



MINISTRY OF ENERGY AND MINERAL RESOURCES



DEVELOPING OF ELECTRIC POWER INFRASTRUCTURE IN INDONESIA

The 1st Workshop for APEC

25-26 August 2015, AZSA Center Building, Tokyo, Japan

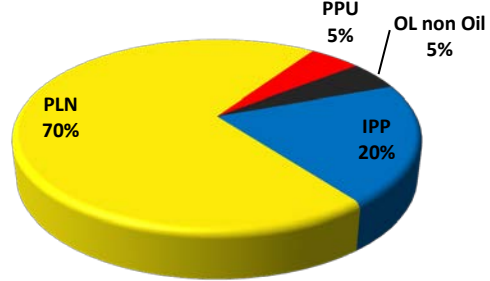
**Presented by Directorate General of Electricity,
MEMR**



CURRENT CONDITION

OVERVIEW OF INDONESIA ELECTRICITY CONDITION

Percentage of Power Plant Capacity

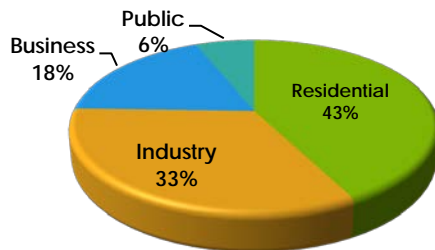


Installed Capacity (2014)

53,065 MW

(PLN: 37,380 MW, IPP: 10,945 MW, PPU: 2,349 MW, Non Oil Op. License: 2,391 MW)

Percentage of Electricity Consumption



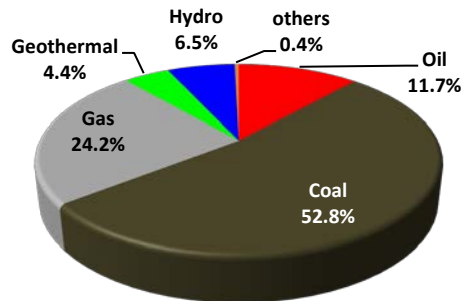
Electricity Consumption (2014)

199 TWh

Electricity Production(2014)^{*)}

228 TWh

Percentage of Energy Mix



Electrification Ratio (2014)

84.35%

Electricity Consumption (2014)

865 kWh/capita

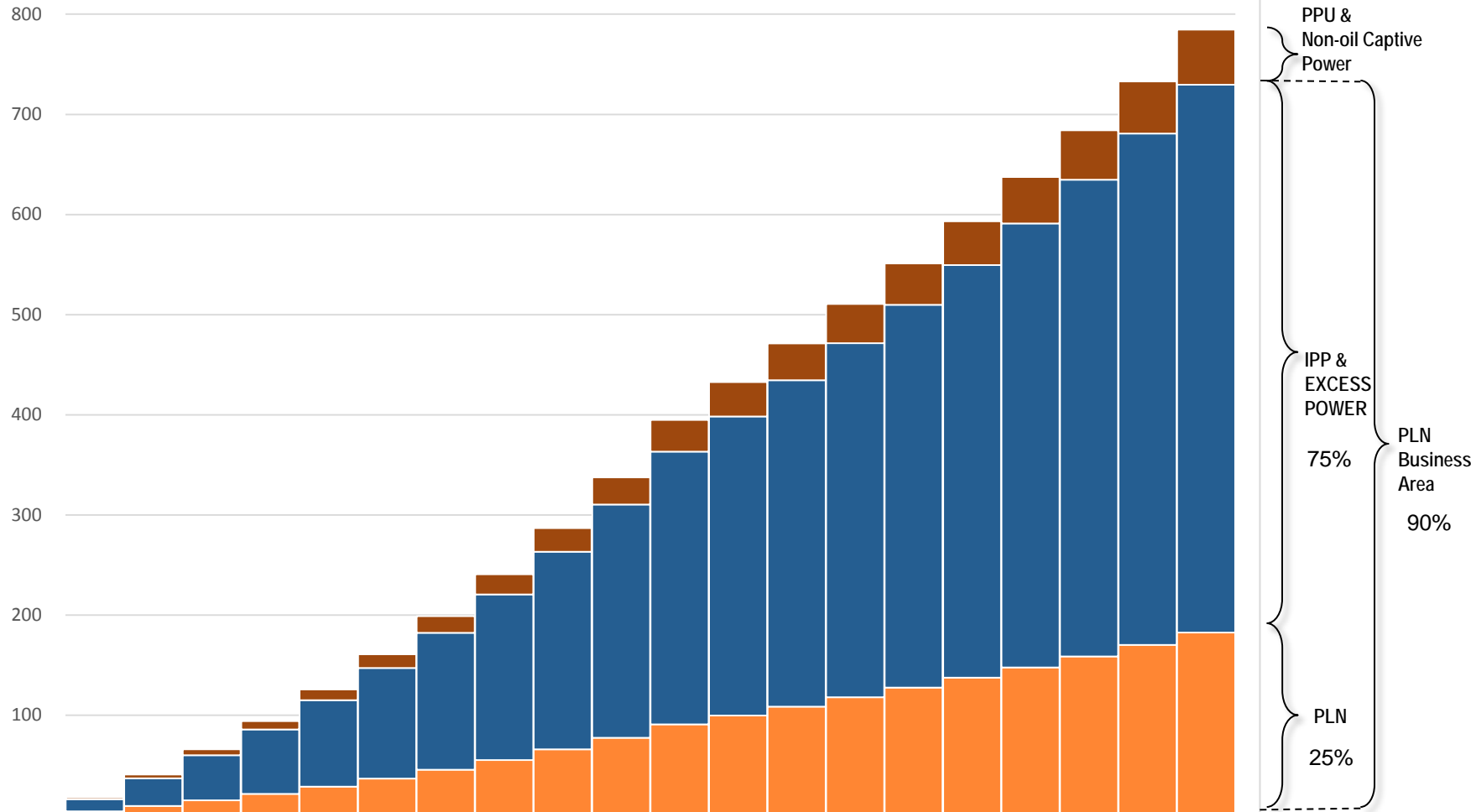
^{*)} Just PLN and IPP



FUTURE PLAN

PROJECTION OF ADDITIONAL ELECTRICITY DEMAND 2015-2034

TWh

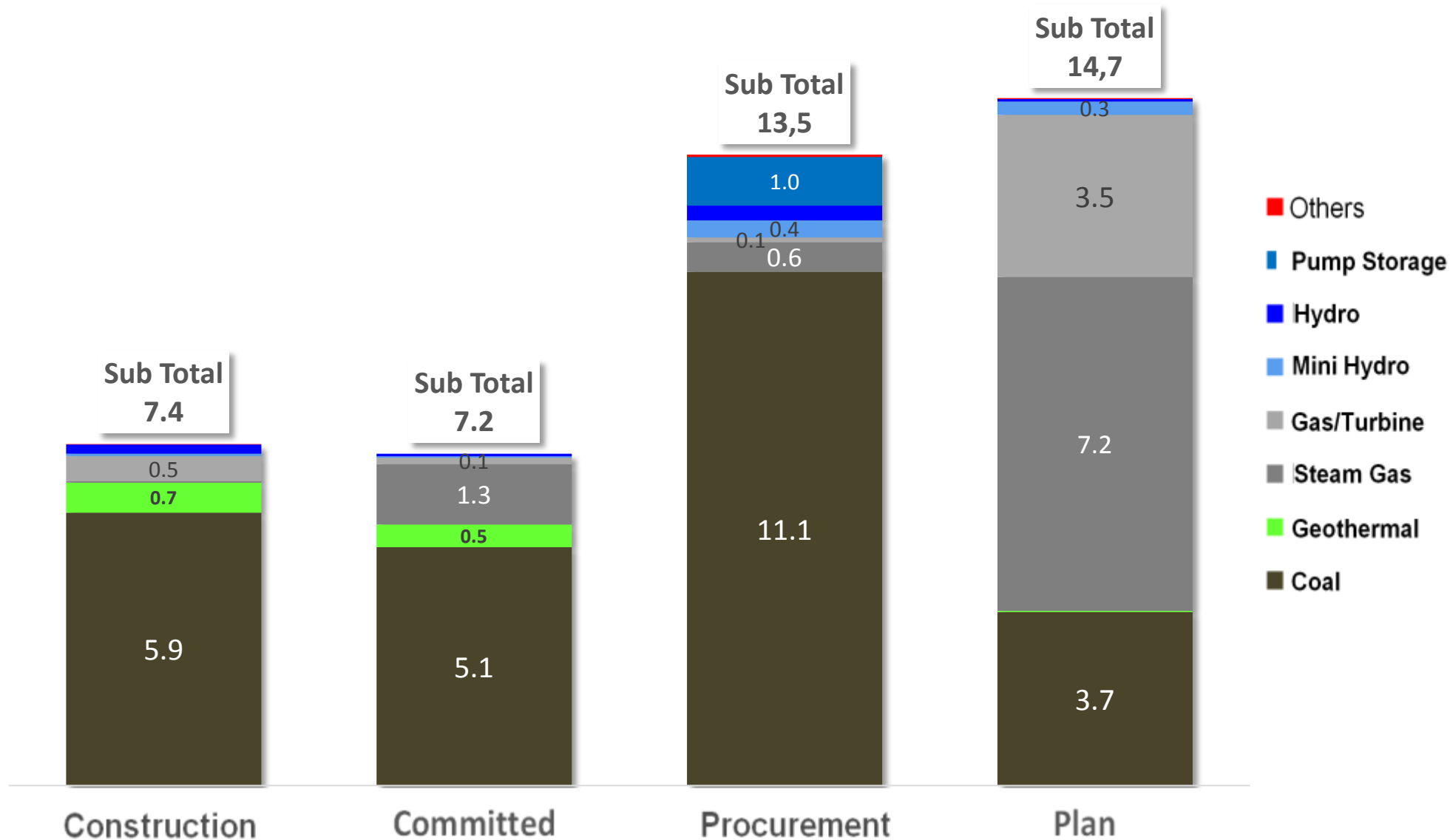


	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Additional of Non PLN System	2	4	6	8	11	14	17	20	23	27	32	34	37	39	41	44	46	49	52	55
Additional of IPP & Excess Power	12	28	45	64	86	110	137	166	197	233	272	299	326	354	382	412	443	476	511	547
Additional of PLN	4	9	15	21	29	37	46	55	66	78	91	100	109	118	127	137	148	159	170	182
Additional of PLN System	16	37	60	86	115	147	182	221	263	310	363	398	435	472	510	550	591	635	681	730
Total Additional (based on 2014)	18	41	66	94	126	161	199	241	287	338	395	433	471	511	551	593	637	684	733	784



STATUS OF POWER PLANT DEVELOPMENT PROGRAM BY TYPE

35,5 GW + 7,4 GW (2015 – 2019)



ENHANCING QUALITY OF ELECTRIC POWER INFRASTRUCTURE IN BIDDING MECHANISM

BREAKTHROUGH TO ACCELERATE 35,000 MW PROGRAM

NO	Issue	Solution
1.	Land Acquisition	Enforce Law No 2/2012
2.	Price Negotiation	Setting the ceiling price for IPP and <i>Excess Power</i> (MEMR Regulation No.3/2015)
3.	Appointment & Selection of Independent Power Producer	Direct Appointment & Direct Selection for renewable energy, mine mouth, marginal gas, expansion, & excess power (MEMR Regulation No.3/2015)
4.	Licensing process	One stop licensing service
5.	Developer & Contractor Performance	Due Diligence
6.	Project Management	Forming Project Management Officer & <i>appoint Independent Procurement Agent</i> (MEMR Decree No.129/2015)
7.	Coordination Among Sectors	Forming National Team Across Ministries (Presidential Regulation No.75/2014)
8.	Legal Issues	Issuing Presidential Regulation (specific matters)



Direct Selection and Direct Appointment Criteria



Direct Selection Criteria

- **Diversification of energy** for generating electricity to non-fuel (BBM);
- **Additional capacity of** power plants that have been operating in different locations in the same system
- More than 1 proposal on direct appointment

Direct appointment Criteria

- Purchase of electricity with energy source from **mine mouth power plant, Marginal Gas, and hydro PP;**
- Purchase of electricity **excess from Mine mouth, Coal PP, Gas/Machine Gas PP, and Hydro PP;**
- Purchase of electricity from Mine mouth, Coal PP, Gas/Machine Gas PP, and Hydro PP, If the system in **crisis** or **emergency** of electricity supply;
- Purchase of electricity from Mine mouth, Coal PP, Gas/Machine Gas PP, and Hydro PP in order to increase the generation capacity at power plants that have been operating in the same location (**Expansion in the same location**)



CEILING PRICE FOR ELECTRICITY PURCHASE

According to the provisions of Article 6 MR No. 3/2015, to facilitate the implementation of negotiation between PT PLN (Persero) with the developer, the Minister set a benchmark price as ceiling price, as follows :

GENERATION	Capacity (MW)									ASSUMTION	
PLTU Mine Mouth	100	150	300	600							
Price (cent USD/kWh)	8,208 9	7,6520	7,186 2	6,9012						Availability Factor (AF): 80%, Calorific Value (gar) : 3000 Kkal/kg, Coal Price: 30 USD/Ton, Contract period: 30 years	
Assumption Heat rate (Kkal/kWh)	3.200	3.000	2.900	2.700							
Coal Non Mine Mouth	≤10	15	25	50	100	150	300	600	1000		
Price (cent USD/kWh)	11,82	10,61	10,60	9,11	8,43	7,84	7,25	6,96	6,31	Assumptions: Availability Factor (AF): 80%, Calorific Value (gar) : 5000 Kkal/kg, Coal Price: 60 USD/Ton, contract period: 25 years. Coal Price: <i>Passthrough</i>	
Assumption Heat rate (Kkal/kWh)	4.160	3.500	3.450	3.200	3.000	2.800	2.600	2.450	2.290		
PLTG/PLTMG	40-60	100									
Price (cent USD/kWh)	8,64	7,31								Asumsi: Availability Factor (AF): 85%, Gas Price: 6,00 USD/MMBTU, contract period: 20 years	
Assumption Heat Rate (BTU/kWh)	9.083	8.000									
Hydro	>10 - <50	50 - 100	>100								
Harga (cent USD/kWh)	9,00	8,50	8,00								Asumsi: Availability Factor (AF): 60%, contract period: 30 years

With the ceiling price, it does not require the approval from the Minister.



LOCAL CONTENT

Value Minimum of Local Content Electricity Infrastructure

1. Electric Steam Power Plant

Capacity per Unit	Goods (%)	Services (%)	Average (%)
up to 15 MW	67.95	96.31	70.79
>15 up to 25 MW	45.36	91.99	49.09
>25 up to 100 MW	40.85	88.07	44.4
> 100 up to 600 MW	38	71.33	40
> 600 MW	36.1	71.33	38.21

2. Hydroelectric power plant

Capacity per Unit	Goods (%)	Services (%)	Average (%)
up to 15 MW	64.2	86.06	70.76
> 15 up to 50 MW	49.84	55.54	51.6
> 50 up to 150 MW	48.11	51.1	49
> 150 MW	47.82	46.98	47.6

3. Geothermal Power Plant

Capacity per Unit	Goods (%)	Services (%)	Average (%)
up to 5 MW	31.3	89.18	42
5 up to 10 MW	21	82.3	40.45
10 up to 60 MW	15.7	74.1	33.24
60 up to 110 MW	16.3	60.1	29.21
> 110 MW	16	58.4	28.95

4. Gas Power Plant

Capacity per Block	Goods (%)	Services (%)	Average (%)
up to 100 MW	43.69	96.31	48.96

5. Gas Fired Power Plant

Capacity per Block	Goods (%)	Services (%)	Average (%)
up to 50 MW	40	71.53	47.88
50 up to 100 MW	35.71	71.53	40
100 MW up to 300 MW	30.67	71.53	34.76
> 300 MW	25.63	71.53	30.22

6. Solar Power Plant

Capacity per Block	Goods (%)	Services (%)	Average (%)
Solar Power Plant Centralized all capacities	30.14	100	53.07
Solar Power Plant Centralized all capacities	25.63	100	43.85

7. Transmission

Jenis	Goods (%)	Services (%)	Average (%)
Transmission 70 kV	70.21	100	76.17
Transmission 150 kV	70.21	100	76.17
Transmission 275 kV	68.23	100	74.59
Transmission 500 kV	68.23	100	74.59
Submarine Cable 150 kV	15	83	28.6
Underground Cable 70 kV	45.5	100	56.4
Underground Cable 150 kV	45.5	100	56.4

8. Main electrical relay station

Type	Goods (%)	Services (%)	Average (%)
Sub station 70 kV	41.91	99.98	65.14
Sub Station 150 kV	40.66	99.98	64.39
Sub Station 500 kV	21.51	74.67	42.77
GIS 150 kV	14.27	26.68	19.237
GIS 500 kV	11.19	26.68	17.389



THANK YOU

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