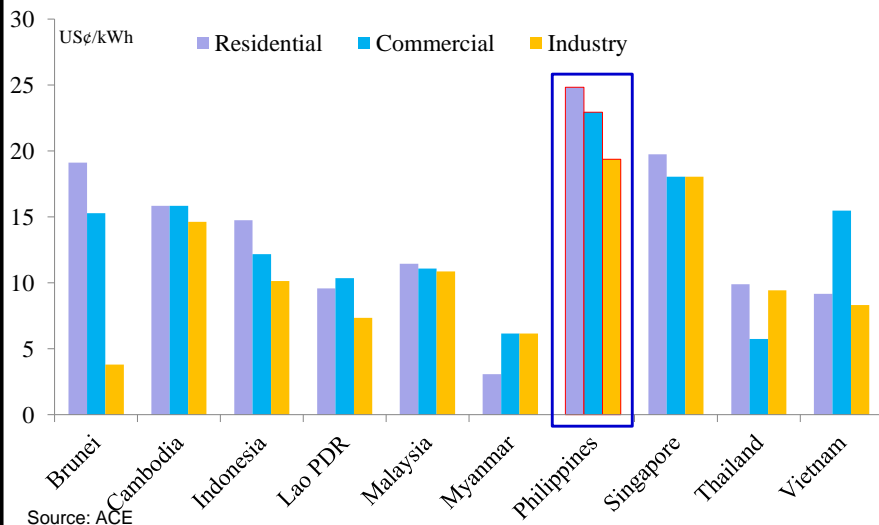




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Power Rates in ASEAN Region (2011)



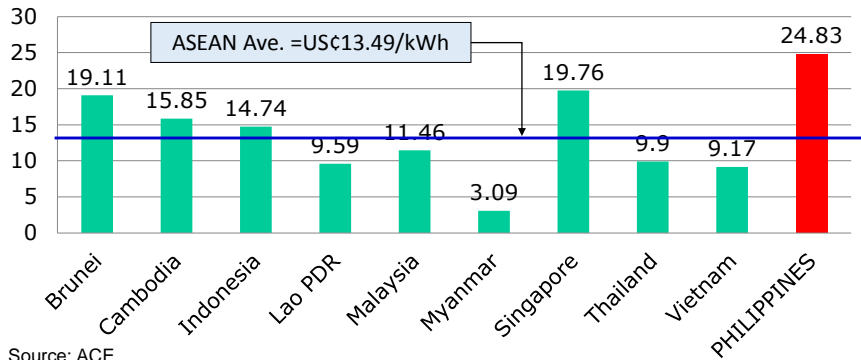
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Power Rates in ASEAN Region

ASEAN Residential Rates (2011) [U.S. Cents/kWh]



Source: ACE

Philippines' Electricity Price for Residential Consumers is almost twice of the average of the Region

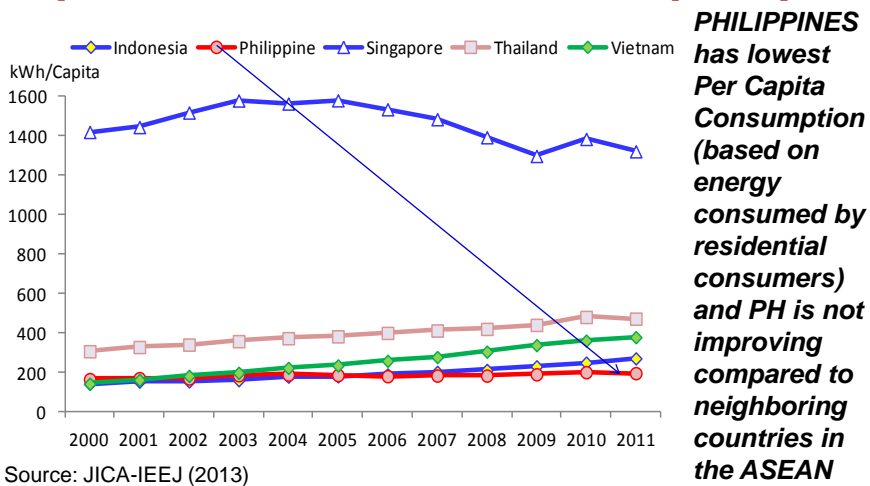


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Per Capita Electricity Consumption (based on residential consumption)



Source: JICA-IEEJ (2013)

PHILIPPINES has lowest Per Capita Consumption (based on energy consumed by residential consumers) and PH is not improving compared to neighboring countries in the ASEAN

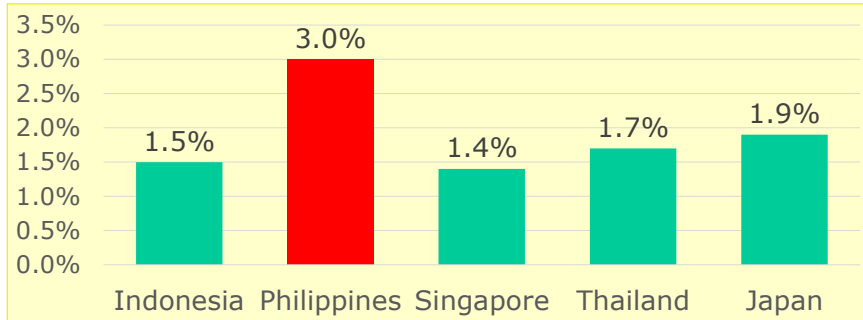


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Ratio of Power Consumption Spending to Per Capita Household Expenditure



Source: JICA-IEEJ (2013)

PHILIPPINES IS SUFFERING FROM “ENERGY POVERTY”

The low per capita consumption of households is highly likely affected by the high cost of electricity

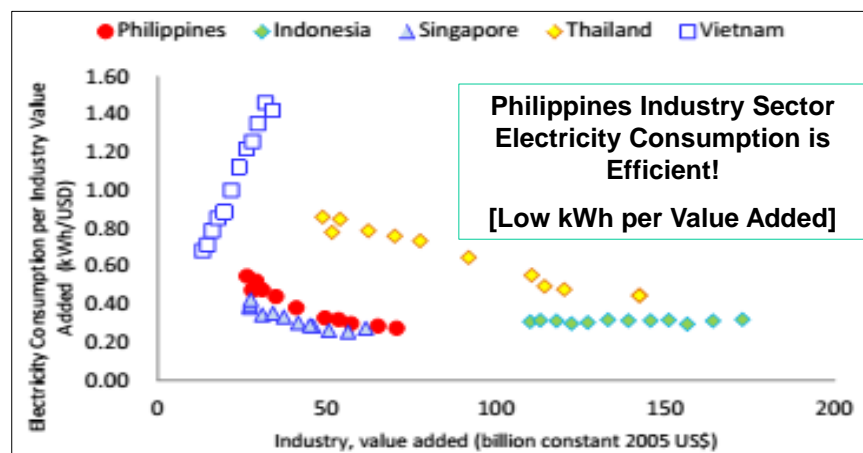


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Energy Intensity: Industry Sector



Source: JICA-IEEJ (from WB & IEA data)[2013]

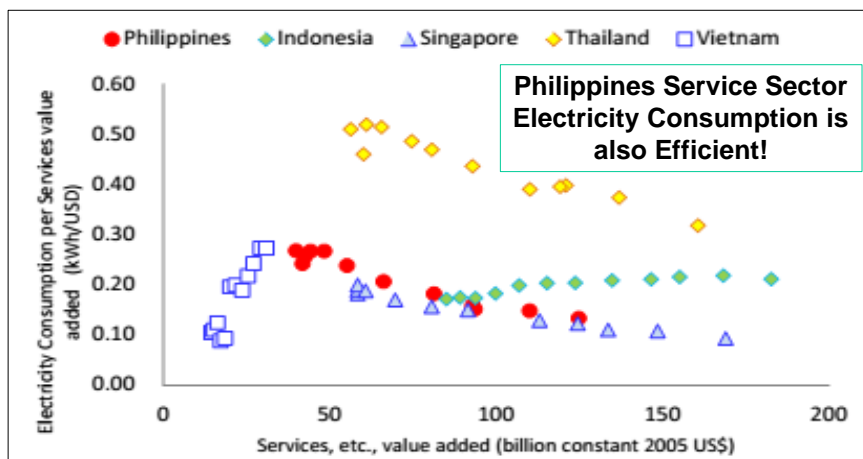


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Energy Intensity: Service Sector



Source: JICA-IEEJ (from WB & IEA data)[2013]



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Electricity Rates Hikes Higher than Inflation Rates

MERALCO Electricity Tariffs (Pesos/kWh)

Year	Residential	Commercial	LV Industrial	HV Industrial
2004	5.70	6.87	5.83	5.24
2011	10.25	10.81	9.70	8.37
Ave. Annual Change	8.73%	6.69%	7.54%	6.92%

Source: USAID CEnergy (2013)

Philippines Inflation Rate (2004-2011)

YEAR	2004	2005	2006	2007	2008	2009	2010	2011	AVE
Inflation Rate	5.70%	7.00%	5.50%	2.80%	6.20%	4.10%	3.70%	3.60%	4.83%

Source: NSCB [Inflation at Year 2000=100]



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Factors Affecting Power Rates

- ❑ Effect of Taxes
- ❑ Effect of Subsidies
- ❑ Effect of Fuel
- ❑ Effect of Privatization
- ❑ Effect of Electricity Market



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Effect of Taxes

- Taxes increased the Electricity Tariff in PH by 7.6%-9.25%
- ASEAN 6%-12%

Government Taxes is not the cause of Philippines high power rates!

Customer Class	PH	SG	IND	MAL	TH
With Tax (USD/kWh)					
Residential	0.2257	0.2207	0.0527	0.0755	0.1106
Commercial	0.2327	0.2207	0.1665	0.1442	0.1342
LV Industrial	0.1861	0.2127	0.1288	0.1268	0.1278
HV Industrial	0.1865	0.1909	0.1094	0.1145	0.1151
Pre-tax (USD/kWh)					
Residential	0.2066	0.2063	0.0514	0.0713	0.1034
Commercial	0.2133	0.2062	0.1480	0.1365	0.1254
LV Industrial	0.1729	0.1988	0.1144	0.1197	0.1195
HV Industrial	0.1714	0.1784	0.0973	0.1080	0.1075
Increase in Electricity Tariffs					
Residential	9.25%	6.98%	2.43%	5.96%	7.00%
Commercial	9.05%	7.00%	12.50%	5.64%	7.00%
LV Industrial	7.61%	7.00%	12.50%	6.00%	7.00%
HV Industrial	8.77%	7.00%	12.50%	6.00%	7.00%
Price of Electricity Relative to Philippines					
Residential	100.00%	99.85%	24.89%	34.50%	50.04%
Commercial	100.00%	96.66%	69.37%	63.98%	58.77%
LV Industrial	100.00%	114.98%	66.18%	69.20%	69.08%
HV Industrial	100.00%	104.09%	56.73%	62.98%	62.73%

Legend: PH - Philippines, SG - Singapore, IND - Indonesia,
MAL - Malaysia, TH - Thailand

Source: of Data: USAID CEnergy



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Effect of Subsidies

Electricity Tariffs after Removing Taxes and Subsidies

- PH & SINGAPORE: "Zero" Subsidies
- IND, MAL & THAI: 8% - 30% Subsidies

PH Power Rates still higher by 30%

Source: of Data: USAID CEnergy

Customer Class	PH	SG	IND	MAL	TH
Pre-tax with Subsidies (USD/kWh)					
Residential	0.2066	0.2063	0.0514	0.0713	0.1034
Commercial	0.2133	0.2062	0.1480	0.1365	0.1254
LV Industrial	0.1729	0.1988	0.1144	0.1197	0.1195
HV Industrial	0.1714	0.1784	0.0973	0.1080	0.1075
Pre-tax after Removing Subsidies (USD/kWh)					
Residential	0.2066	0.2063	0.0866	0.0808	0.1419
Commercial	0.2133	0.2062	0.1832	0.1461	0.1639
LV Industrial	0.1729	0.1988	0.1496	0.1293	0.1580
HV Industrial	0.1714	0.1784	0.1325	0.1176	0.1461
Percent Change in Electricity Tariffs					
Residential	100.00%	100.00%	168.39%	113.40%	137.30%
Commercial	100.00%	100.00%	123.78%	107.04%	130.73%
LV Industrial	100.00%	100.00%	130.75%	108.03%	132.26%
HV Industrial	100.00%	100.00%	136.18%	108.90%	135.83%
Price of Electricity Relative to Philippines					
Residential	100.00%	99.85%	41.90%	39.12%	68.70%
Commercial	100.00%	96.66%	85.87%	68.48%	76.83%
LV Industrial	100.00%	114.98%	86.53%	74.75%	91.36%
HV Industrial	100.00%	104.09%	77.26%	68.59%	85.21%



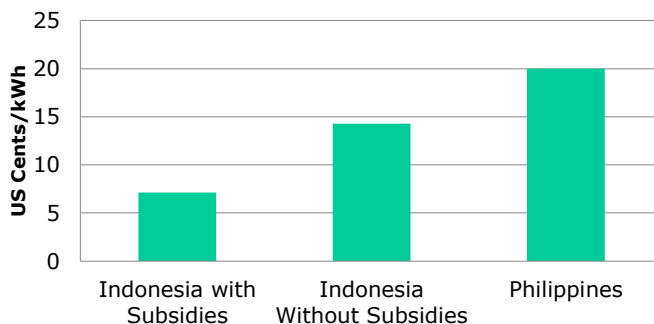
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Effect of Subsidies

Tariff Level Comparison (2011)



Source: JICA-IEEJ (2013)

Philippines Power Rate is higher even subsidies of Indonesia is removed



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Effect of Fuel

Before we conclude that we are OK because we have the same level of electricity tariff as Singapore...

Power Generation Mix (2011)

Fuel Type	PH	IND	SG	TH	VIE
Total GWh	69,176	182,384	45,999	155,986	99,179
Coal	36.6%	44.4%	0.0%	22.3%	21.1%
Nat Gas	29.8%	23.2%	78.0%	68.3%	43.9%
Oil	4.9%	20.3%	18.4%	1.3%	4.8%
Hydro	14.0%	6.8%	0.0%	5.2%	30.1%
Other RE	14.7%	5.2%	3.6%	2.8%	0.1%

Source of Data: IEA

Singapore is Gas & Oil dependent (96%) and therefore must have higher generation cost compared to Philippines

Philippines Tariff will be higher than Singapore by PHP2.00/kWh if we have the same fuel mix



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Effect of Fuel

Fuel Pricing Policy

□ Vietnam, Indonesia and Thailand

- Fuel Export Tax >> Local Utilization Tax or not taxed at all

□ Philippines

- Royalty on Indigenous Energy Resources
 - Government revenue must equal to fuel import duties
- Indexation to International Fuel Prices
 - Malampaya Natural Gas indexed to Brent Oil
 - Geothermal indexed to Newcastle Coal



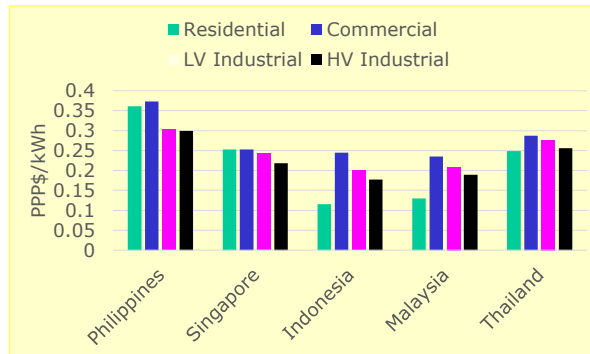
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Comparison of Power Rates after Purchasing Power Adjustments using PPP\$ and removing taxes & subsidies

Customer Class	PH	SG	IND	MAL	TH
Residential	0.3609	0.2523	0.1156	0.1301	0.2484
Commercial	0.3727	0.2523	0.2447	0.2353	0.2869
LV Industrial	0.3021	0.2432	0.1999	0.2082	0.2765
HV Industrial	0.2995	0.2183	0.1769	0.1894	0.2557



PH is 40% Higher

Source: of Data: USAID (2013)



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Effect of Privatization

□ Philippines Power

- Power Generation Assets Awarded to Highest Bidder (Floor Price: Depreciated Replacement Value)
- Increased **Capital Recovery Rate** by new owner in the generation cost

□ United Kingdom Power

- Privatized at 1/5 of value of assets

□ Philippines Water

- Bidders competed on lowest PHP per Cubic Meter



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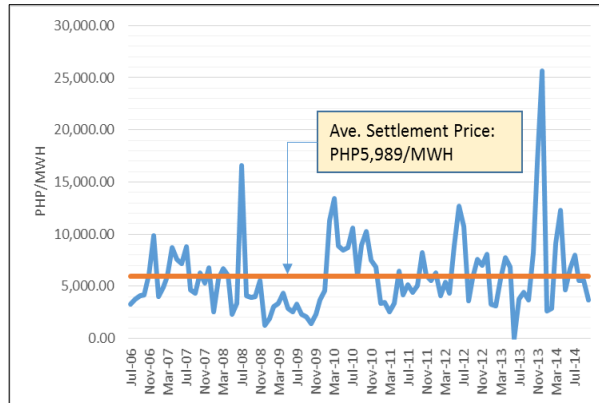
Effect of Electricity Market

PH ELECTRICITY MARKET

- Wholesale Electricity Spot Market
- Bilateral Power Supply Contracts

GENCOS are bidding but may not necessarily be competing

Price Settlement in WESM, July 2006 to October 2014 (PHP/MWH)



Source of Data: EPIRA Implementation & Status Reports, DOE



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Target Rate Reduction

- Philippines has been reforming the power Industry but no target has been set to reduce power rates while it was the promise when Congress decided to enact R.A. 9136 (EPIRA) in 2001.
- Implication of power rates in the ASEAN region (after tax & subsidy removal):
 - Target power rate reduction by 30%
~ PHP3.00/kWh



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Reducing Taxes to Reduce Power Rates

- ❑ The taxes in the Philippines is only 2% higher compared to most ASEAN countries.
- ❑ Indonesia's taxes for commercial and industrial customers (12.5%) are even higher than the taxes in the Philippines (9%).
- ❑ Asking the government the remove taxes seems not feasible
- ❑ If taxes in the Philippines is reduced to the level of taxes in ASEAN countries, only **2% power rates reduction** can be achieved
[Far away from 30%!]



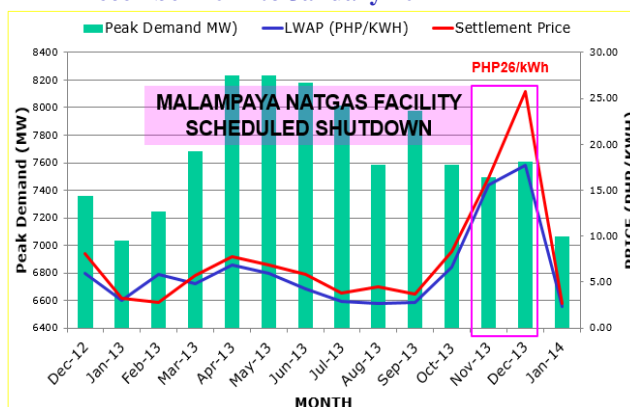
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Focusing on Electricity Market and Security of Supply

Price Settlement in WESM (PHP/MWH)
December 2012 to January 2014



High market price when supply is tight!

Source of Data: WESM



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Security of Supply

	1997	1998	1999	2000	2001
Peak (MW)	6,352	6,666	6,908	7,400	7,682
Installed Cap (MW)	11,762	11,931	12,431	13,185	13,402
Reserve Margin (%)	85.17	78.99	79.96	78.18	74.46
Dependable Cap (MW)	8,621	7,450	9,497	11,363	11,209
Reserve Margin (%)	35.72	11.76	37.48	53.55	45.91

We had the opportunity to reduce Power Rates when we restructured the power industry because of more than adequate power supply



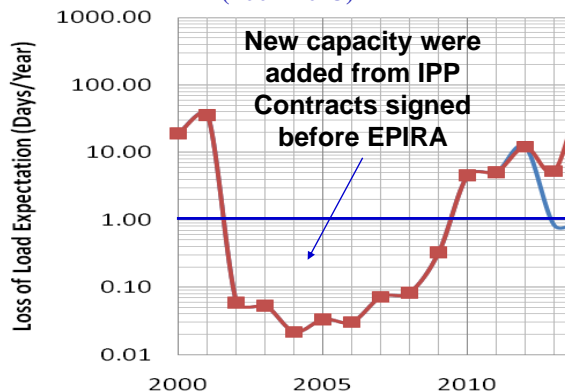
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Security of Supply

Loss-of-Load Expectation of Luzon Grid
(2001-2013)



LOLE – Expected Number of Days of power curtailment due to simultaneous outages of power plants

**Philippines
Optimal Power
Generation
System Reliability**

1 day/year

Viray & del Mundo, UPNEC (1991)

**U.S. & Europe LOLE
0.1 day/year**

Source: del Mundo, UPNEC (2013)



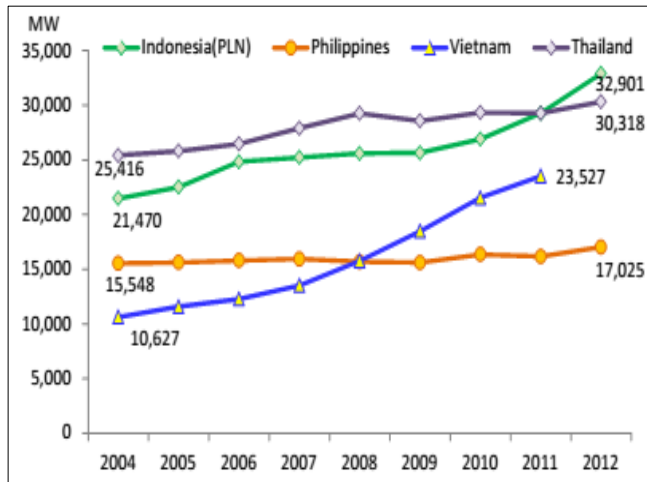
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Security of Supply

Installed Generating Capacity in ASEAN (2004-2012)



- Dismal Generation Investment in the Philippines
- Cycle of Power Crisis
 - Visayas in 2007
 - Mindanao in 2010
 - Luzon today!



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Reducing Prices in Electricity Market

WE MUST ENSURE SECURITY OF POWER SUPPLY TO REDUCE POWER RATES

❑ PH WESM

- Not giving signal for investment on time?

❑ Private Investment Response is too late

- Capital intensive
- Project Finance
- Lead Time



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Ensuring Security of Supply and Reducing Prices in Electricity Market

Challenge: How to convert Plan to Plant

Problem: Missing Mechanism that will ensure new power plant capacity will be available on time to meet growing demand in the liberalized and competitive electricity market of the Philippines



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Ensuring Security of Supply and Reducing Prices in Electricity Market

- ❑ **Bilateral Contracts of Distribution Utilities for Captive Customers is Key to ensuring security of supply**
 - Long-Term (10-20 Years) for new power plants considering lenders view to ensure financing
 - Short-Term (1-5 Years) from existing power plants *[Avoiding long-term]*



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Aggregation of Electric Cooperatives [Economies of Scale and Competitive Bidding]

Objectives and Legal Basis

"To achieve economies of scale in utility operations, distribution utilities may, after due notice and public hearing, pursue structural and operational reforms such as but not limited to, **joint actions** between or among the distribution utilities, subject to the guidelines issued by the ERC. Such joint actions shall result in improved efficiencies, reliability of service, reduction of costs and compliance to the performance standards prescribed in the IRR of this Act" [R.A. 9136 Sec. 23]

**JOINT
ACTION**

**Economies
of Scale**

**Reliability
of Service**

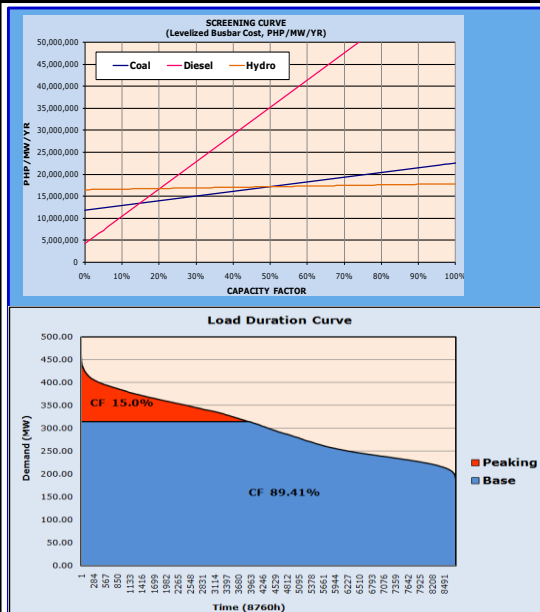
**Reduction
of Costs**



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Aggregation of Electric Cooperatives

LEAST-COST POWER SUPPLY PLAN OF ECs

- **Baseload Demand**
 - About 80% of Peak
 - 90-95% of Total Energy
- **Peaking Demand**
 - About 20% of Peak
 - 5-10% of Total Energy



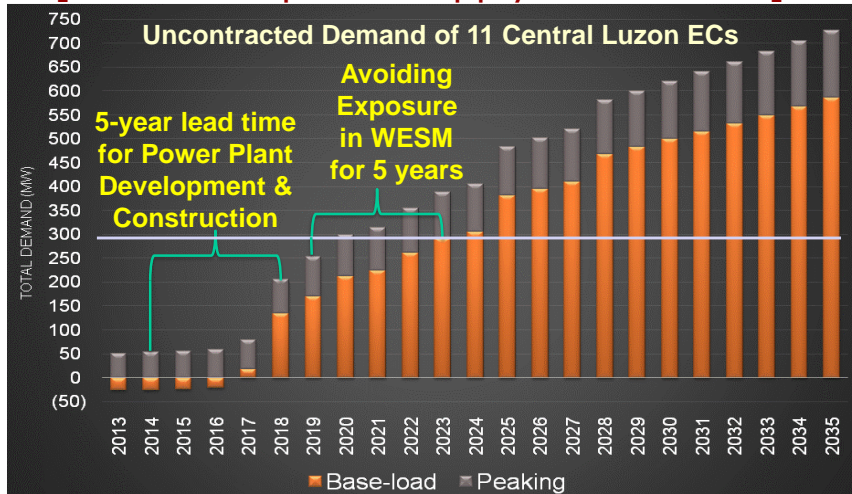
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Aggregation of Electric Cooperatives

[How much power supply to contract?]



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Aggregation of Electric Cooperatives

[Economies of Scale and Competitive Bidding]

□ Mindanao PSAG

- ECs in Mindanao facing power crisis received offers from GENCOs:
 - Php5.50/kWh–Php6.30/kWh for base load power supply
- 20 ECs in Mindanao bidded 330 MW of baseload
 - International Transaction Adviser required to invite new and foreign IPP
 - 3 Local IPPs and 3 Foreign IPPs [1 New Foreign IPP]
- Signed long-term power supply contract at **Php4.12/kWh** [reference fuel price and FOREX: 2010]
 - GENCO was required to supply from new power generation capacity (450 MW in 2017)



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Aggregation of Electric Cooperatives [Economies of Scale and Competitive Bidding]

❑ Central Luzon ECs (CLECAFLAG)*

- 11 ECs in Central Luzon signed long-term contract in June 10, 2014
 - GENCOs were also required to supply from new generating capacity
 - 6 Pre-qualified Bidders; 3 competed in stage 1 in a 2-stage competition; Imposed Price Cap: PHP4.09/kWh
 - Contract Price : Php3.70/kWh [Reference Fuel Price & FOREX: August 2013]

*Under USAID-COMPETE TA



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CLECAFLAG Competitive Bidding Design for 300 MW

STAGE 1

Competitive
Selection of
Firm
Proponent

- Pre-qualification of Bidders (Legal, Technical, and Financial)
- Firm Proponent selected based on lowest levelized value of offered "Price Cap"
- Evaluation Framework : Levelized costs for 20 years considering fuel price and consumer price indexation

Price Cap of
Price Cap
PhP4.09/kWh

6 Eligible
Bidders

3 GENCOs
submitted bid

STAGE 2

Swiss
Challenge
of Firm
Proponent

- Firm Proponent to submit technical and price proposal based on firm arrangement for power plant site, long-term fuel supply, EPC contractor and project financing
- Firm Proposal can be challenged with right to match by losing bidders in Stage 1

Firm Proponent
Price Proposal:
Php3.70/kWh

Swiss
Challenger
levelized price
must be lower
by 5%



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CLECAFLAG Bilateral Contracts

PPSA

ALLOCATION OF CAPACITY

- Share of each EC in 300 MW

PRICE STRUCTURE

- Fixed Capacity Fee
- Pass-Through Energy Fee for Fuel

OBLIGATIONS OF PARTIES

- Normal and Abnormal conditions

RMA

RISK IDENTIFICATION

- Plant Construction Delay

RISK QUANTIFICATION

- Plant Outage
- Low Capacity Utilization (Load Variations)

RISK MITIGATION MEASURE

- Late Payments
- Permanent defaults leading to termination

"How to Build Risk Mitigation Fund"



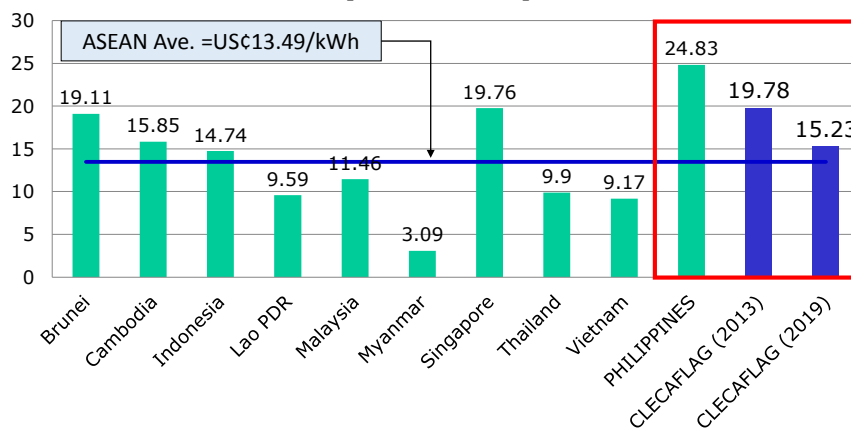
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CLECAFLAG Power Rates

ASEAN Retail Rates (2011) and CLECAFLAG (2013 and 2019)
[U.S. Cents/kWh]



34% Reduction in Generation / 23% Reduction in Retail

Sources of Data: IEEJ-JICA (2013) and CLECAFLAG/USAID COMPETE (2014)



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Region 8 ECs Short Term- Power Supply Bidding

Contract Year	Contract Duration	Aggregated Baseload Demand
2015	Dec. 26, 2014 – Dec. 25, 2015	65 MW
2016	Dec. 26, 2015 – Dec. 25, 2016	78 MW
2017	Dec. 26, 2016 – Dec. 25, 2017	83 MW
2018	Dec. 26, 2017 – Dec. 25, 2018	93 MW

#	Name of Potential Bidders	Type of Bidder	Plant Type Offered
1	FDC Utilities, Inc.	IPP Administrator	Geothermal
2	GNPower Ltd. Co.	Wholesale Aggregator	Coal
3	Panay Energy Development Corporation	GenCo	Coal
4	San Miguel Energy Corporation	GenCo	Coal
5	SoEnergy International, Inc.	GenCo	Diesel
6	Southwest Luzon Power Generation Corp.	GenCo	Coal
7	Trans-Asia Oil & Energy Development Corp.	Wholesale Aggregator	Geothermal
8	Toledo Power Company	GenCo	Coal
9	Unified Leyte Geothermal Energy, Inc.	IPP Administrator	Geothermal



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Region 8 ECs Short Term- Power Supply

Bidding Result Statistics	2015	2016	2017	2018
R8 ECs Total Baseload Bidded	65 MW	78 MW	83 MW	93 MW
Total Capacity Offered by Bidders	57 MW	170 MW	298 MW	308 MW
Difference Capacity vs Demand	-8 MW	92 MW	215 MW	215 MW
Number of Bids Received	3	5	7	7
Number of Potential Winning Bids	3	3	1	1
Blended Price from Bidding (Php/kWh)	6.2692	5.3401	4.0119	4.0494

- For 2015, only 2 Winning Bidders were declared. The 3rd Bidder's proposal (Diesel & Non-compliant) was not accepted. Winning Bidders were requested to increase capacity for contracting. Blended Rate is at PHP5.70/kWh



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Conclusion

- ❑ **Target Power Rate Reduction:**
 - 30% of current Power Rates (PHP3.00/kWh)
- ❑ **Rate reduction from Taxes is only 2%**
- ❑ **Rate reduction opportunity is in the Electricity Market (Bilateral Contracts)**
 - At least 20% of Retail Rates can be reduced
- ❑ **Economies of Scale**
 - Electric Cooperatives must be aggregated
 - Private DUs have natural economies of scale
 - The largest DU is a monopsony (75% demand of Luzon)



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Recommendations

1. Mandatory Public Bidding for Distribution Utilities Procurement of Power Supply for Captive Customers

- Long-Term Forward Contracts to ensure supply security and Short-Term contracts for existing power plants (Different contract design)
- DUs to submit to DOE/ERC Power Supply Procurement Schedule (or Government to Schedule)
- Government to Bid uncontracted demand if DUs fails to procure according to schedule



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Recommendations

2. ERC Evaluation & Approval of Power Supply Contracts for Captive Customers of Dus

- Timely approval based results of bidding if the following ***Elements of Competitive Bidding*** for Power Supply Contracting are present:
 - Least-Cost Power Supply Plan (Quantities & Timing)
 - Target Price (Best-New Entrant)
 - Market Assessment
 - Transaction/Bidding Design
 - Transparent (Clear evaluation methodology)
 - Competitive Results (against Target/Benchmark)



Recommendations

2. ERC Evaluation & Approval of Power Supply Contracts for Captive Customers of Dus

- If the contract submitted by DU is negotiated
 - Subject to *Swiss Challenge*
 - ERC to define rules and evaluation methodology and supervise the Competitive Selection Process



Thank You

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