



“PPA for SMALL SCALE RENEWABLE PROJECTS in INDONESIA”

“Mini and Micro Hydro Electric
Power Plants”

PT PLN (Persero)

Electricity – PLN, Indonesia

Sumatera	2004	2010
Sales (TWh)	11.6	16.3
No. of Cust. (M)	5.9	7.1
Capacity (GW)	3.0	6.0
Electrif Ratio (%)	53.1	61.9
IPP	0,9	

Kalimantan	2004	2010
Sales (TWh)	3.2	4.5
No. of Cust. (M)	1.7	2
Capacity (GW)	0.7	1.3
Electrif Ratio (%)	46.6	52.9

Indonesia	2004	2010
Sales (TWh)	99	159
No. of Cust. (M)	33,0	44
Capacity (GW)	24.3	37.9
Electrif Ratio (%)	54.8	67,0
IPP	10,8	

Sulawesi	2004	2010
Sales (TWh)	3.1	4.4
No. of Cust. (M)	2.0	2.6
Capacity (GW)	0.8	1.3
Electrif Ratio (%)	47.2	53.8
IPP	0,4	

Others	2004	2010
Sales (TWh)	1.3	5.3
No. of Cust. (M)	0.9	2.1
Capacity (GW)	0.5	1.1
Electrif Ratio	33	37.9

Jawa-Bali	2004	2010
Sales (TWh)	79.7	125.9
No. of Cust. (M)	22.6	27.3
Capacity (GW)	18.6	28.3
Electrif Ratio	59.42	69.4
IPP	9,6	

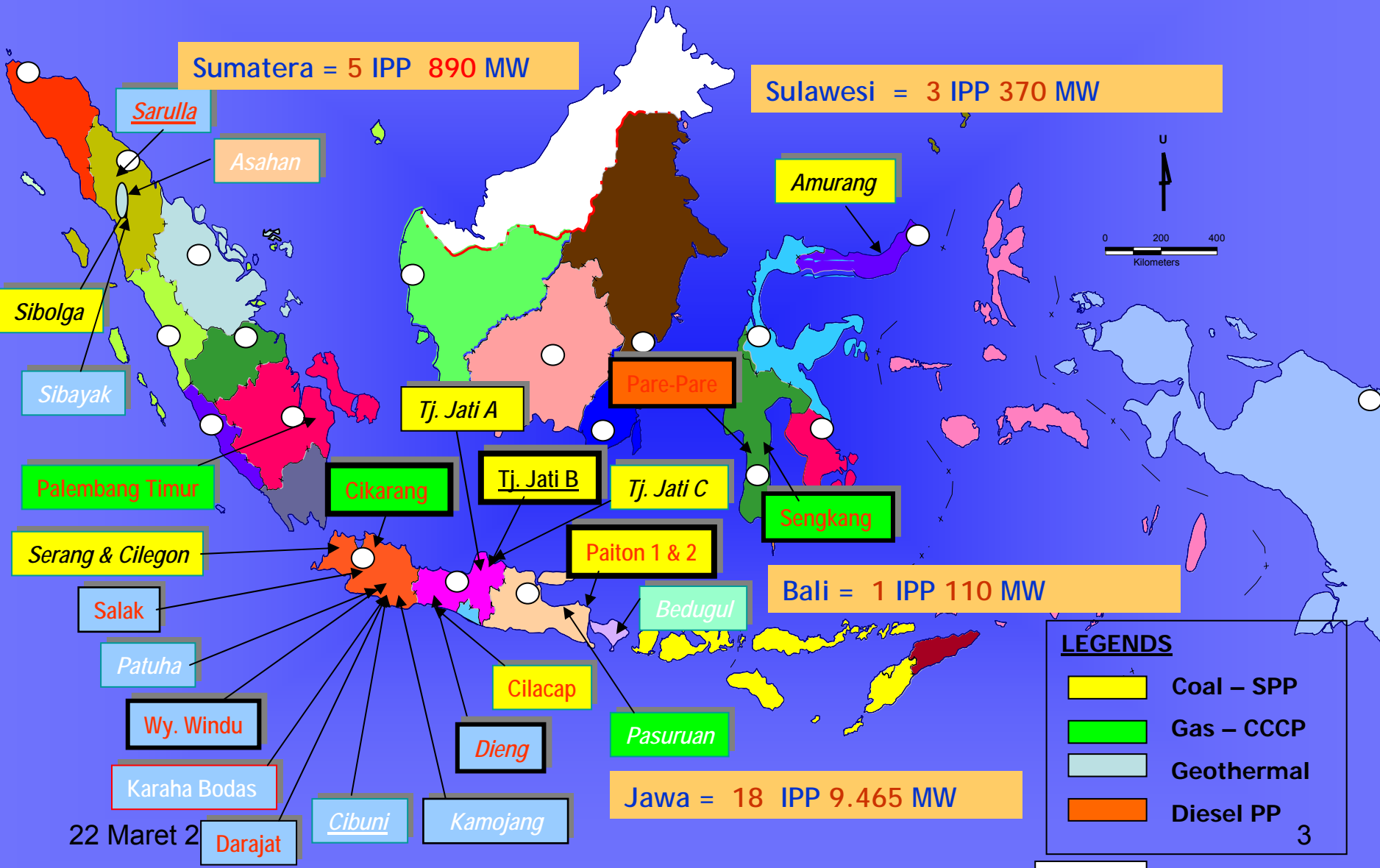
Legends :
 Total IPP = 27

- IPP IN OPERATION
- IPP



27 IPPs Location Map

(Total 10.835 MW)



22 Maret 2023

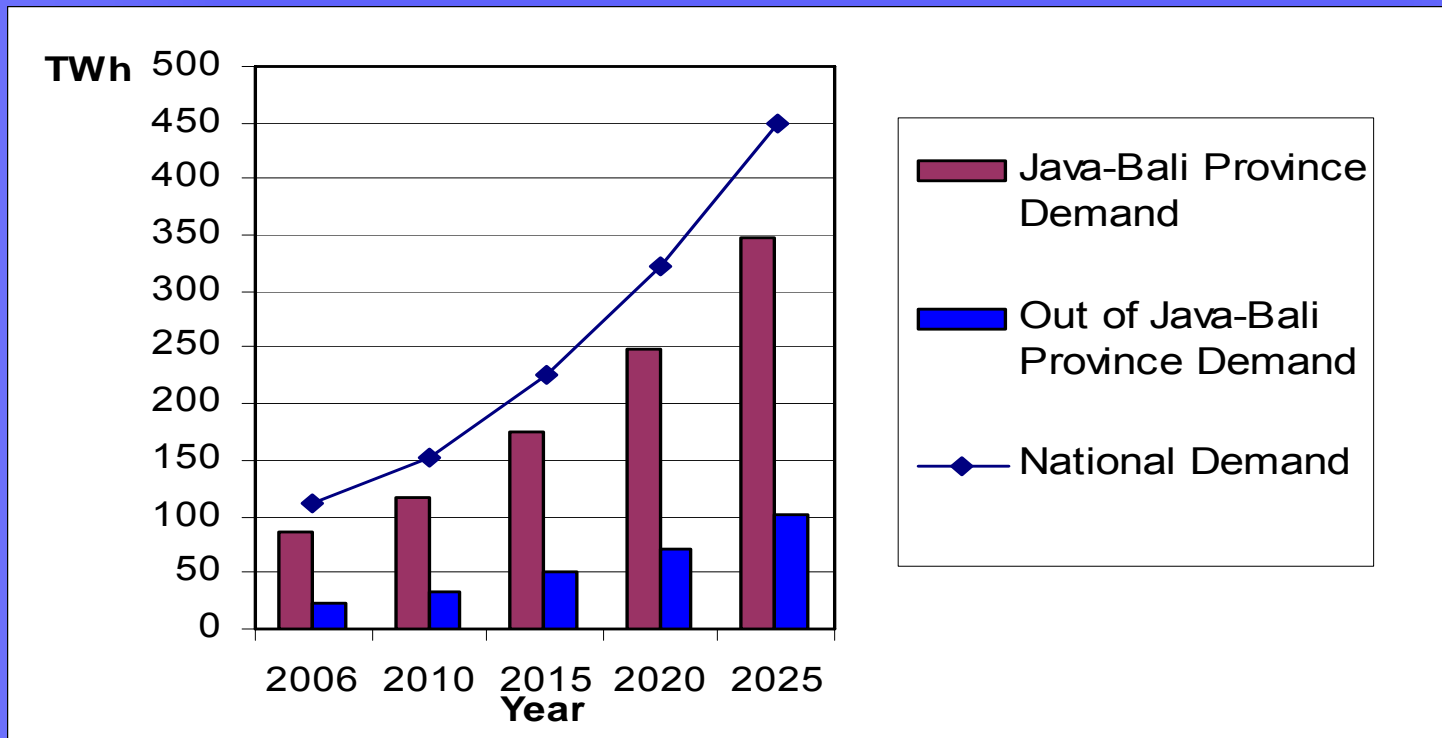
LEGENDS

- Coal – SPP
- Gas – CCCP
- Geothermal
- Diesel PP

3

IN RED IPP In Operation

INDONESIA ELECTRIC POWER DEMAND





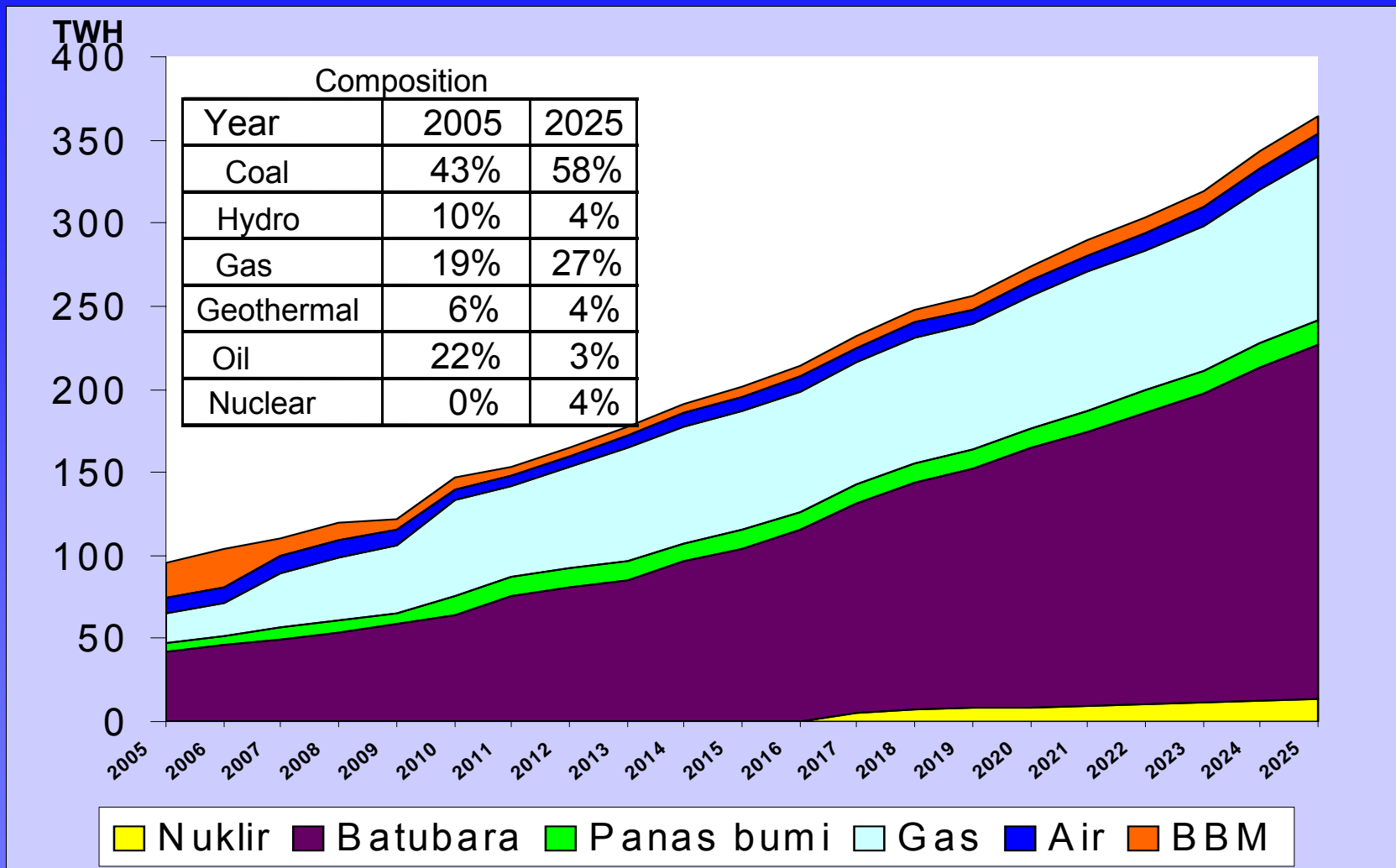
PLN PRIMARY ENERGY POLICY

- To reduce oil fuel consumption in PLN primary energy composition from 33 % in 2004 to 5 % in 2007.
- Utilization non-oil fuel primary energy (Coal, natural gas, geothermal and hydro).
- Explore alternative fuel : Biomass, solar, wind, etc. which are technically and economically feasible.
- Program of primary energy supply security.
- Priority of non-oil fuel power plant development, to reduce COGM



FUEL MIX 2005-2025

(For Jawa-Madura-Bali Only)





The Regulation on Renewable Energies Power Plants, Medium/Small Scale Power Plants, Procurement Procedure

- **Ministerial regulation No 01/2006 on Procedure for Electric Power Purchase for Public Consumption**
- **Ministerial Regulation No 2/2006 on Medium Scale Renewable Energies Based Power Plants**
- **Ministerial decree No 1122/2002 on Scattered – Small Scale Scattered Power Plants**
- PKUK or PLN may purchase electricity from PIUKU/IPP by Tender or by Direct Appointment (01/2006)
- For Scattered Project – Procurement for Small Scale Scattered Power Plants can be done by Direct Appointment (1122/2002)
 - Private Power Plants Maximum Capacity of 1 MW or
 - Excess Power Maximum Capacity of 1 MW
- For Renewable Energy based Power Plants can be by Direct Appointment (01/2006 and 02/2006):
 - Private Power Plants Minimum Capacity of 1 MW up to 10 MW or
 - Excess Power between 1 MW to 10 MW
- Interested Parties may submit proposal (administrative and technical) to PLN with copies to Directorate General, Governor or Mayor of the Area (02/2006; 1122/2002).
- For Renewable Energy based Power Plants (as per 02/2006), Interested Parties can be : Joint Ventures, Privates, BUMD, Individual.
- For Small Scale Scattered Power Plants; interested parties should be Small Business/ Small Scale Privates Company/ Joint Ventures.

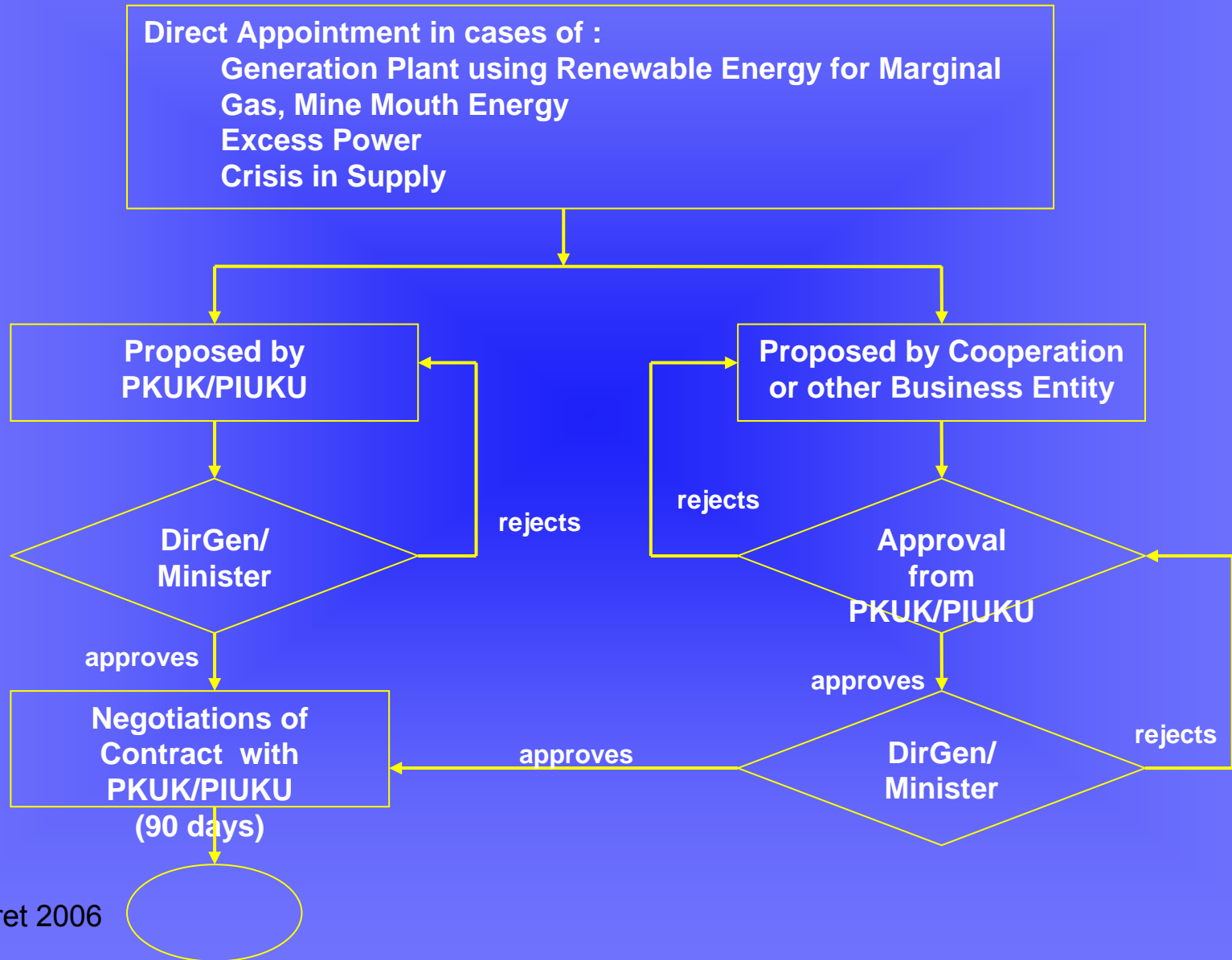


The Regulation on Renewable Energies Power Plants, Small/Medium Scale Power Plants, Tender Procedure

- Privates or Ventures interested must obtained License for Electrical Business for Public Consumption (fixed IUKU) (01/2006).
- For Medium Scale Minimum Term of Contract: 10 years (02/2006).
- Construction can only be started after the license (fixed IUKU) is obtained (02/2006).
- In carrying out the Project, Developers shall use / utilize domestic product/ services (02/2006).
- Power Plants can be operated after obtaining Commissioning Certificate from authority decided by Government (02/2006).
- For Small Scale Scattered Power Plants, Privates or Ventures interested must also obtained License for Electrical Business for Small Scale Scattered Power Plants (IUK PSK) (1122/2002).
- The License is given after Privates obtaining the Commissioning Certificate (1122/2002)

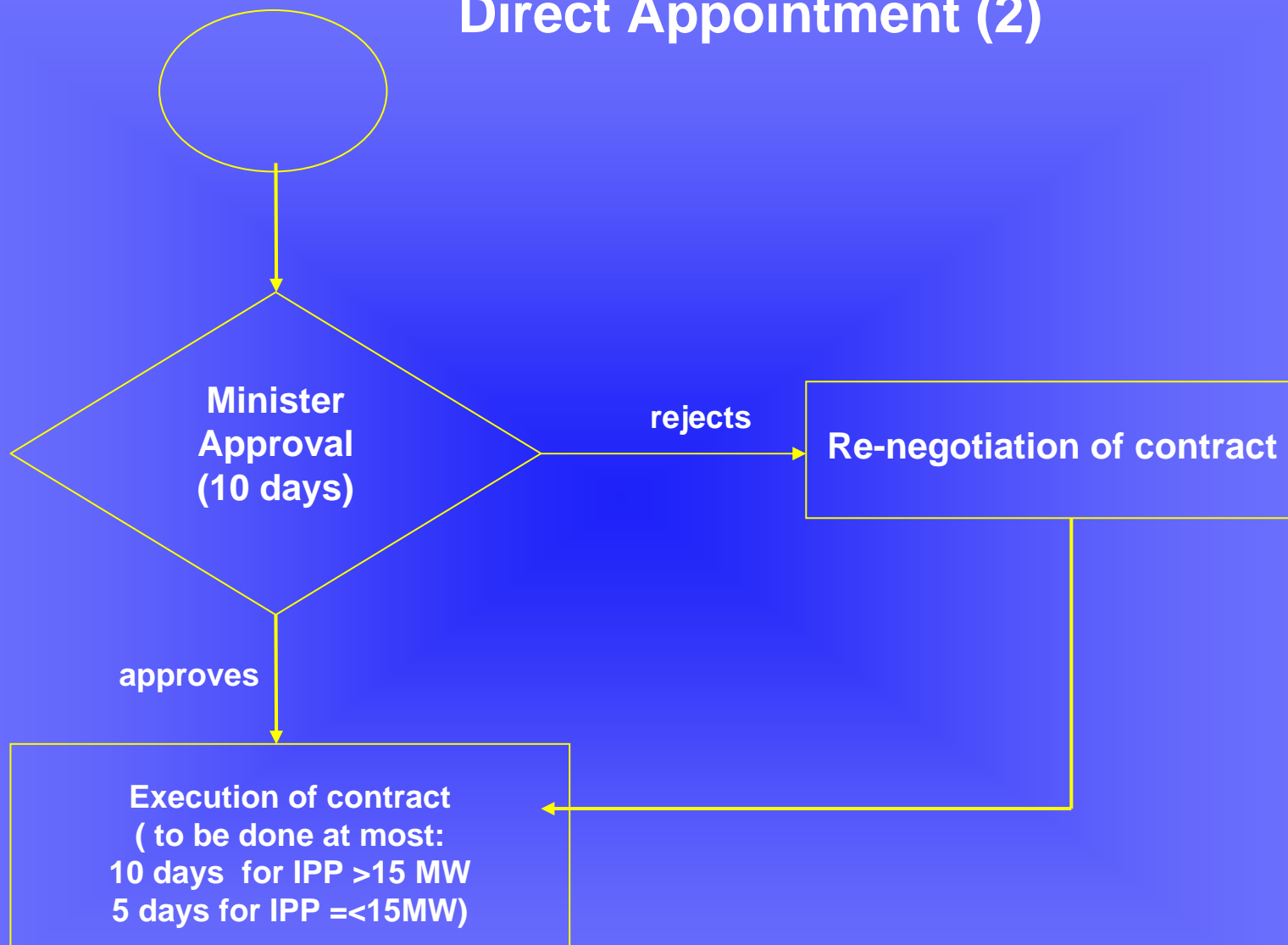


Direct Appointment based on Regulation 01/06



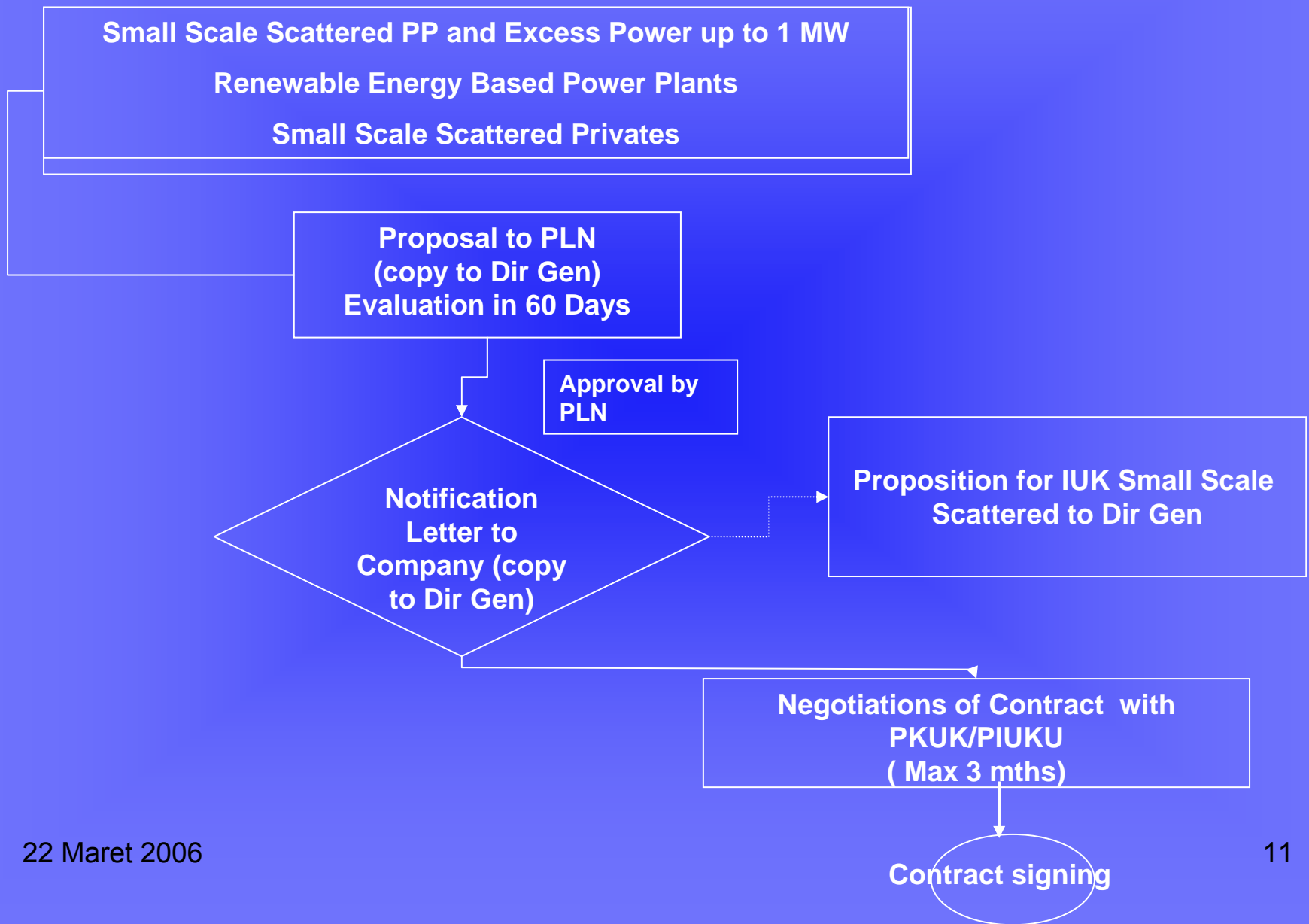


Direct Appointment (2)

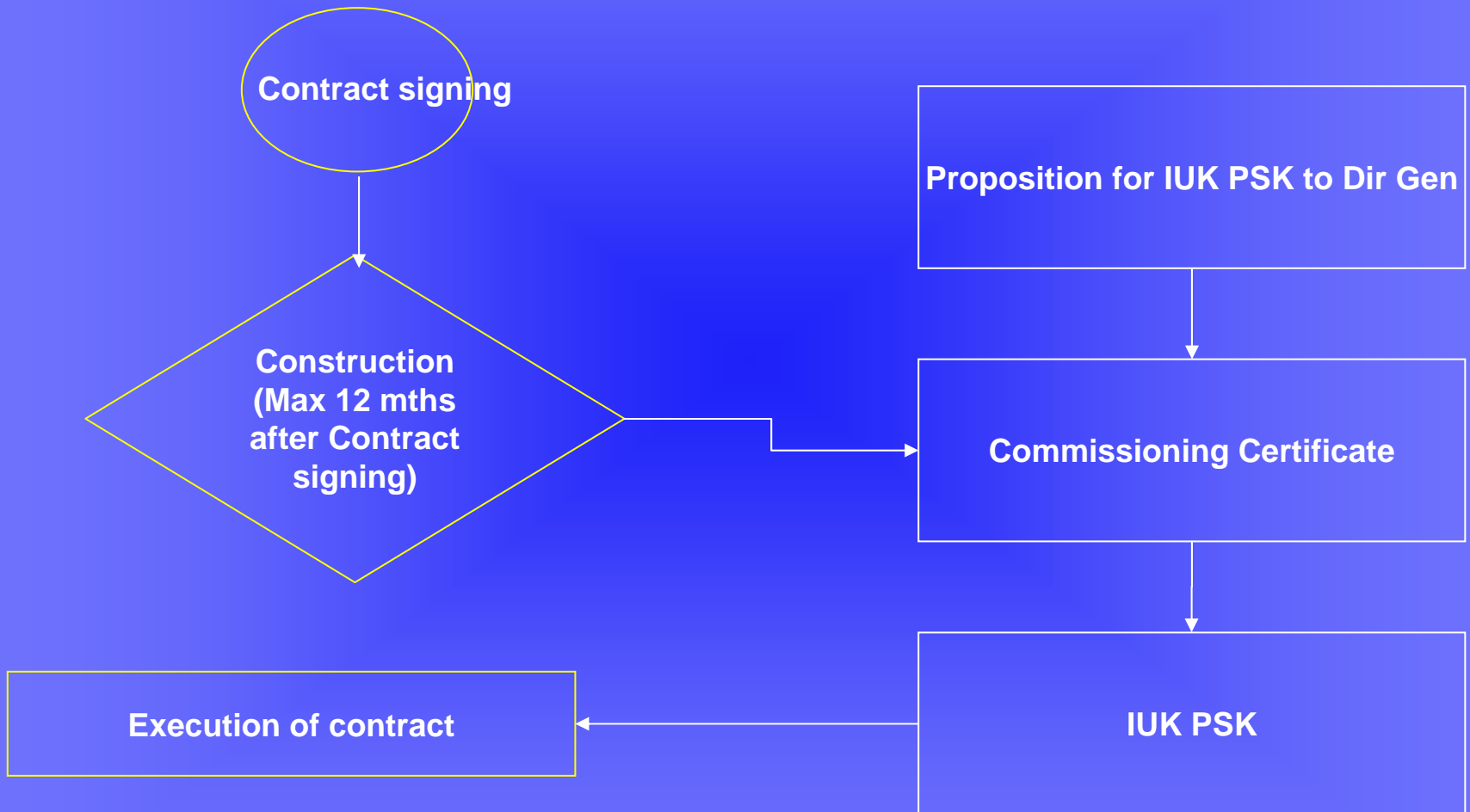




Direct Appointment based on Decree 1122/2002



Direct Appointment based on Decree 1122/2002 (2)





PPA content

- Tariff Composition on PPA

A component: For Capital cost (EPC cost and Financing Cost), Including Land acquisition.

1. B Component: for fix O & M
2. C Component: Tax related to the water consumption (Water Tax)
3. D Component: For /Variable O&M

Total A+B+C+D will be as base Tariff, where B & D subject to 50 % adjustment on Indonesian CPI

- Period : > 15 years
- Capacity Factor and Availability Factor >60%



List of Mini Hydro or Hydro Power Related Projects in PLN by PLN Funding & IPP/Private



POTENTIAL OF NEW & RENEWABLE ENERGY SOURCES IN INDONESIA

NO	ENERGY SOURCES	POTENTIAL	INSTALLED CAPACITY	%
1	Hydro (Incl small scale)	75.450 MW	3.115 MW	± 6 %
2	Geothermal	30.000 MW	802 MW	± 4,1 %
3	Alternative Energy			
	Biomass	Equivalent 50.000 MW	302 MW	
	Solar	4,8 kWh/m ² /day	Equivalent ± 5 MW	
	Wind	Equivalent 9.450 MW	Equivalent ± 0,5 MW	
	Sea wave	10 – 35 MW per Km coast length		



Hydro Energy

- Hydro Energy : Environmental friendly and Renewable energy resources
- The Potential of Hydro in Indonesia is up to 75.000 MW
- Only 3.115 MW (6%) has already implemented as Installed Capacity
- PLN has started Micro Hydro Power Plants and Mini Hydro Power Plants Project with PLN Funding and with Investor Support / IPPs Scheme.
- Type of Hydro PP as PLN definition
 - Large Scale PP : Cap \geq 20 MW (Reservoir or Run off River)
 - Small Scale PP : 20 MW $>$ Cap \geq 5 MW
 - Mini Hydro PP : 5 MW $>$ Cap \geq 1 MW
 - Micro Hydro PP : Cap $<$ 1 MW



HYDRO POWER PROJECT- IPP

No.	Project	Cap. (MW)	PROVINCE	Developer	Status
1	HEPP PARLILITAN	4X2,50	North Sumatera	PT MEGA POWER MANDIRI	-In Construction
2	HEPP PAKAT 1	2X5,00	North Sumatera	PT ENERGY MANDIRI	-Preparation for Negotiation Process
3	MHPP PARLUASAN	2X2,10	North Sumatera	PT INPOLA MEKA ELEKTRINDO	-Preparation for Negotiation Process
4	HPP LEBONG	4X3,00	Bengkulu	PT MEGA POWER MANDIRI	--Preparation for Negotiation Process
5	HPP TANGKA (Manipi)	2X4,40	South Sulawesi	PT SULAWESI MINI HIDRO POWER	--Preparation for Negotiation Process
6	MHPP RANTEBALLA	2X2,20	South Sulawesi	PT FAJAR FUTURA INDAH	-Negotiation Process
7	HPP TELUN BERASAP	2X4,00	Jambi	PT MABRUK SARANA INTERBUANA	--Negotiation Process
8	MHPP MABUYA	3X1,00	North Sulawesi	PT CIPTA DAYA NUSANTARA	-Yearly PPA -In Construction
9	MHPP NGOALI	1,2	North Maluku	PT COGINDO	-Study / Survey Process
10	MHPP GOAL	1,20	North Maluku	PT COGINDO	--Study / Survey Process
11	MHPP IRA	1,00	North Maluku	PT COGINDO	--Study / Survey Process
12	MHPP RONGI	2X0,75	South East Sulawesi	PT COGINDO	--Study / Survey Process
13	MHPP MANARUNG	1X100	East Kalimantan	PT COGINDO	--Study / Survey Process
14	MHPP PURUI	2X0,800	South Kalimantan	PT COGINDO	--Study / Survey Process



SMALL SCALE HYDRO POWER PROJECTS (Funded by ADB)

Project	Capacity (MW)	Location		Status
		Province	Load Center	
MHEPP Merasap	2 x 0.75	West Kalimantan	Bengkayang	Tender Process
MHEPP Lobong	2 x 0.8	North Sulawesi	Kotamobagu	Tender Process
HEPP Poigar 2	2 x 16	North Sulawesi	Minahasa System	Tender Process
MHEPP Mongango	1.2	Gorontalo	Gorontalo	Tender Process
MHEPP Prafi	1.6	Papua	Manokwari	Tender Process
MHEPP Tatui	1.2	Papua	Serui	Tender Process
MHEPP Amai	1.1	Papua	Depabre	Tender Process
HEPP Genyem	2 x 9.6	Papua	Jayapura System	Tender Process
MHEPP Santong	0.85	NTB	Lombok System	Tender Process
MHEPP Ndungga	2 x 0.95	NTT	Ende	Tender Process



SMALL SCALE HYDRO POWER PROJECTS

No	Project Name (MHEPP)	Location	Total Capacity (MW)	Status
1	Mikuasi	South East Sulawesi	3	Detail Design
2	Muara Kahidin	South Kalimantan	0,6	Detail Design
3	Batu Sitando	South Sulawesi	2,2	Detail Design
4	Usumalili	South Sulawesi	5	Detail Design
5	Palangka	South Sulawesi	3,8	Detail Design
6	Kadundung	South Sulawesi	1,6	Detail Design
7	Sambilambo	South East Sulawesi	4,5	Detail Design
8	Rante Limbong	South East Sulawesi	2,2	Detail Design
9	Sawidago	Central Sulawesi	0,8	Detail Design
10	Parigi	Central Sulawesi	0,6	Detail Design
11	Tindarki	Central Sulawesi	0,6	Detail Design
12	Sansarino	Central Sulawesi	2,2	Detail Design
13	Kinali	North Sulawesi	1	Potential Location
14	Mokobang 2	North Sulawesi	1,5	Detail Design
15	Rowoketang	North Sulawesi	1,16	Potential Location
16	Tangagah	North Sulawesi	1,14	Potential Location
17	Tincep	North Sulawesi	3,6	Detail Design
18	Puruk Cahu	Central Kalimantan	0,38	Detail Design
19	Gendang Timburu	Central Kalimantan	0,65	Detail Design
20	Pekatan	NTB	0,6	Detail Design
21	Ngowali	Maluku	1,6	Detail Design



SMALL SCALE HYDRO POWER PROJECTS

No	Project Name (HEPP)	Location	Total Capacity (MW)	Status
1	Rajamandala	West Java	30	Feasibility Study
2	Polgar 3	North Sulawesi	14	Feasibility Study
3	Sawangan	North Sulawesi	16	Pre Feasibility Study
4	Merangin	Jambi	300	Feasibility Study
5	Malea	South Sulawesi	180	Feasibility Study
6	Bakaru 2	South Sulawesi	120	Detail Design
7	Wampu	North Sumatera	80	Feasibility Study
8	Wai Rancang	NTT	15	Feasibility Study
9	Mangani	West Sumatra	10	Feasibility Study
10	Tamboli	South East Sulawesi	25	Feasibility Study
11	Solewana	Central Sulawesi	8	Feasibility Study
12	Tomini 2	Central Sulawesi	2	Feasibility Study
13	Rita (MHEPP)	NTT	0,8	Pre Feasibility Study



INVESTING ON POWER PROJECTS

- **Development for Power Infrastructures needs large quantity of investment.**
 - **Until 2007, 6.15 Billion Dollar is needed for the development of Power Infrastructures.**
 - **PLN will not be able to perform all the funding needed for developing power infrastructure projects, thus private sectors are encouraged to participate.**
 - **PLN encourage interested Parties, Local and Foreign to act as Investor, Lender, Developer.**
 - **However, investment policies, environment and political issues have made the impression of Indonesia as being an unattractive spot for foreign investors.**
- Thus, the role of GOI as Policy maker is very much needed to monitor and control the situation.**



Government Support

- **PLN needs support from GOI because power projects are vital infrastructures.**
- **GOI needs to give incentives for power and electricity business development to the Investor such as:**
 - **Fiscal instrument**
 - **Export and import facility**
 - **To establish an attractive bank lending rate**
 - **Import duty easement**
 - **Tax Holiday.**
- **Support from Regional Government (Governor and Mayor of the Area) are also needed : Local / Regional Instrument & Consents, especially for local Tax, land acquisition and also maintain catchment's area**



WRAPPING UP

- Indonesia has a huge potential of clean and renewable energy, such as hydro resource.
- Privates interested in developing IPP Renewable Energy Projects as Lender or Developer are welcomed by PLN.
- The regulation 01/2006 and 02/2006 supports privates interest in IPP Renewable Energy project → Direct Appointment.
- Support from GOI in fixing the investment environment in Indonesia is needed, especially by giving incentives in power infrastructures projects. The incentives should be; but not limited to, Investment and Taxation Policy.



THANK YOU

