Challenges on Sustainable Coal Supply and Proposed Policy

HELE Coal Technology Workshop
World Coal Association
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ASOSIASI PERTAMBANGAN BATUBARA INDONESIA
INDONESIAN COAL MINING ASSOCIATION

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Agenda

1. Need for Electricity in Indonesia
2. 35 GW Program & Coal's Important Role
3. Coal Industry Overview & Challenges Faced
4. Proposed Policy Solution

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1. Need for Electricity in Indonesia
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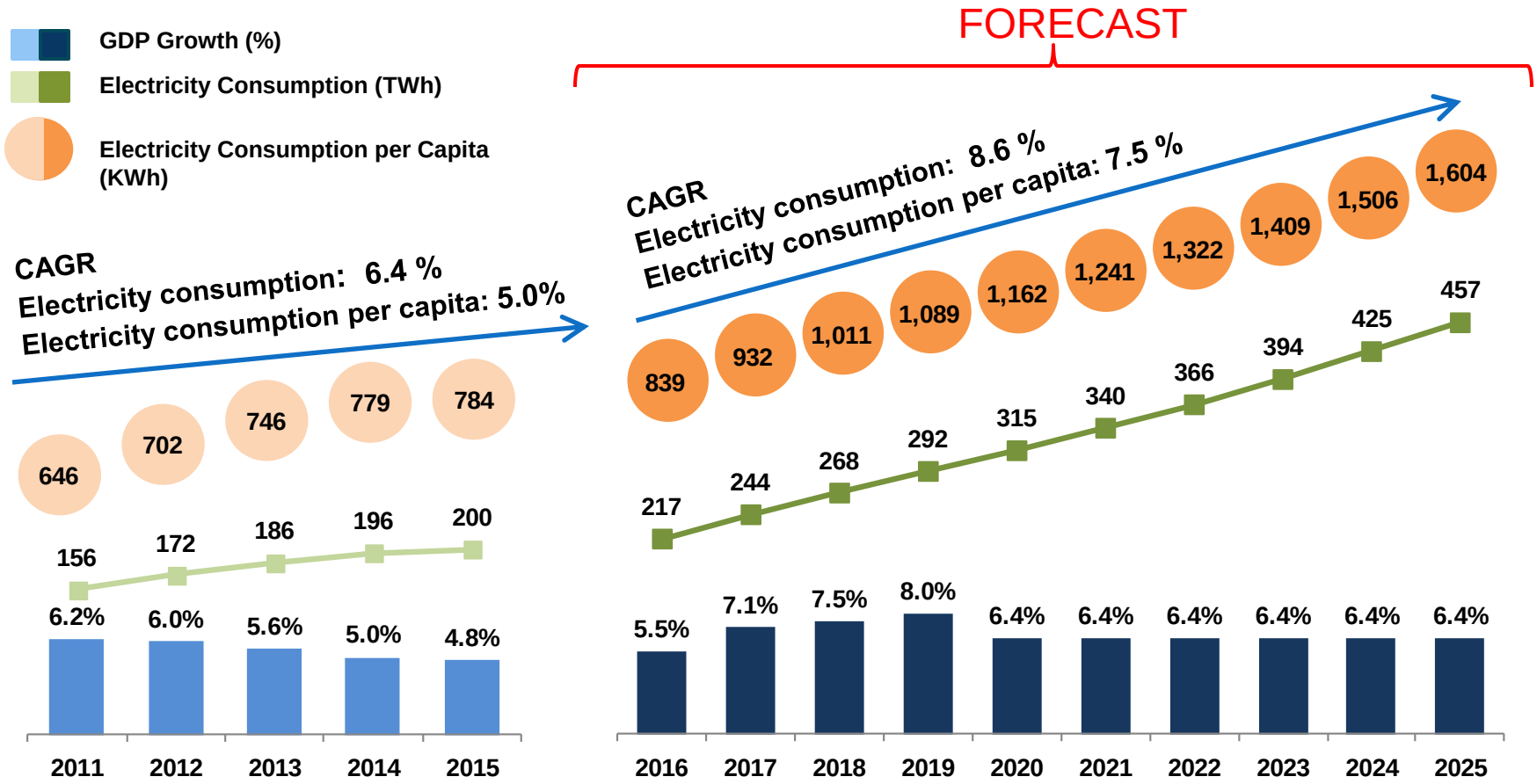
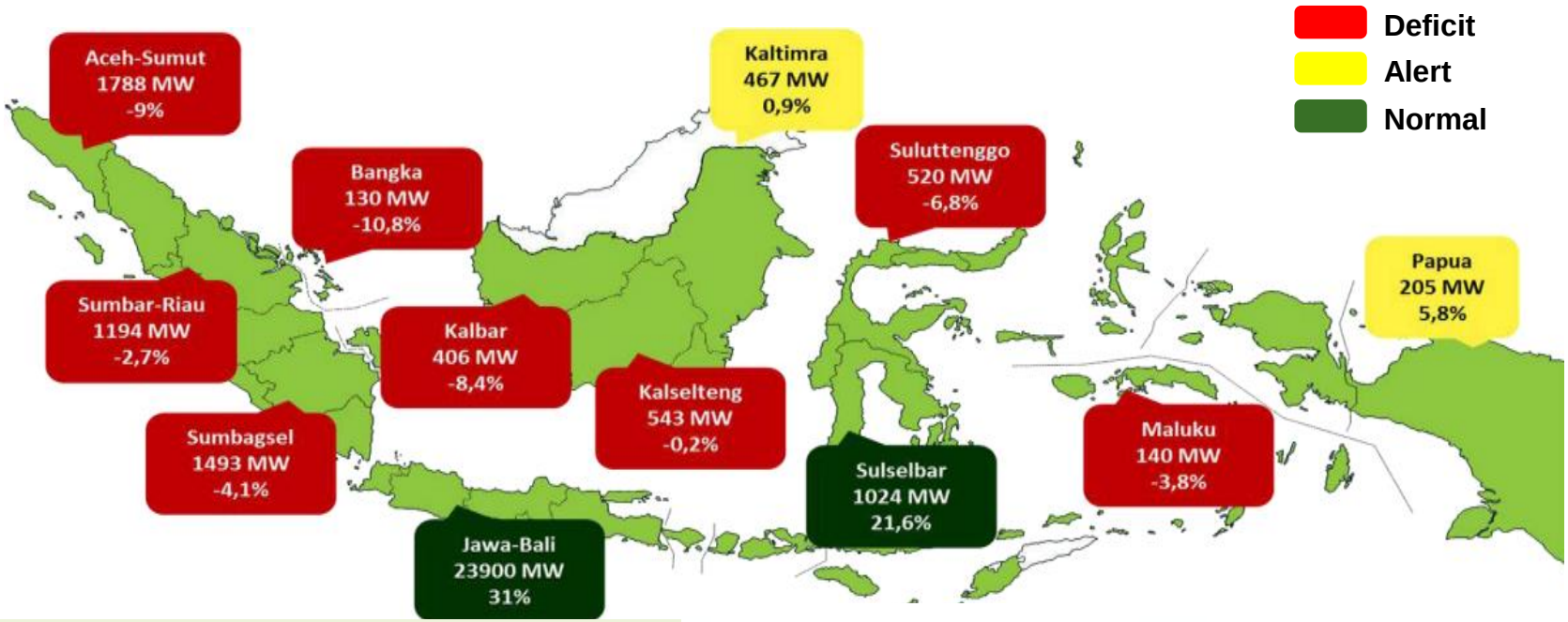
Indonesian Economy & Energy Demand



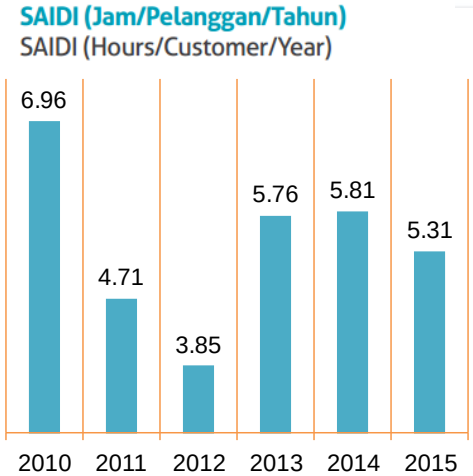
- **Energy plays fundamental part in economic growth process. Economic growth needs to be supported by sufficient Electrification Ratio (ER)**
- **Power consumption is related to productivity level of its population. As countries switch to manufacturing-based economies, power consumption per capita increases**

Source: PLN Business Plan (RUPTL) 2016 – 2025; Central Bureau of Statistics (BPS); Note: PLN is State Electricity Utility

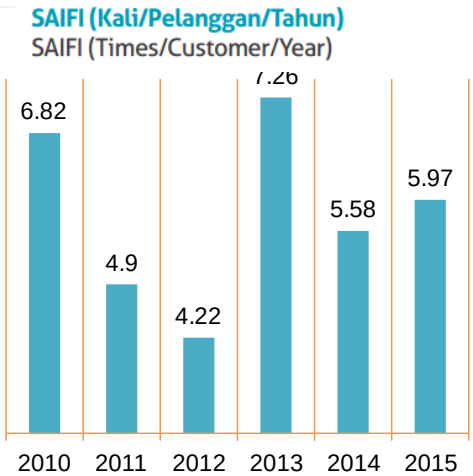
Current Electricity Condition



- **As can be seen in graph above, only small parts of Indonesia actually have sufficient supply of electricity**
- **PLN has traditionally been having problems in providing electricity to its customers, as shown by SAIDI and SAIFI numbers**



SAIDI = System Average Interruption Duration Index



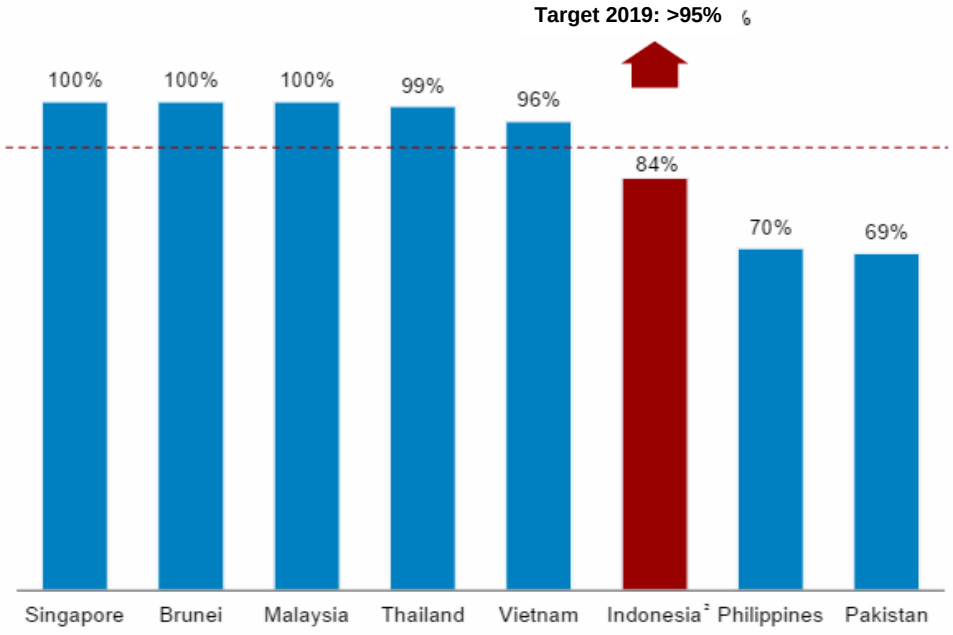
SAIFI = System Average Interruption Frequency Index

Sources: PELAYANAN TERPADU SATU PINTU (PTSP) PUSAT KETENAGALISTRIKAN, Jakarta, 28 January 2015, PLN 2015 Annual Report

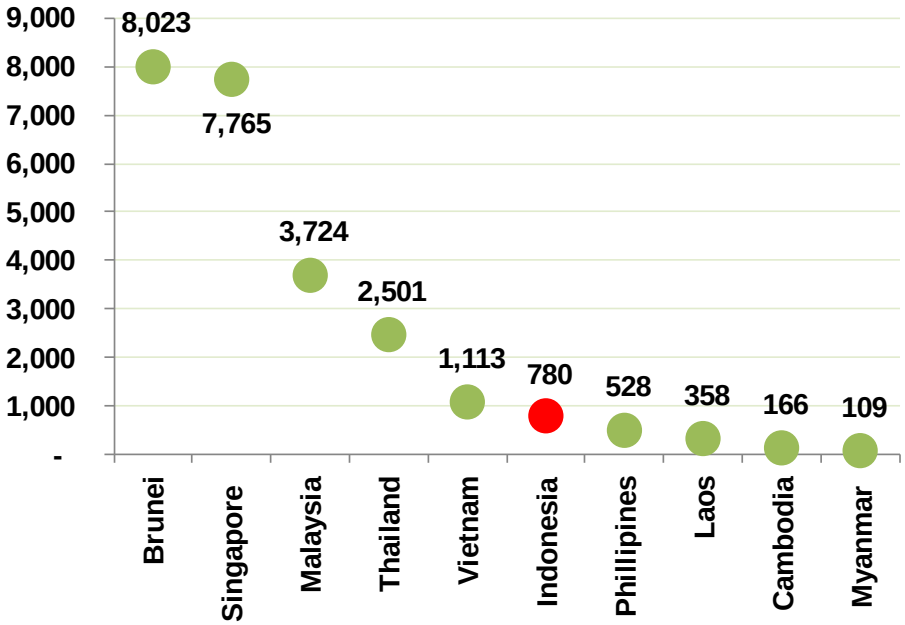
Growing Power Demand

As government pushes for infrastructure & industrial development, low electricity consumption and installed capacity levels create significant upside potentials in electricity demand

ASEAN Electrification Ratio Comparables



Energy Consumption per Capita (KWh)

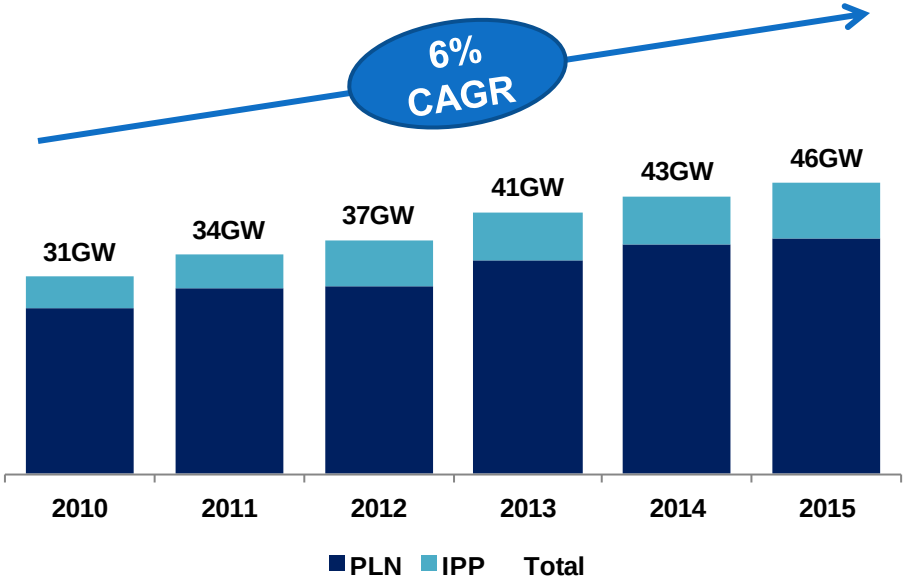


- **Indonesia is behind its ASEAN peers in Electrification Ratio (ER)**
- **Developed countries tend to have larger electricity consumption per capita**

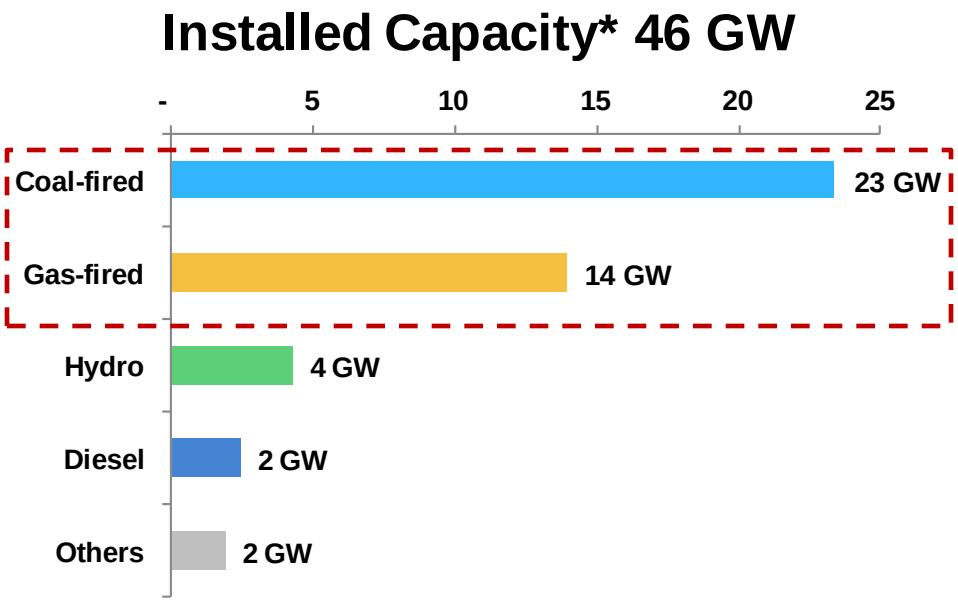
Source: PLN Investor Presentation May 2015, RUPTL 2016-2025, MEMR, World Bank, Indexmundi

Indonesian Electricity Development Progress

Installed Capacity 2010 - 2015



Installed Capacity excluding Rental Power as of December 2015



* Per 2015, excluding rental from 3rd party sources ~4 GW

Installed capacity of power plants increased slowly at 6% CAGR over 2010-2015. PLN installed capacity increased at 5% CAGR, while IPP increased at 11% CAGR

Coal and gas are largest sources of energy for electricity generation with highest total installed capacity and at most economical price

Source: RUPTL 2016 – 2025; Note: IPP is Independent Power Producer

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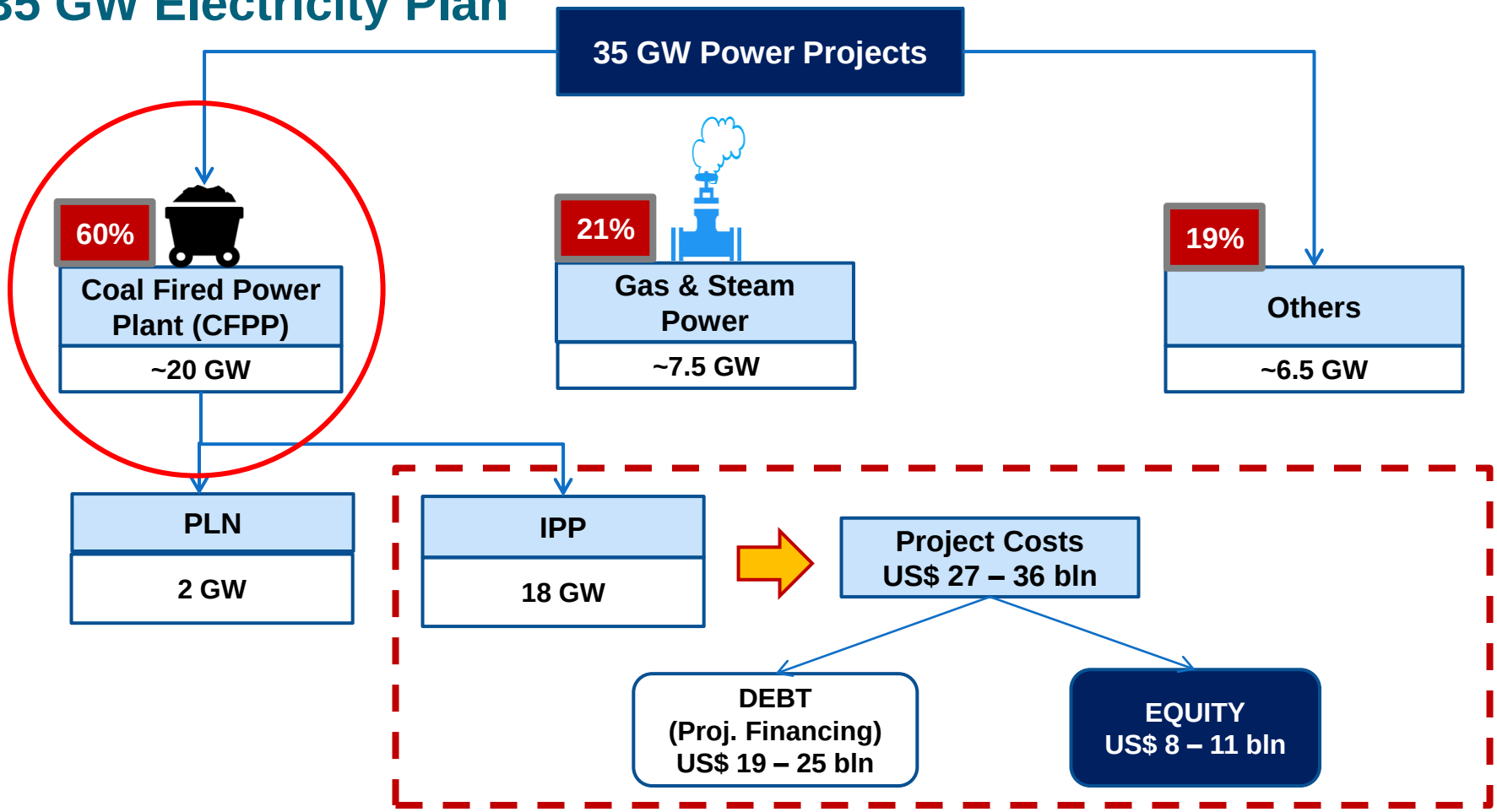
35 GW Electricity Plan



- **President Jokowi 's Administration committed to adding 35 GW new capacity to current installed capacity of 46 GW to increase ER from currently ~88% to >95% by after 2019**
- **~60% of total 35 GW power projects will come from CFPP & this 35 GW require significant participation from private (IPP) at ~53% of project costs vs PLN's portion of ~47% (inc. transmission)**
- **IPPs (inc. CFPP) secure power purchase agreement (PPA) from PLN with typical tenor of 25-30 years**

Source: RUPTL 2016-2025, internal calculations; Note: CFPP is Coal-fired power plant

35 GW Electricity Development Progress

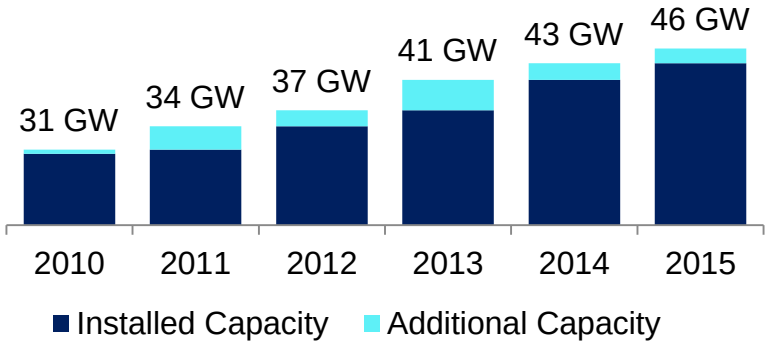
Past Electricity Programs Failed to Meet Expectations

RUPTL 2010 – 2019

30 GW additional capacity planned

51 % realized

15 GW realized additional capacity



- **Based on RUPTL 2010 – 2019, PLN planned additional capacity of approx 30 GW for 2010 - 2015 but only realized 15 GW**

35 GW Progress

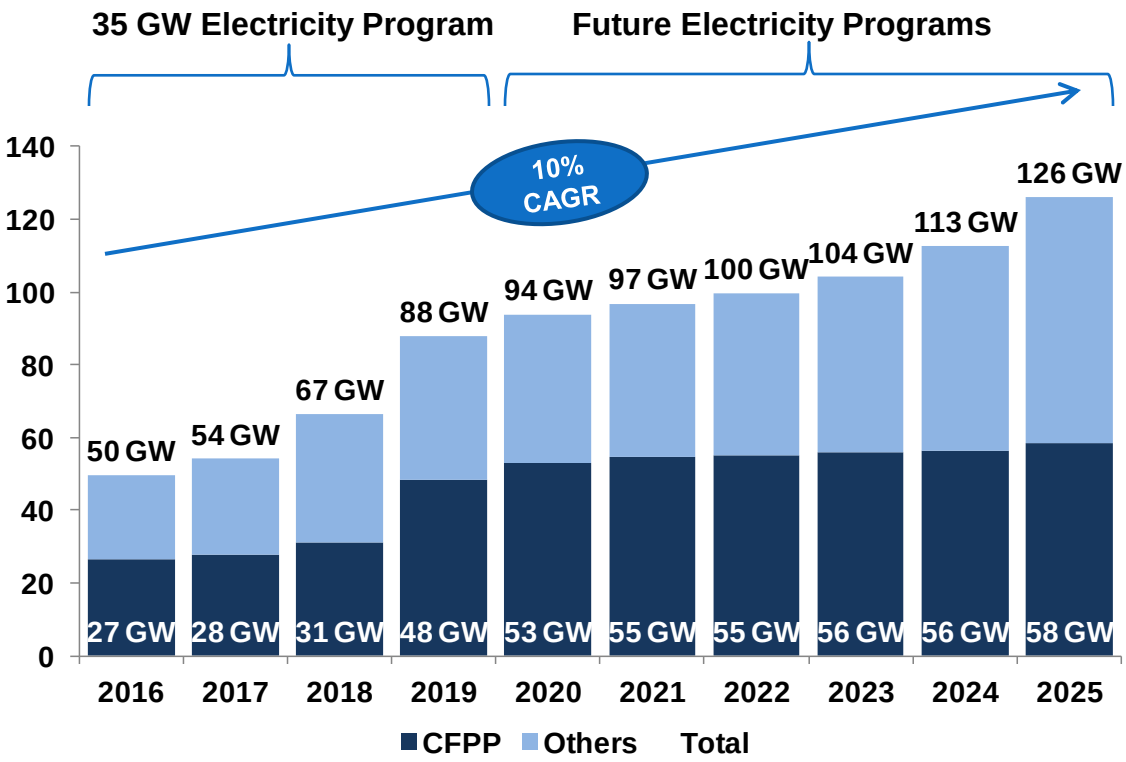
PPA Signed	COD	~0.2 GW
	Under Construction	~8.2 GW
	Have Not Started Construction	~9.8 GW
Tender Process		~10.8 GW
Planning Process		~7.7 GW

- **Only 0.2 GW operational and 8.2 GW under construction out of 35 GW planned**
- **18 GW of power plant projects have not secured PPA**

Source: RUPTL 2016-2025, PLN presentation

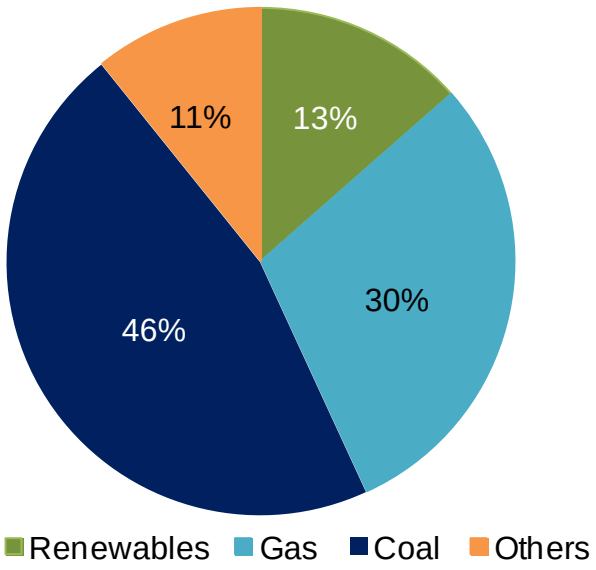
CFPP Will Drive National Electricity

Planned Year-End Capacity



Total installed capacity will grow by 10% CAGR in next 10 years. CFPP installed capacity will grow by 11 % in same period

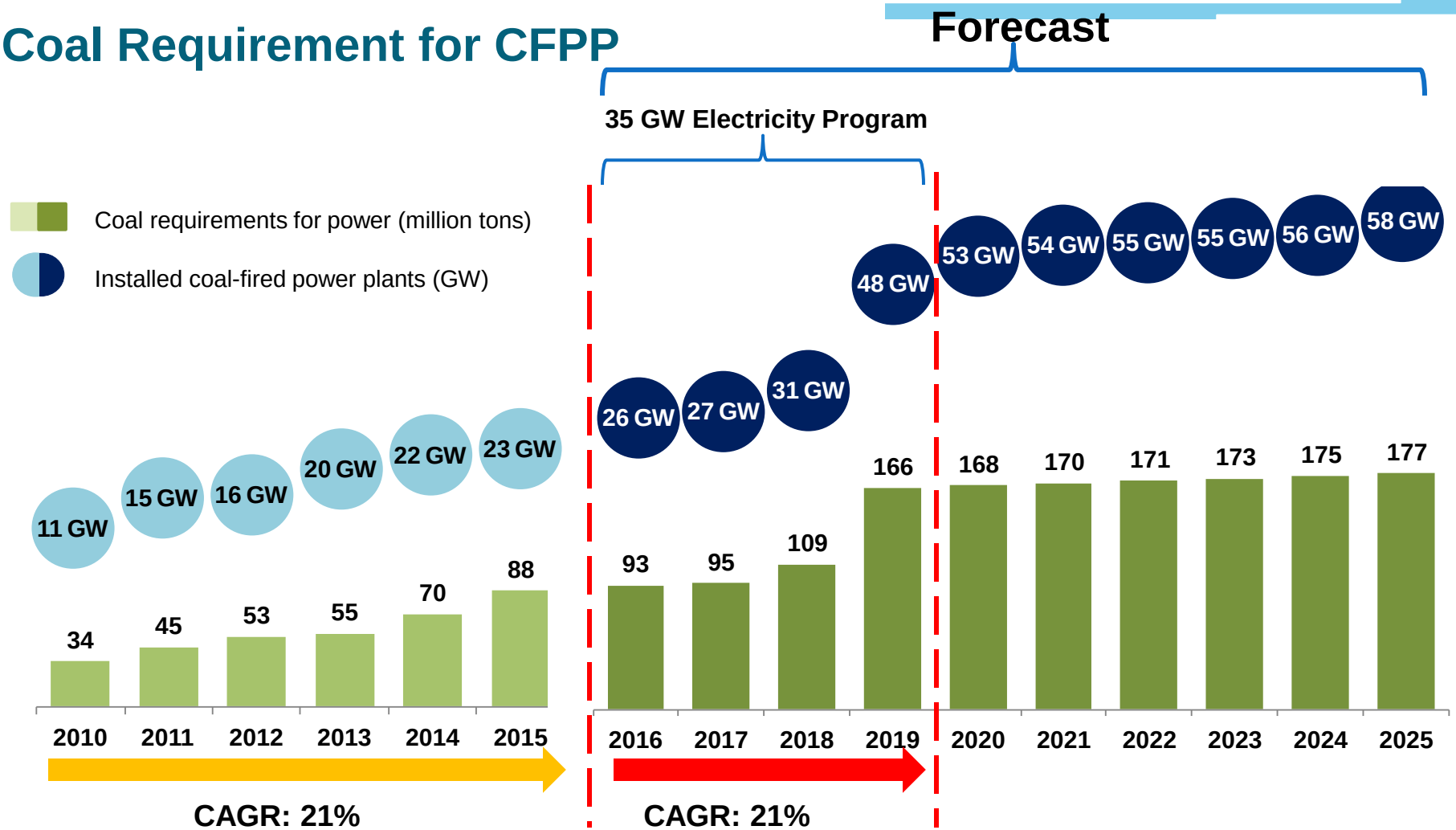
2025 Installed Capacity Composition



By 2025, CFPP will make up 46% of all power plants in Indonesia

Source: RUPTL 2016-2025

Coal Requirement for CFPP



- **Coal consumption has increased by 21% CAGR in past five years**
- **It is expected to continue to increase by another 21% CAGR from 2016 until 2019, if 20 GW of new CFPP capacity from 35 GW program is installed according to plan**
- **This assumes each MW requires 3500 - 4000 tons of coal p.a.**

Source: PWC Report - Supplying and Financing Coal-Fired Power Plants in the 35 GW Program, RUPTL 2016 - 2025

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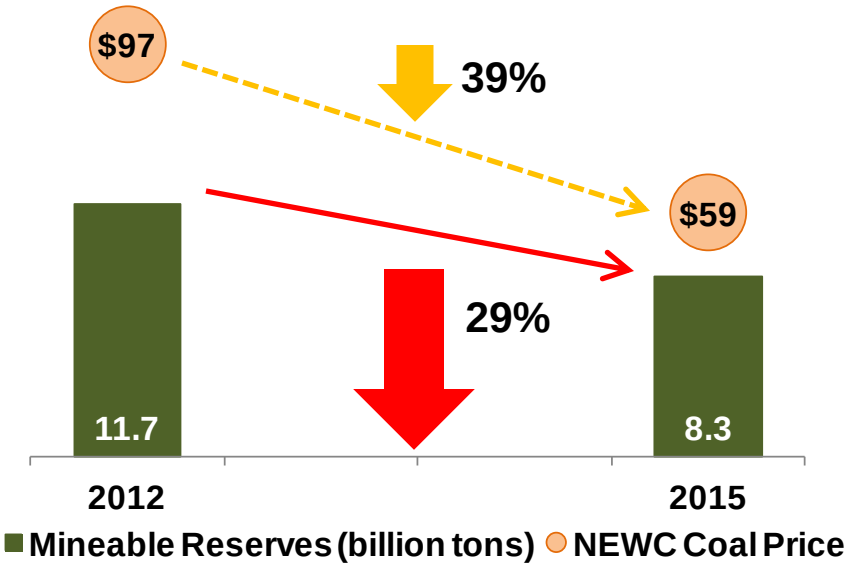
Indonesia's Coal Reserve

MoMER Data

Coal Type	Reserves (billion ton)	%	GAR
Low	9.2	28%	<4,700
Medium	20.7	64%	4,700 – 5,700
High	1.6	5%	5,700 – 6,700
Very High	0.9	3%	>6,700
Total	**32.4**	**100%**	

- **Data from MoMER as of 2012 suggests Indonesia has more than sufficient reserves of 32.4 bn tons**
- **Difficult to validate information, as MoMER does not publish detailed methodology and sources of data**

PWC Survey

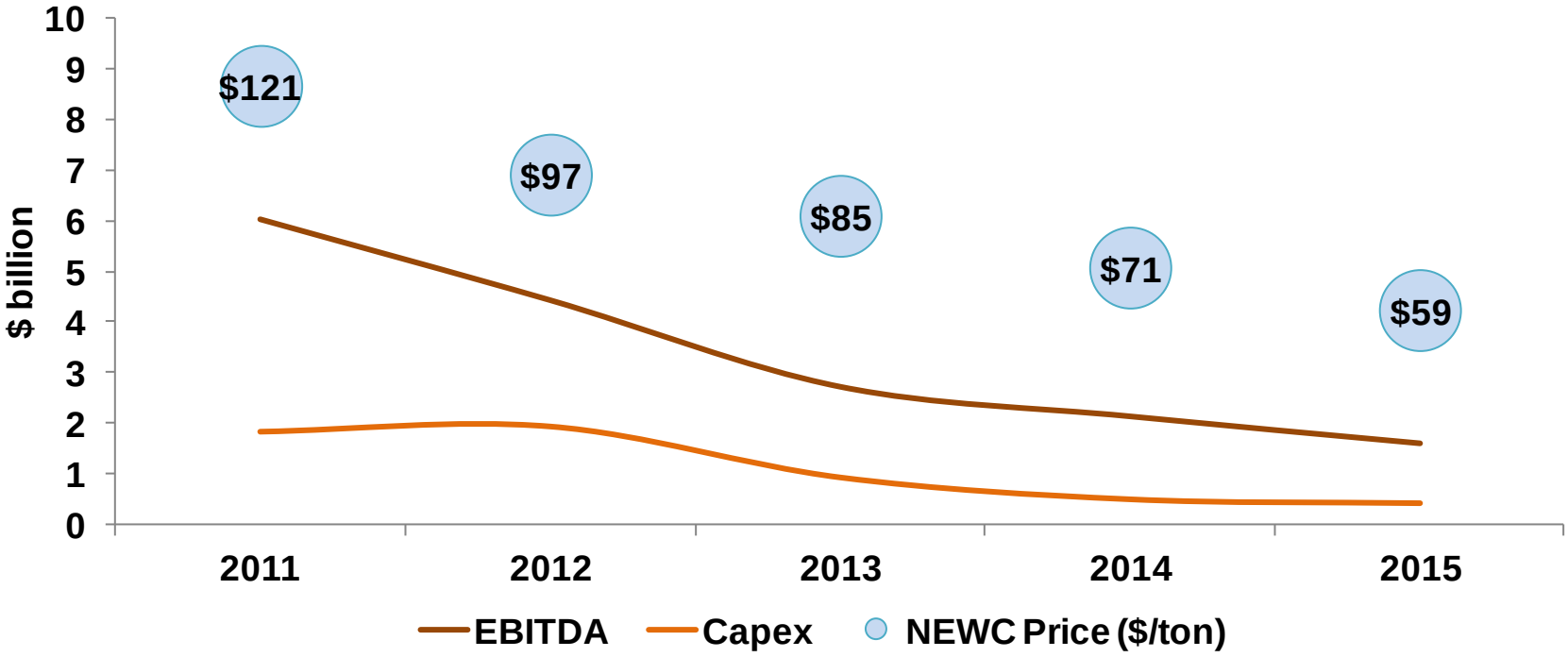


- **Based on PWC survey, mineable reserves in 2015 were reported at 8.3 bn tons, contrasting MoMER figure of 32.4 bn tons**
- **This was down by 29% from previously reported JORC of 11.7 bn tons in 2012**
- **Decrease in NEWC coal price has reduced economically mineable reserves**

Source: MoMER Strategic Plan (Renstra), PWC Report "Supplying and Financing Coal-Fired Power Plants in the 35 GW Program"

Falling Profitability & Investments

- EBITDA fell 74% since 2011, from US$ 6.5 bn to US$ 1.6 bn in 2015
- Capital expenditure (capex) dropped by 79% since 2012 from US$ 1.9 bn to US$ 0.4 bn by end 2015
- Mining industry is expected to decrease capex by further 10-19 % in 2016; this may be approaching the level where investment is not sustaining reserves each year

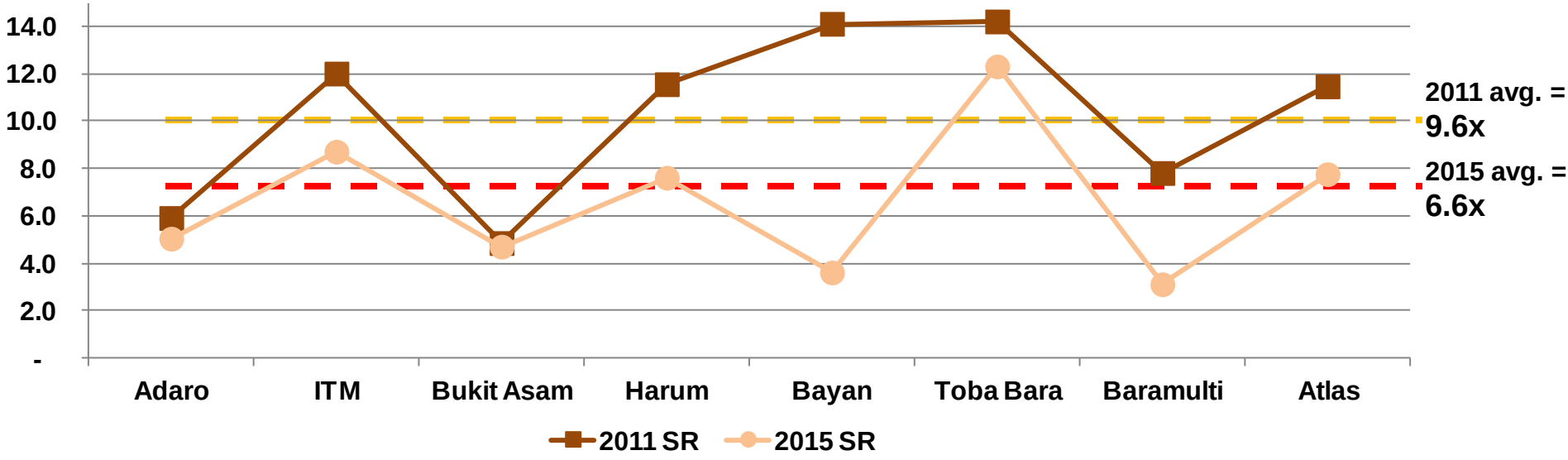


Source: PWC Report "Supplying and Financing Coal-Fired Power Plants in the 35 GW Program"; Bloomberg

Sterilization of Reserves

- **Average strip ratio (SR) has plunged from 9.6x in 2011 to around 6.6x in 2015. SR have likely continued to fall in 2016**
- **Mine plans are being modified, setting lower strip ratios and reducing reserves to be able to return to profitability**
- **This is likely to make future reserves more costly to extract, or even uneconomical to extract, which can result in 'sterilization' of remaining reserves from mine plan**

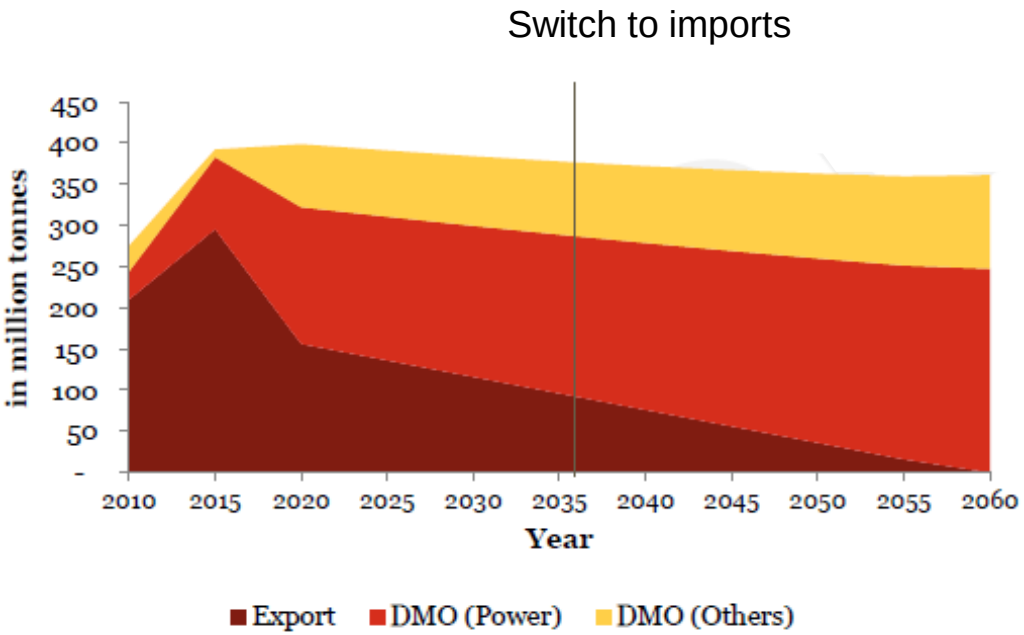
Industry Strip Ratio



Source: PWC Report; Annual Reports

Coal Consumption Forecast

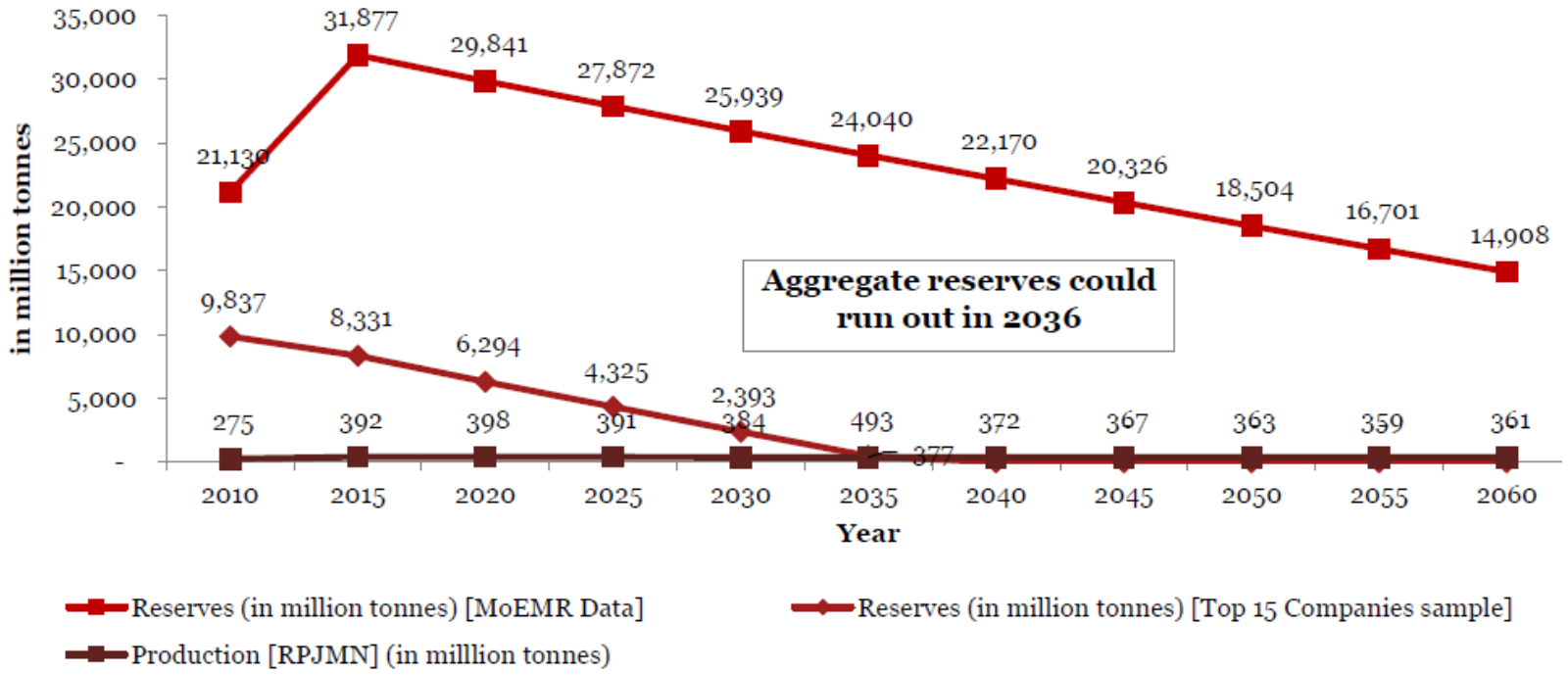
Coal Type	2015	2019	2024	2030	2050
DMO (Power)	88	166	175	185	226
DMO (Others)	2	74	78	82	101
Exports	313	160	140	116	36
Total	**403**	**400**	**393**	**383**	**363**



- **By end-2019, coal consumption for DMO (power) is expected to reach 166 mn tons**
- **We should see steady increase in coal consumption for DMO (power) going forward**
- **Coal consumption for 2016 – 2050 is forecasted to be in range of 350 – 400 million tons per annum**

Source: PWC Report; RJPMN (National Medium-Term Development Plan)

Uncertain Coal Supply



- **Based on PWC's March 2016 report, current proven coal reserves are at 8.3 bn tons**
- **Assuming coal reserves of 8.3 billion tons, with annual production forecast of 350-400 mn tons at current coal prices, current coal reserves will run out by 2036**
- **This is less than 20 years into lifecycle of new CFPP (typically 25-30 years from COD)**

Source: PWC Report ; RJPMN

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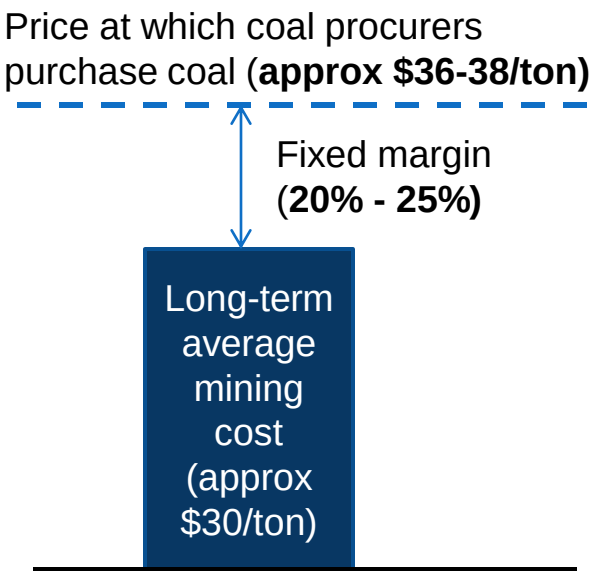
4 **Proposed Policy Solution**

Cost Based Pricing Policy

Example of how it works?

Long-term cost-based price contracts between coal procurers (PLN and IPP) and coal miners.



Positive effects of policy to miners

- **Provide predictable and stable returns for miners**
- **Recovery in investments, encourage life-of-mine planning and stabilize economically mineable reserves**
- **Incentive to invest in IPP**

Advantages to Government

- **Protects against increase in price of coal**
- **Avoids domestic reserve crisis and need to import coal and/or switch to more costly alternatives**

Cost based pricing should not only be applied to mine-mouth CFPP but to all forms of CFPP

Updates & Recommendation

- On the recent update, the new minister of mines regulation No. 9/2016 sets out 15-25% range of margin that could be used by coal miners in proposing coal sales price in Mine-Mouth Power Plant

- Detail of cost as stipulated in the regulation should be reasonable. However, PLN has been asking for review of the margin and cost detail, which they consider too high

- Government is working to find the best solution that would ensure the reasonable margin for miners while benefiting PLN as the user for sustainable coal supply

- Extensive discussions with relevant government institutions on supply sustainability to meet coal demand in 35 GW program must be encouraged to create win-win solution for all stakeholders, including on the viability of adopting cost plus margin method for all CFPP

THANK YOU