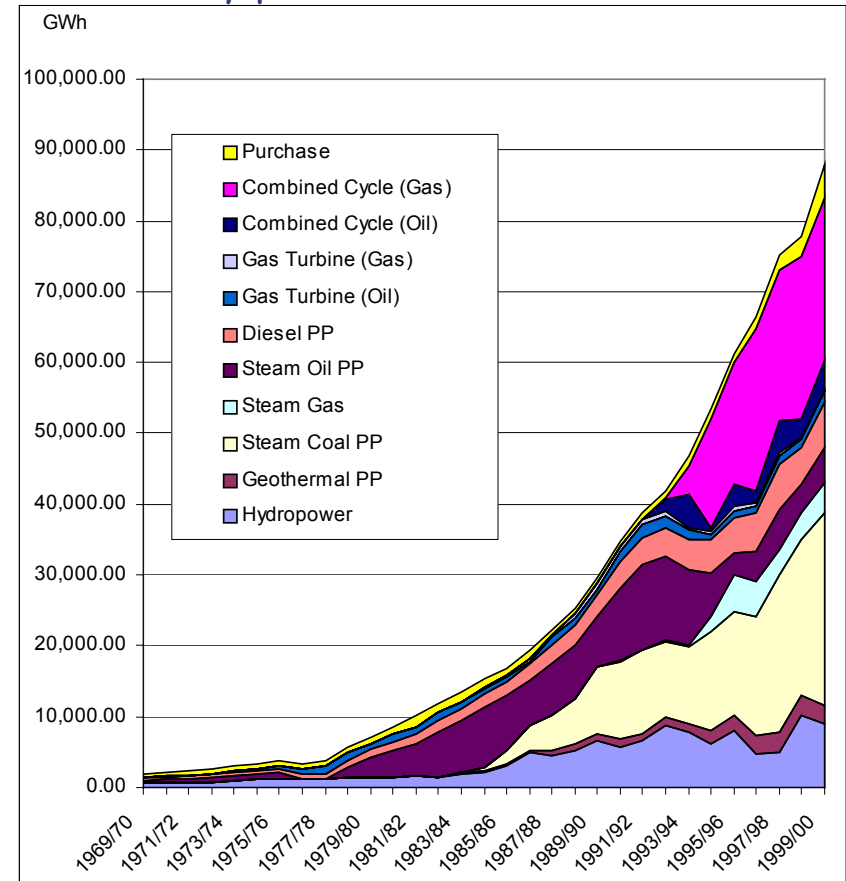
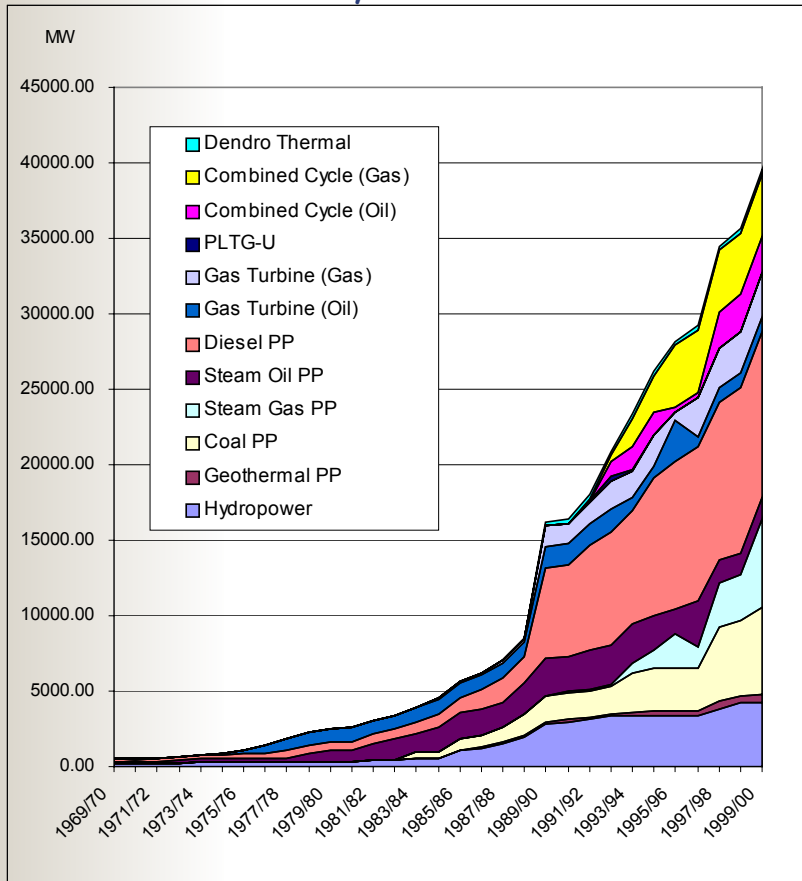




# The profile of electricity sector in Indonesia

The development of installed capacity of national electricity

The development of national electricity production

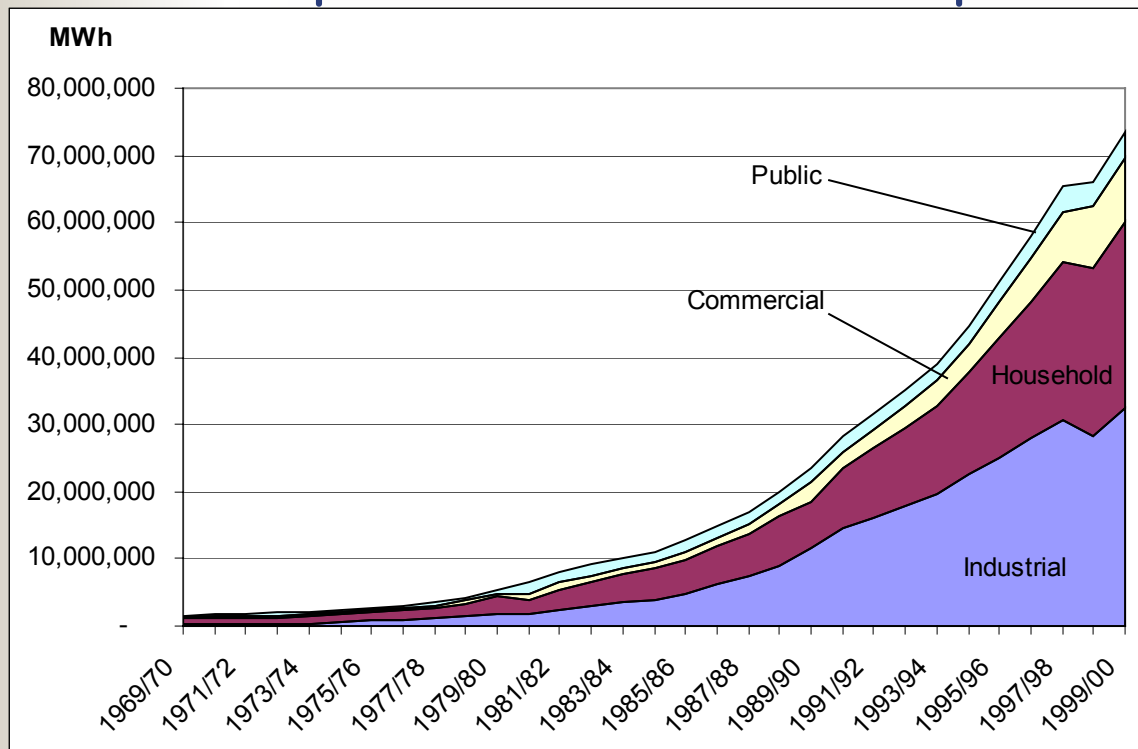


Yearly growth rate in the last three decades:  
 - Installed capacity was 15.4%  
 - Production was 14.5%

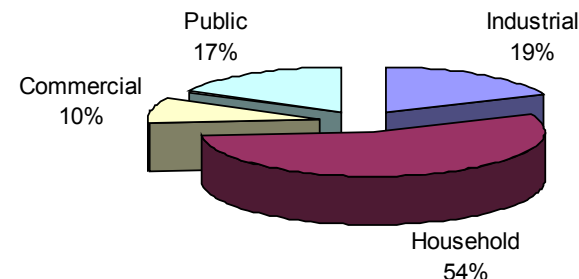




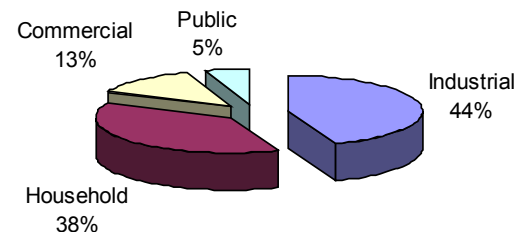
# The development of PLN consumption by sectors



**The distribution of electricity consumption by customers in 1970**



**The distribution of electricity consumption by customers in 2000**



**The distribution of electricity customers in 2000**

Type of customers	# of Customers	Share
Household (R)	26,796,675	93.7%
Industry (I)	44,337	0.2%
Business (B)	1,062,955	3.7%
Sosial (S)	582,811	2.0%
Government offices (P)	79,453	0.3%
Street lighting (P3)	29,174	0.1%
Total	28,595,405	100.0%





# Chronology of Efforts to Restructure Indonesia's Electricity Sector

1985	New Electricity Law passed
1989	The World Bank financed the Paiton Thermal Power Project
1990	President Suharto approved first IPP project
1992	Implementing regulations for 1985 law promulgated as Presidential Decree No. 37, which encouraged private participation in the sector
1994	Government Regulation No. 23 corporatizes PLN
1994 - 1997	25 additional IPP projects were signed
1997	Asian financial crisis swept Indonesia, bankrupting PLN
January 1998	World Bank suspended new loan to the electricity sector
August 1998	the "White Paper" of power sector reform was issued following a workshop with donors
March 1999	ADB and Japan Bank for International Cooperation announced each \$400 million in loans to support Indonesia's electricity sector restructuring program.
February 2000	Controversy erupted within the Parliament and the press over proposed tariff increases
February 2001	Government forwarded the new draft electricity law to the House of Representatives
October 2001	The Parliament passed new oil and gas law
November 2001	Public hearing on draft electricity law held by the House of Representatives



## IPP era in the electricity sector:

- ⇒ **1989:** The World Bank financed the Paiton Thermal Power Project
- ⇒ **1994 - 1997:** about 25 more power-purchase agreements (PPAs) were issued and signed with IPPs.
- ⇒ **In mid-1998:** the political and economic events of the proceeding months have set the stage for restructuring of the electricity sector.



# "Reformasi" in the electricity sector:

- ⇒ **Objectives of The August 1998 White Paper for PSR:**
  - ⇒ The restoration of financial viability,
  - ⇒ Competition,
  - ⇒ Transparency, and
  - ⇒ The efficiency of private sector participation
- ⇒ **The six targeted areas to be reformed are:**
  - ⇒ Industry restructuring and unbundling,
  - ⇒ Introduction of competition,
  - ⇒ Tariff setting, cost recovery and removal subsidies,
  - ⇒ Rationalization and expansion of private sector participation,
  - ⇒ Redefinition of the government's role, and
  - ⇒ Strengthening of the legal and regulatory framework.
- ⇒ **The restructuring agenda put forth in the White Paper aims to separate:**
  - ⇒ Commercial,
  - ⇒ Social, and
  - ⇒ Regulatory.

**Of PLN.**

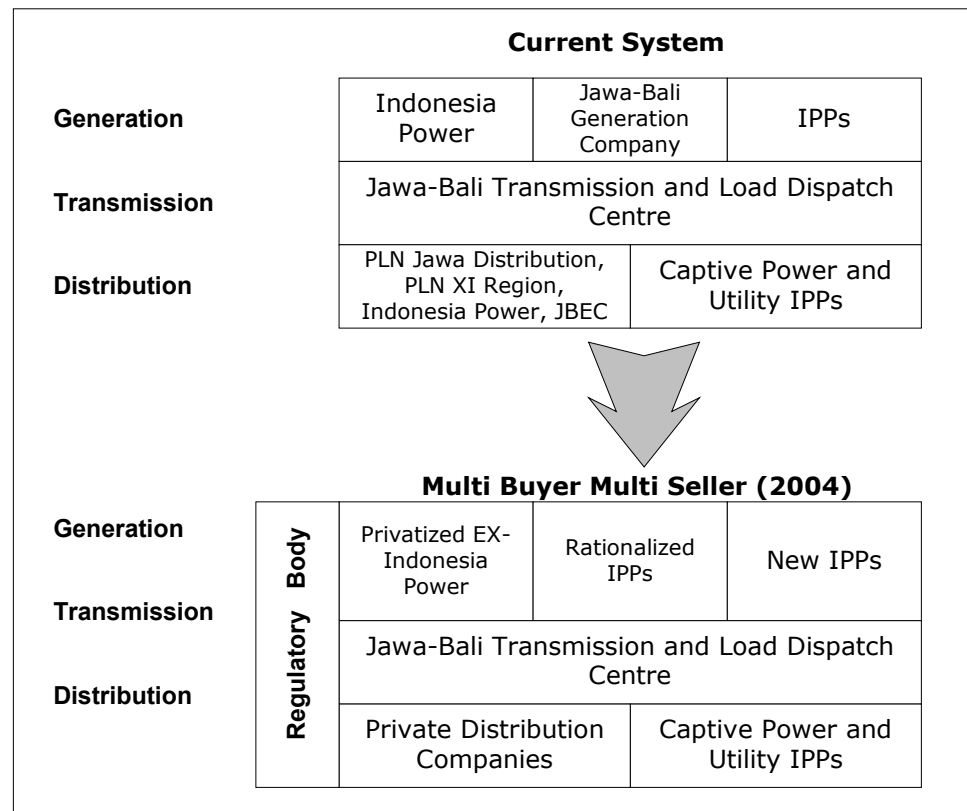




# Evolution of the Java-Bali Electricity System

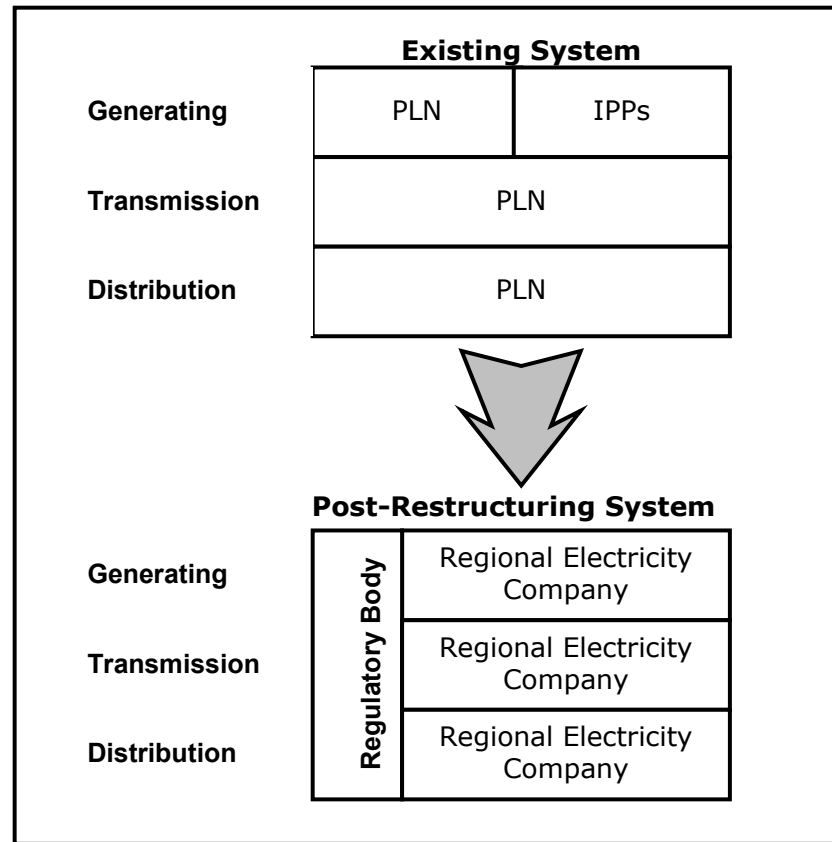
Three-quarters of PLN's 20.5 GW installed capacity is concentrated in the Java-Bali system

## Jawa-Bali Electricity System





## Plan of power restructure outside Java-Bali Electricity System





## Social aspect related to PSR in Indonesia:

### Tariff increases and the public interest

- The pros groups: International donor agencies, some government officials, independent analysts, and some NGOs.
- The cons groups: students and more populist-oriented NGOs.

The process stall  Reform was expected to progress quickly

- The GOI chose to prioritise reform of the oil and gas sector.
- The most significant stumbling block was the difficulty of the government in raising electricity tariff in May 1999.
- The negotiation of payment term between PLN and IPPs.



## Social aspect related to PSR .... (continued)

### The public benefits agenda

- ⇒ Concern about Social Equity.
  - ⇒ Only concentrated on Java-Bali
  - ⇒ Protect social equity as part of the restructuring process.
  - ⇒ Continued subsidies to poor households and expanded access to electricity in underdeveloped region to be accommodated in the draft of Electricity Law through the mechanism of a "Social Electric Power Development Fund".
  - ⇒ The electricity tariff increase lead to the opposition of "interest group" i.e. populist sentiment groups, PLN's own labour union, and industrial associations.
  - ⇒ Study undertaken by CRE-ITB stated that the poorest households are willing to accept 10% increase in electricity tariff, while other PLN consumers are able to pay the full economic cost of power.





## Social aspect related to PSR .... (continued)

### The public benefits agenda

- ⇒ **Concern about Environment Sustainability**
  - ⇒ The lack of attention incentive for energy efficiency
  - ⇒ The White Paper makes no reference to the development of renewable resources and no mention environmental objectives.
  - ⇒ The lack of attention to DSM in the reform process
- ⇒ **Concern about Good Governance**
  - ⇒ Financial transparency in the various subsidises
  - ⇒ Participation in decision making process
  - ⇒ Challenge of creating a new independent regulatory body to govern private participations
  - ⇒ Rule of law should be undertaken



## Environmental implications of major reform in Indonesia:

- The choice of fuel and technology for new power plants
- Operation and maintenance practices
- Investment in T&D equipment
- Tariff structure
- End Use efficiency and load management
- Investment in commercialisation new power system technology



# The development of electricity utilization by renewable energy

Type of renewable	Potential (MW)	Installed capacity (MW)	Percentage of installed capacity (%)	Persentase of utilization (%)
Geothermal	20,000	812	69.2	4.06
Microhydro	459	54	4.6	11.76
Solar energy (SHS)	4.8 kWh/M <sup>2</sup> /day	5	0.42	
Wind	448	0,5	0.05	
Biomassa	50,000	302	25.73	0.6
TOTAL		1,173.5	100	

Source: Sumiarso, Luluk, *Government Policy on New and Renewable Sources of Energy in Indonesia*, August 2001.





## CONCLUSION

- Power sector restructuring was profoundly influenced by several contextual factors
- The legacy of IPP-s and PPA strongly colored the domestic and international politics
- The PSR program under the climate of *reformasi total* is opened political space for attention to increased transparency and NGO-participation in government decision-making, as well as an increasingly meaningful role for the Parliament.
- The international donor community has played an important.
- The public benefits agenda received uneven attention in Indonesia's power sector reform debates
- Environmental implications of power sector restructuring received very little attention in the design process
- The Indonesian case demonstrates the challenges of incorporating public benefits into the electricity sector reform agenda.





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Merci Beaucoup  
Thank you

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