



UNDERSTANDING THE ENERGY SUPPLY CHAIN

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E-Power Mo! Communicating Efficiency Across the Energy Sector
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Presentation Coverage



Bakit umabot hangang **P32/kWh**
ang presyo sa **WESM**?

Magkakaroon nga ba ng
sufficient competition sa
WESM?

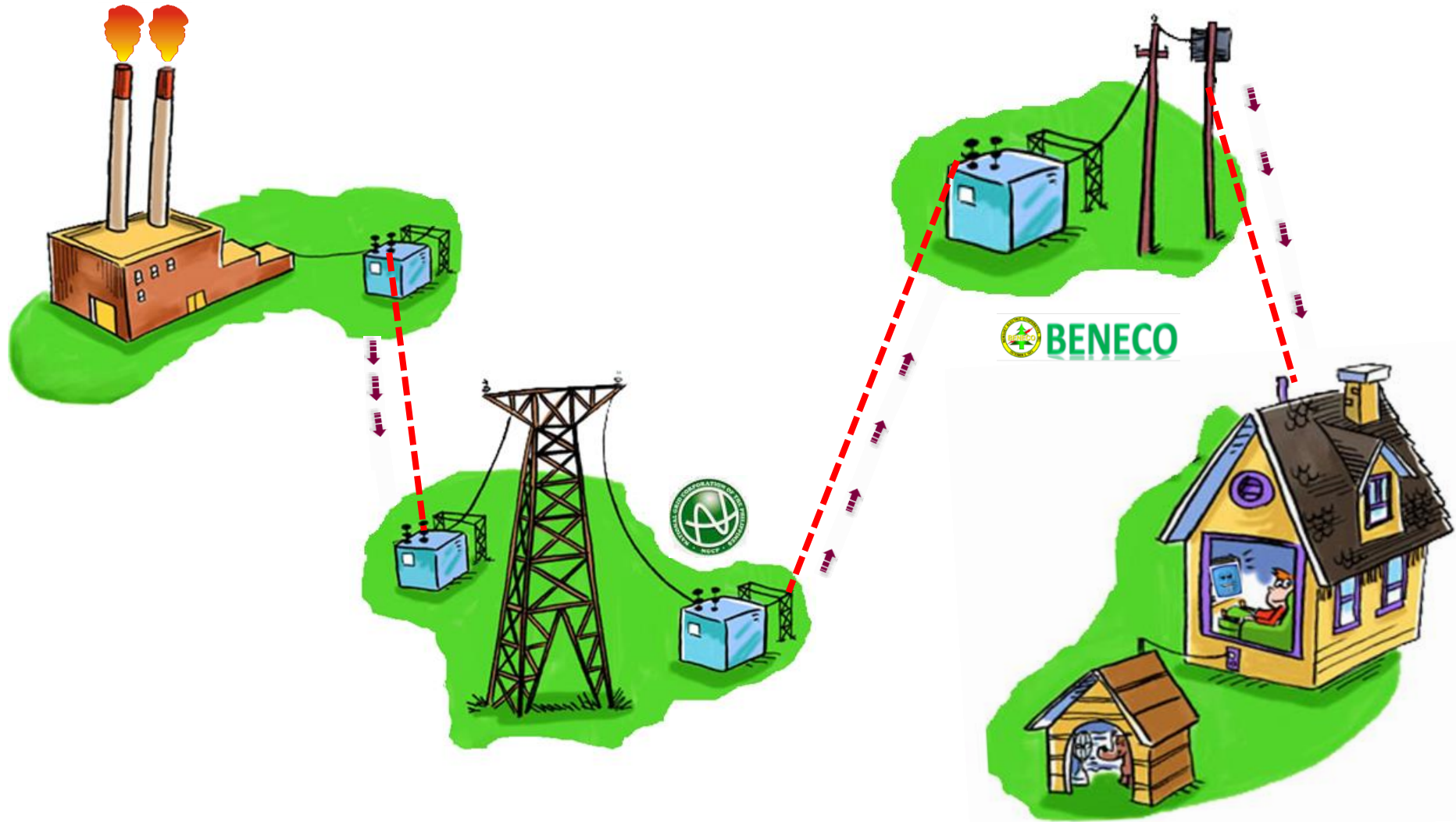
Ano ang **effect ng WESM** sa existing
bilateral contracts or **power supply**
agreement ng generating companies
with the DUs?

Ano ang maaaring **impact ng WESM**
sa consumers' electricity bills?

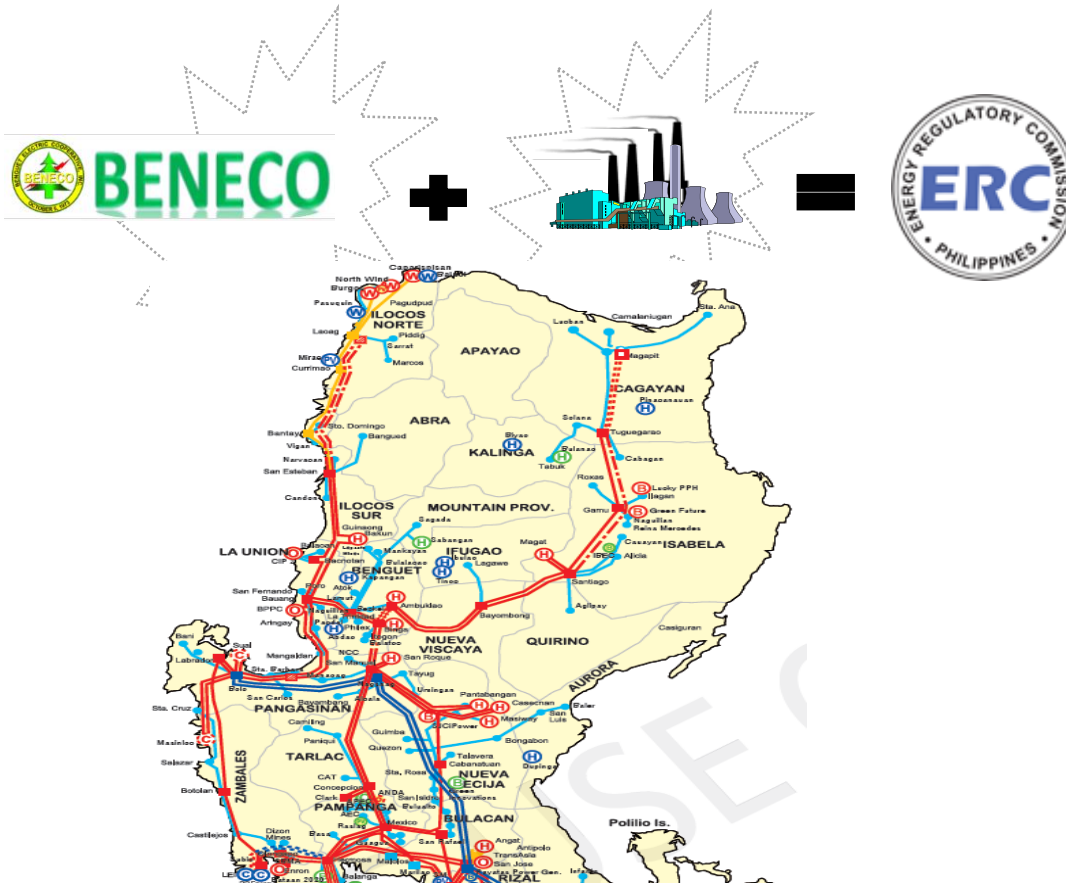
Magdudulot ba ng pagtaas ng singil
ng power rate sa **WESM**?



Power Demand and Supply Chain



Power Supply Contracting



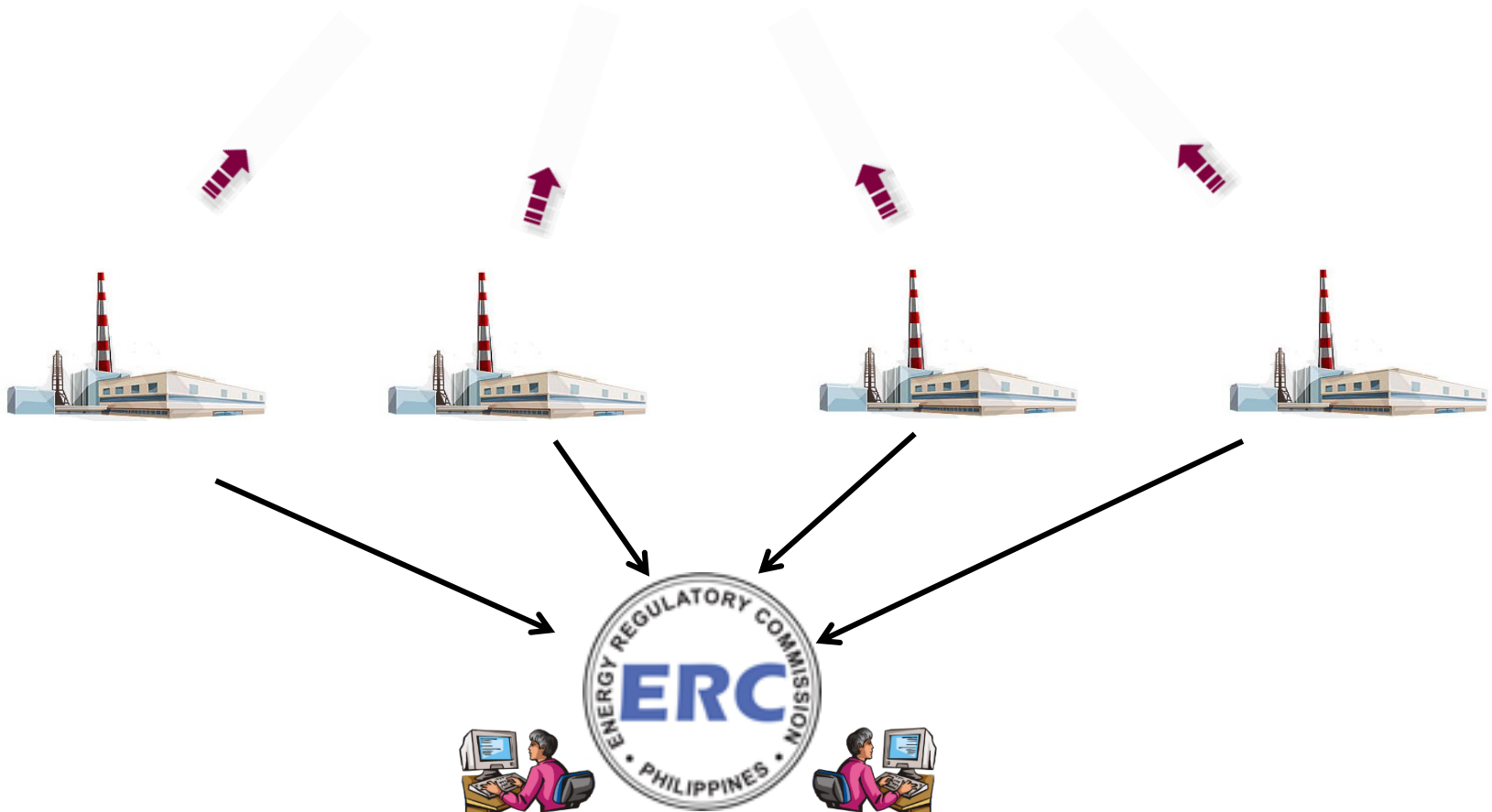
RULES GOVERNING POWER SUPPLY AGREEMENT



BENECO

Competitive Selection Process (CSP)

Direct Negotiation



Rules Governing Power Supply Agreement

Republic of the Philippines
ENERGY REGULATORY COMMISSION
San Miguel Avenue, Pasig City

RULES GOVERNING THE EXECUTION, REVIEW, AND EVALUATION OF POWER SUPPLY AGREEMENTS ENTERED INTO BY DISTRIBUTION UTILITIES FOR THE SUPPLY OF ELECTRICITY TO THEIR CAPTIVE MARKET

ARTICLE III PROCUREMENT PROCESS

Section 1. *Award of PSA to Generation Company.* – PSA shall be awarded to the winning Generation Company following a successful transparent and competitive selection process or by Direct Negotiation as provided in Section 3 below. A CSP is successful if the DU receives at least two (2) qualified bids from entities with which the DU is not prohibited from entering into a contract for power supply in accordance with Rule 11, Section 5 (b) of the EPIRA IRR.

Section 3. *Direct Negotiation.* – Direct negotiation with interested party for the supply of electricity may be made by the DU after at least two (2) failed CSPs. A CSP is considered failed when during its conduct, any of the following circumstances exist:

- a. No proposal was received by the DU;
- b. Only one supplier submitted an offer; and
- c. Competitive offers of prospective suppliers failed to meet the requirements prescribed under the Terms of Reference, as determined by the DU Bids and Awards Committee.



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Section 3. *PSA Pricing Structure.* The ERC shall determine the reasonable generation cost under the said PSA, taking into account the following fees:

Capital Recovery Fee (CRF) - a capital-related component to recover the cost of investment over the economic life of the plant together with a reasonable rate of return.

O&M Fee - a component to recover operating and maintenance cost.

Fuel Fee - a component to recover fuel costs, if applicable.



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GRANTED PROVISIONAL AUTHORITY to implement their Power Purchase and Transfer Agreement (PPTA), subject to the following conditions:

1. Applicable Rate:

Particulars	Rates
Capacity Fee, PhP/kW/month	1,097.83
Fixed O&M Fee, PhP/kW/month	317.26
Energy Fee, PhP/kWh	0.50
Fuel Cost	Pass-through cost, subject to efficiency cap of 0.24li/kWh (guaranteed at 100% dispatch), escalated by 1.5% per year, or actual consumption, whichever is lower
Lube Cost	Pass-through cost, subject to efficiency cap of 0.002li/kWh, escalated by 1.5% per year, or actual consumption, whichever is lower

The applicable rates shall be subject to adjustment based on the adjustment formula provided in the PPTA.

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IN THE MATTER OF THE APPLICATION FOR APPROVAL OF THE POWER SALES AGREEMENT

1. Applicable Rate:

Table 1. Rates Approved by the Commission.

Particulars	Rates
<i>Capital Recovery Fee</i>	<i>PhP 147.35/kW/month</i>
<i>Fixed O&M Fee</i>	<i>PhP 219/kW/month</i>
<i>Variable O&M Fee</i>	<i>PhP 0.18/kWh</i>
<i>Fuel Fee</i>	<i>Pass-through cost subject to specific fuel oil consumption rate of 0.2464¹ kg/kWh or actual, whichever is lower</i>



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Contract Charges. Under the PSC, the Buyer shall pay the following Contract Charges for the duration of the Contract, subject to the applicable value-added tax (VAT), and computed as follows:

Particulars	Unit	Amount
Capacity Fee		
A. Capital Recovery Fee	PhP/kW-month	1,386.8021
B. Fixed Operation and Maintenance Fee	PhP/kW-month	383.8079
Total Capacity Fee		1,770.6100

Energy Fee		
C. Variable Operation and Maintenance Fee	PhP/kWh	0.2831
D. Fuel Fee	PhP/kWh	1.6566
Total Energy Fee		1.9397



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Particulars	TSI ⁸		FDC Misamis ⁹		SMCPC	
Technology	Circulating Fluidized Bed Coal-Fired Thermal Power Plant					
Installed Capacity	300 (2x150) MW		405 (3x135) MW		300 (2x150) MW	
	PhP/kW-mo.	PhP/kWh	PhP/kW-mo.	PhP/kWh	PhP/kW-mo.	PhP/kWh
CRF	1,936.60	2.6529	1,924.48	2.6363	1,386.80	1.8785
Fixed O&M	387.35	0.5306	366.16	0.5016	383.81	0.5258
Variable O&M		0.2908		0.1907		0.2831
Total Rate (net of Fuel)		3.1835		3.1379		2.6873
Fuel Fee	Pass-through cost					



Power Demand and Supply Chain

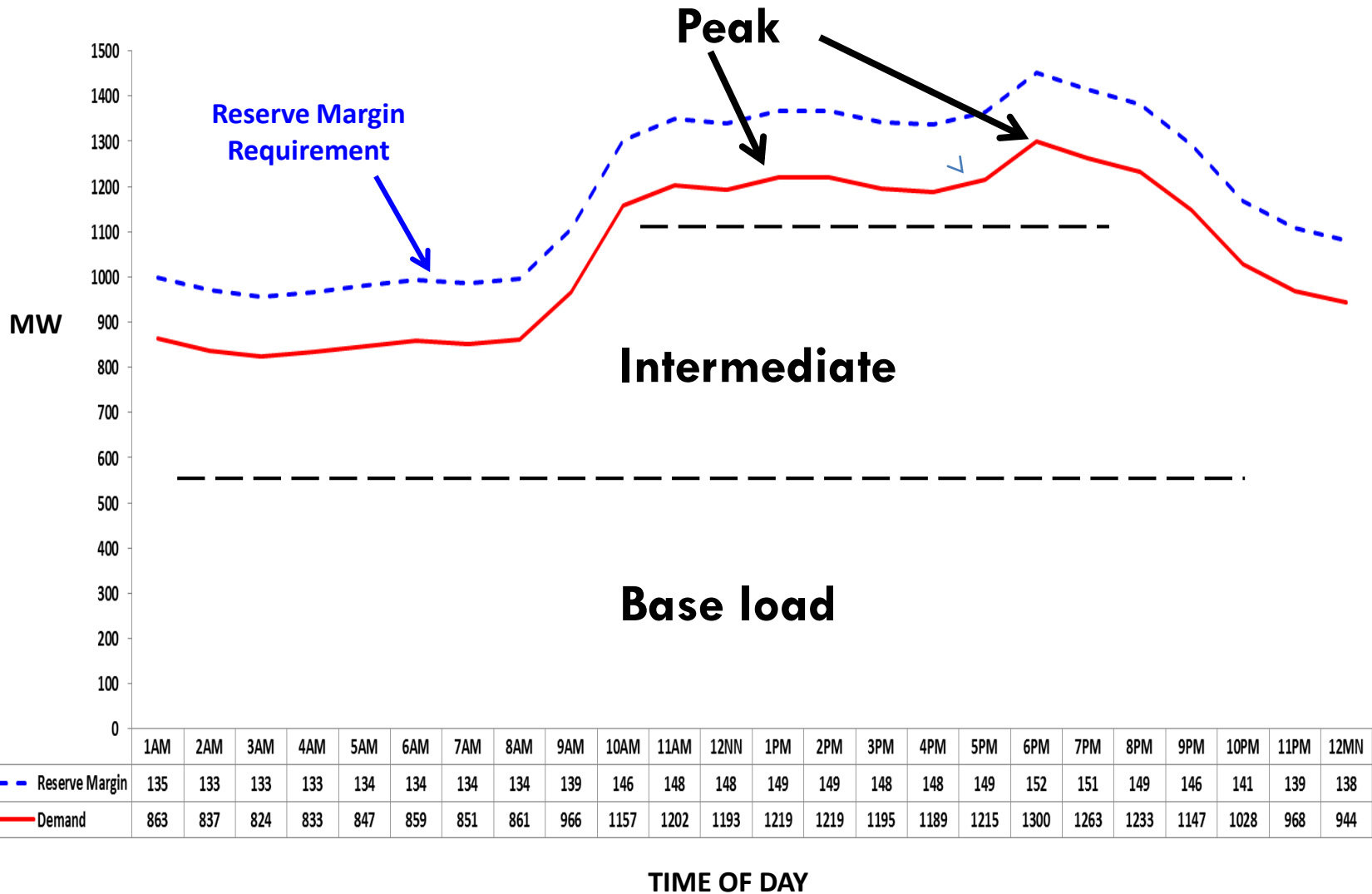


PSA Rate is based on CRF, O&M Fee and Fuel Fee

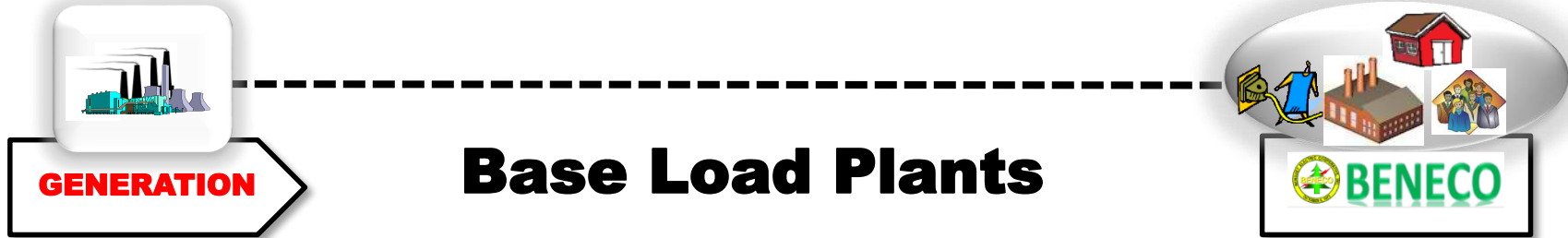
WESM Rate is based on market forces



Typical Load Curve



Types of Power Plant



- Plants which can generate dependable power to consistently meet demand
- Produce continuous, reliable and efficient power at low cost
- Run 24/7 throughout the year except in cases of repairs or scheduled maintenance

1294 MW
Sual Coal-fired Power Plant



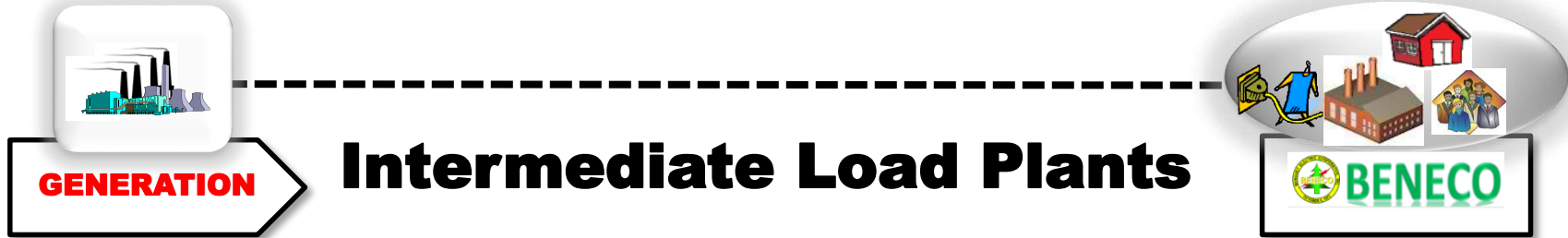
600 MW
Pagbilao Coal-fired Power Plant



610 MW
Leyte Geothermal Power Plant



Types of Power Plant



Fill the gap between base load and peaking plants

- Larger than peaking plants so the construction cost are higher
- They also run more efficiently

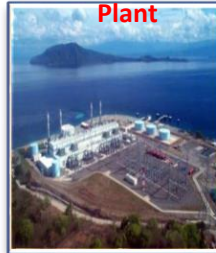
1060 MW

Sta Rita Natural Gas-fired Plant



1200 MW

Ilijan Natural Gas-fired Plant

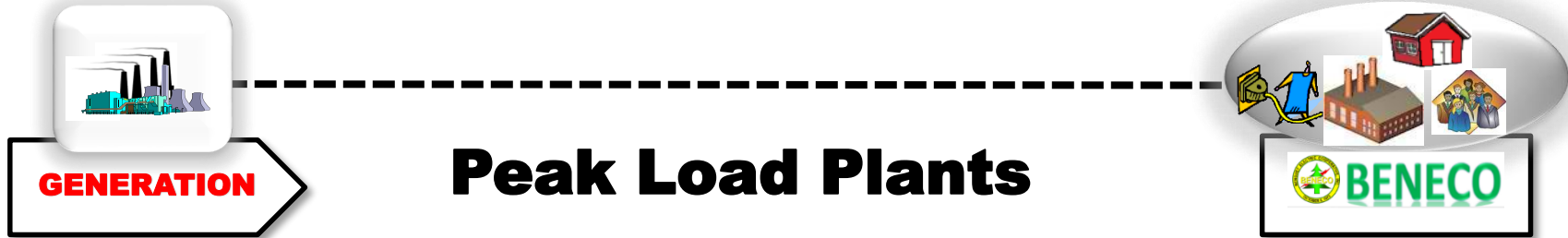


500 MW

San Lorenzo Natural Gas-fired Plant

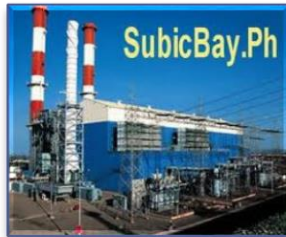


Types of Power Plant



- Provide power during peak system demand period
- Higher responsive to changes in electrical demand and can be started up relatively quickly (Hydroelectric Power Plant)
- Very expensive to operate, relative to the amount of power they produce and the cost of fuel to power them (Oil-based power plant)

116 MW
Subic Diesel Power Plant



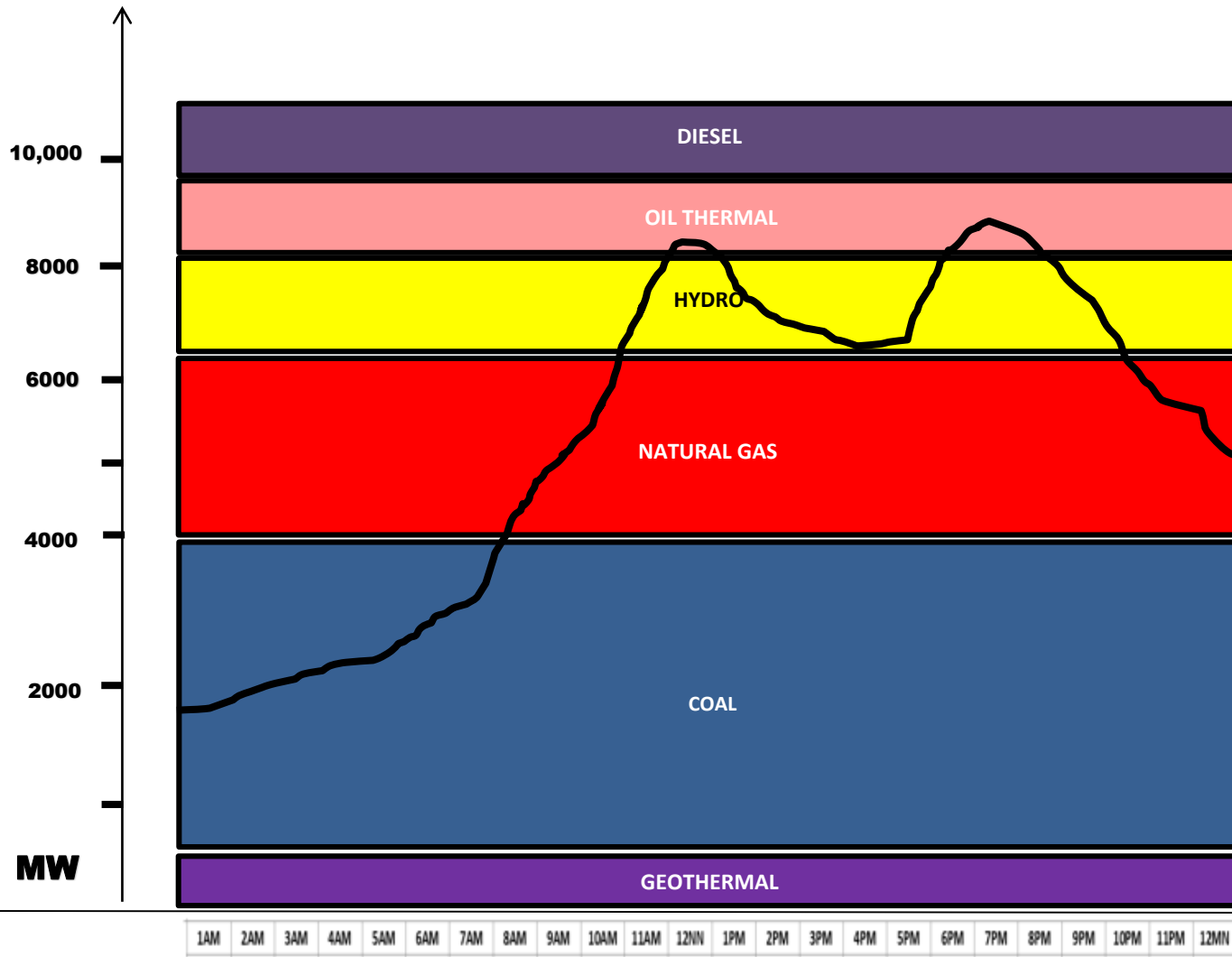
360 MW
Magat Hydroelectric Power Plant



755MW
CBK Hydroelectric Power Plant



Stacking of Power Plants



GENERATION



WESM Stakeholders



PHILIPPINE ELECTRICITY MARKET CORPORATION (PEMC)



NATIONAL GRID CORPORATION (NGCP)



DEPARTMENT OF ENERGY (DOE)



ENERGY REGULATORY COMMISSION (ERC)




POWER GENERATION COMPANIES (GENCOs)

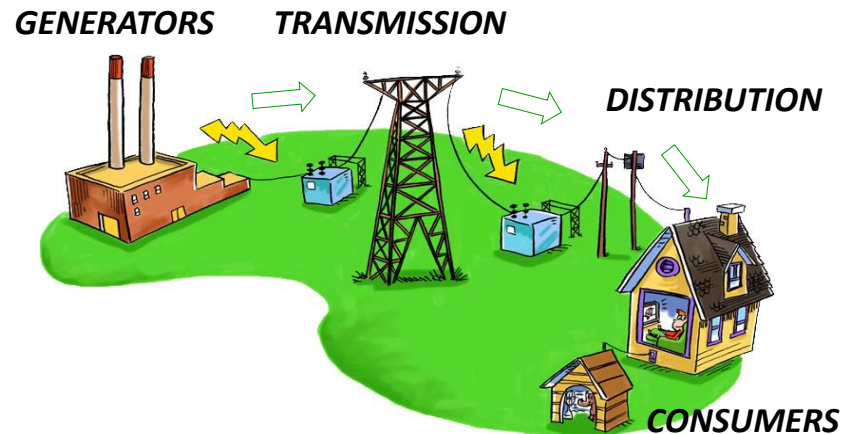


DISTRIBUTION UTILITIES (DU)



DIRECTLY CONNECTED CONSUMERS

-  San Miguel Energy Corp.
-  Aboitiz Power Corp.
-  First Gas/First Gen.
-  PSALM
-  AES Transpower
-  SEM Calaca
-  NPC
-  Global Business Power Corp.
-  Energy Development Corp.
-  Salcon Phils./Atlas
-  K-Water
-  Others



How WESM Bidding Works



**NPC
Plants**



NPC IPPs



IPPs



IPPAs



DU/ECs

Market Clearing
Results: **4**
MCPs and MOT

• Energy offers/bids **1**
• Reserve offers

• Energy demand **2**
• Reserve requirements

System Condition: **3**
• Outages
• Contingencies
• Transmission limits

Dispatch Instructions: **5**
Dispatch targets

Revenue Meters: **6**
Metered values

7
Billing & Settlement
Charges & Payments



NGCP



WESM Basic Features



GROSS POOL - All energy transactions are scheduled in the market



GROSS DISPATCH - Generators submit energy offers (price and Quantity) for central scheduling and dispatch



TRADING HOURS - 24 hours/day, 7 days per week



LOCATIONAL MARGINAL PRICE - Marginal price computed at each node or location to reflect transmission loss and/or congestion

WESM Basic Features



GOVERNANCE - Governed by stakeholders (PEMC)



TRADING GUARANTEES - Prudential guarantees to assure payment



NET SETTLEMENT - Bilateral Contract quantities transacted in the pool, but, can be settled outside of the market. Ex-ante price and quantity aligned with ex-post price and quantity



BILLING & SETTLEMENT - 60 days period for B&S

How WESM Bidding Works



GENERATION



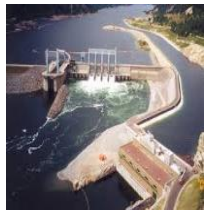
Hydro C
P 0,000/MWh
25 MW



Hydro B
50 MW
P 1,000/MWh



Wind/Solar
5 MW
Priority
Dispatch



Run-of-River
50 MW
Non-
Scheduled



Geogas F
P 3,000/MWh
150MW



Natgas E
- P
1,000/MWh
100MW

Coal D
P 2,500/MWh
115 MW



Diesel H
P 4,000/MWh
200 MW



Bunker G
P 3,500/MWh
300 MW



Biomass
5MW
Priority
Dispatch

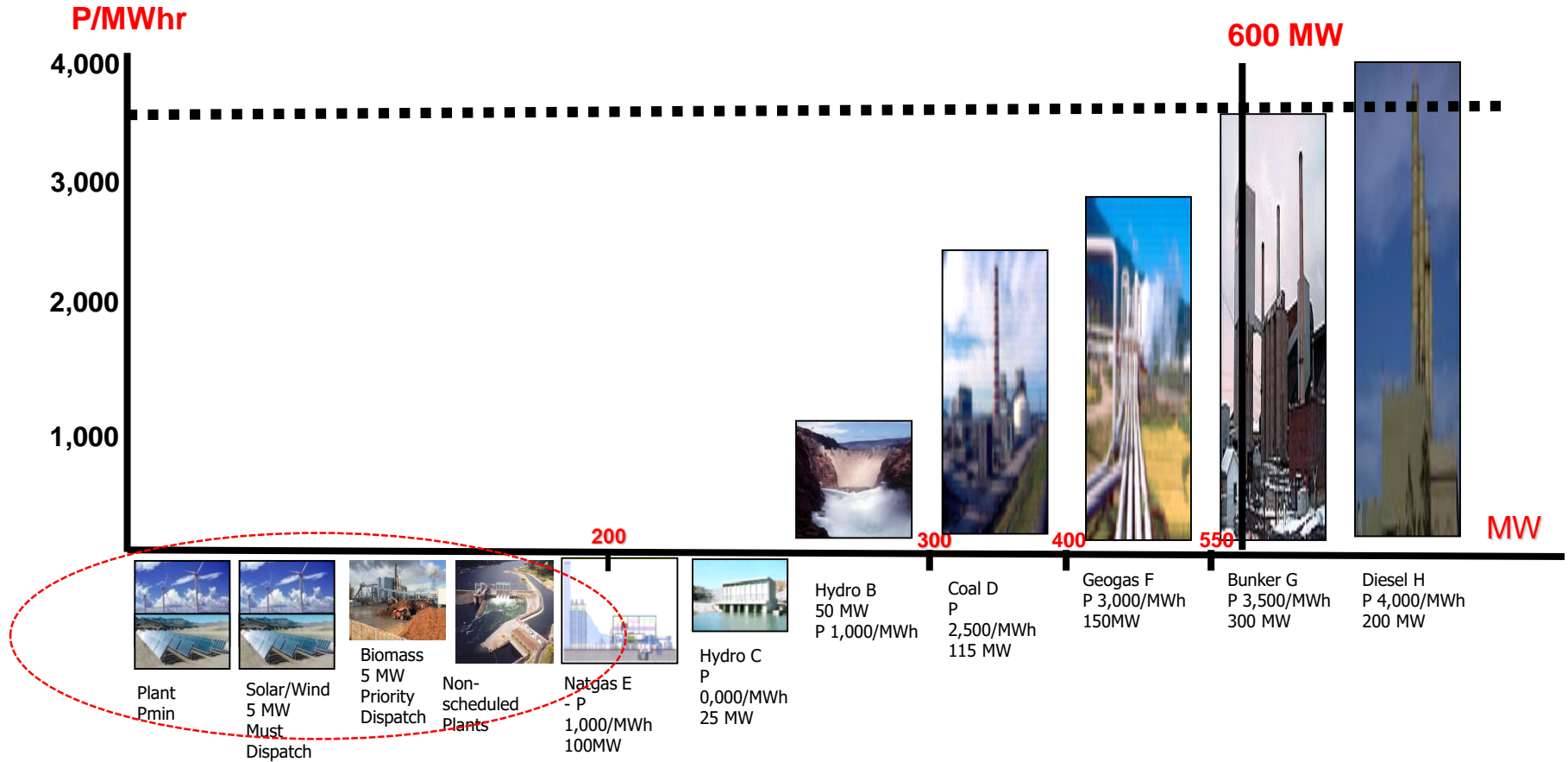


Baguio City
Demand Requirements:
600 MW

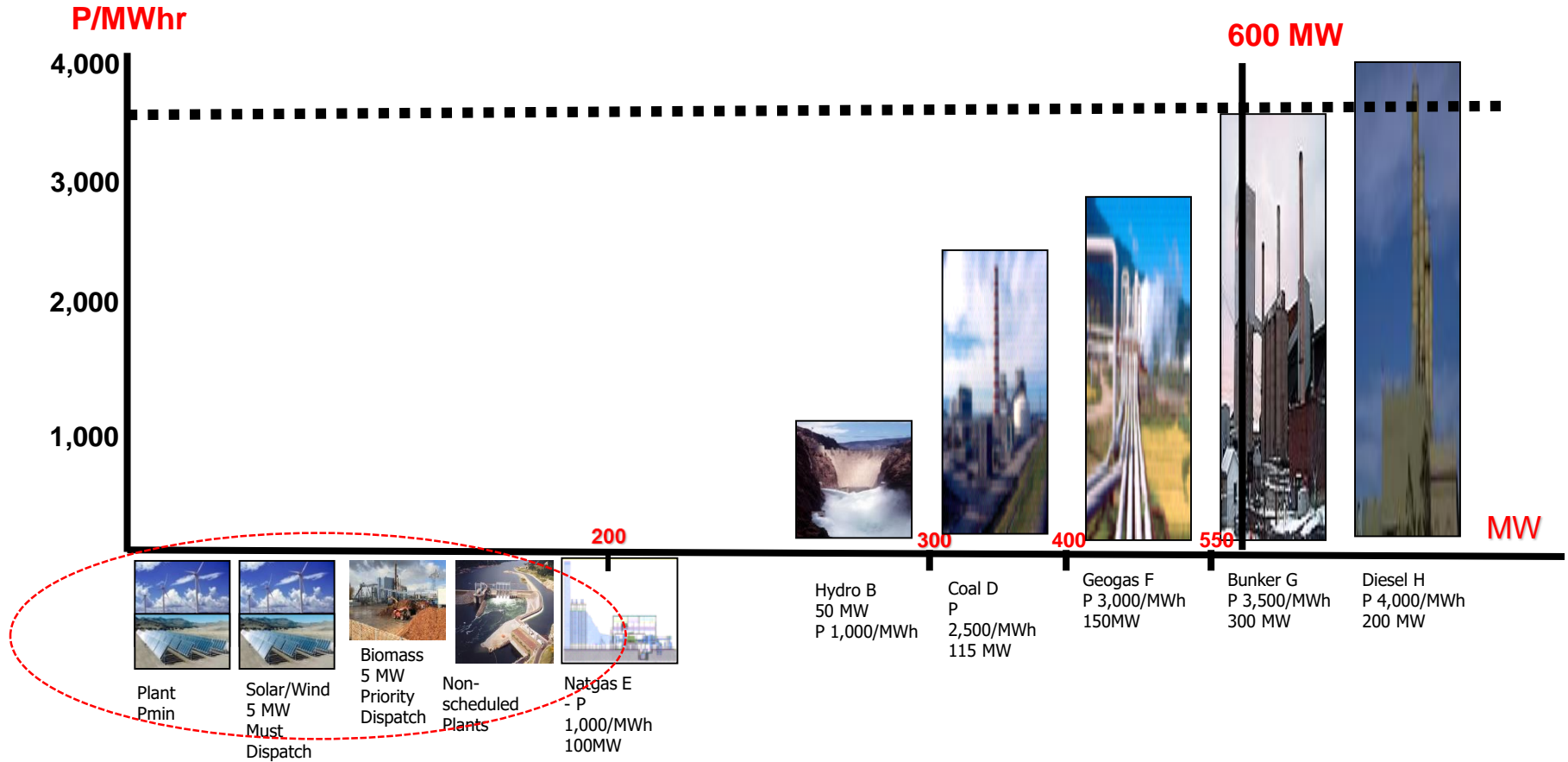


Merit Order Table

Market Clearing Price - **Php 3,500/MWh** (marginal cost)
 Marginal Plant – Bunker G
 Price Taker

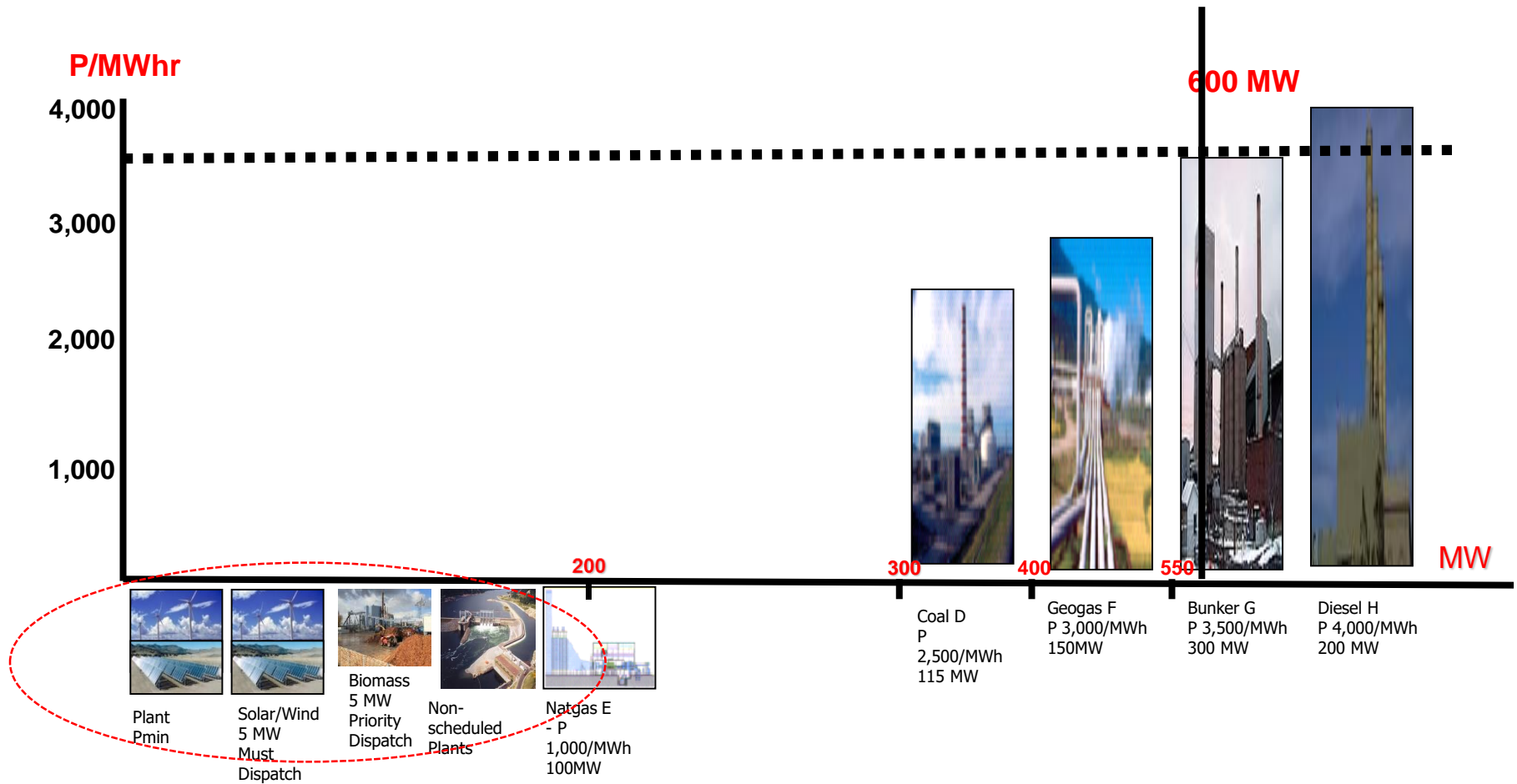


Merit Order Table

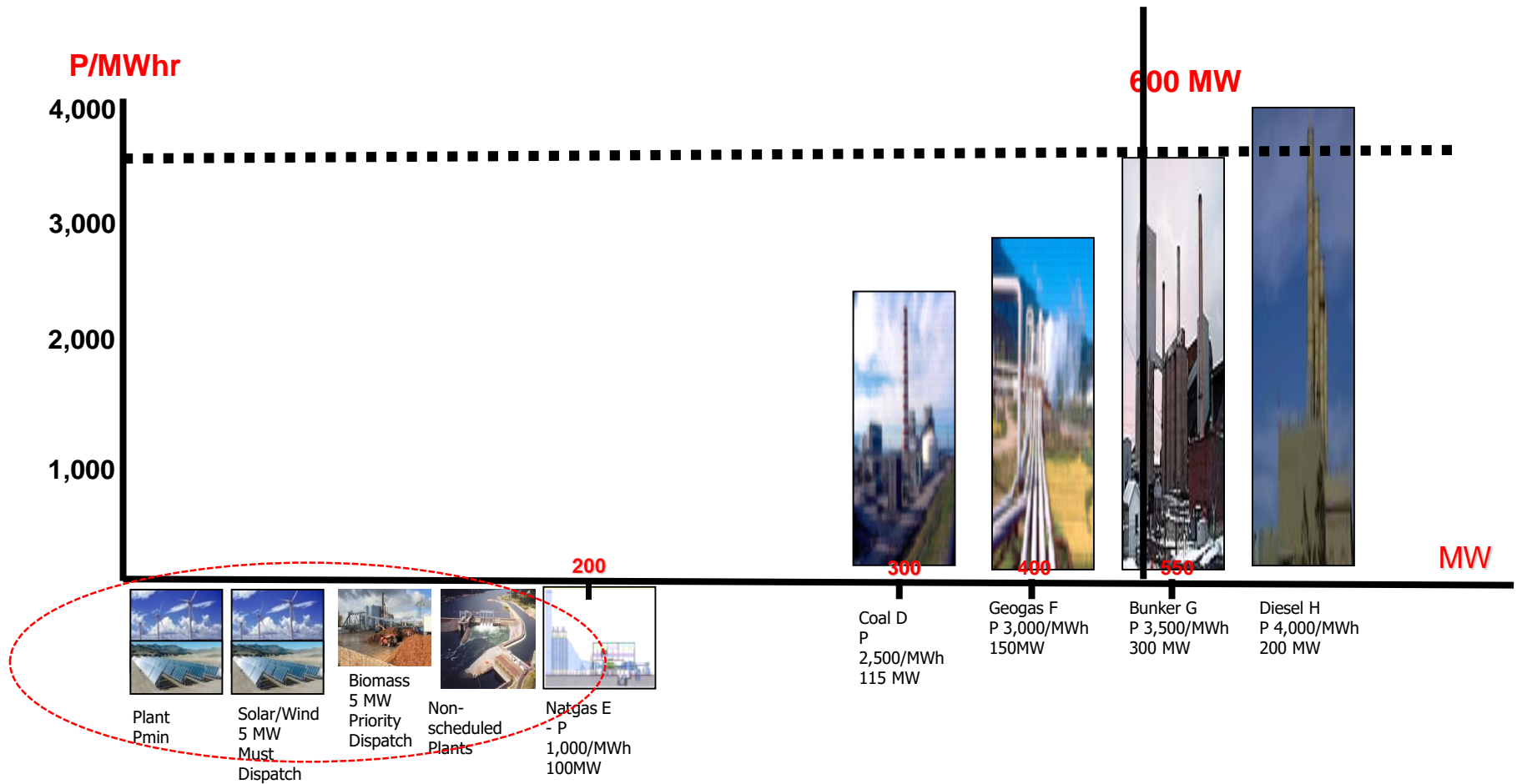


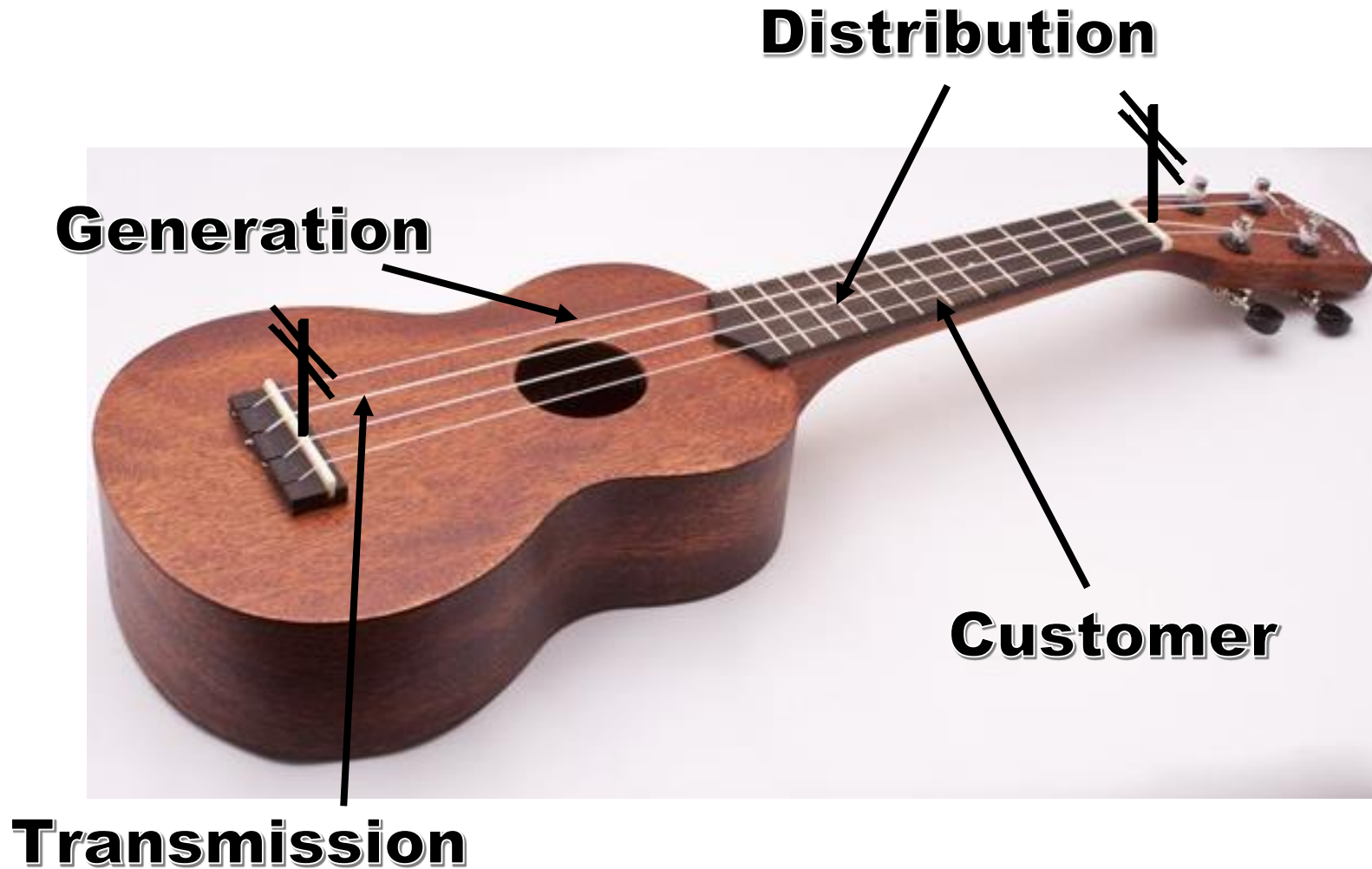
Merit Order Table

Market Clearing Price - **Php 4,000/MWh** (marginal cost)
 Marginal Plant – Diesel H
 Price Taker

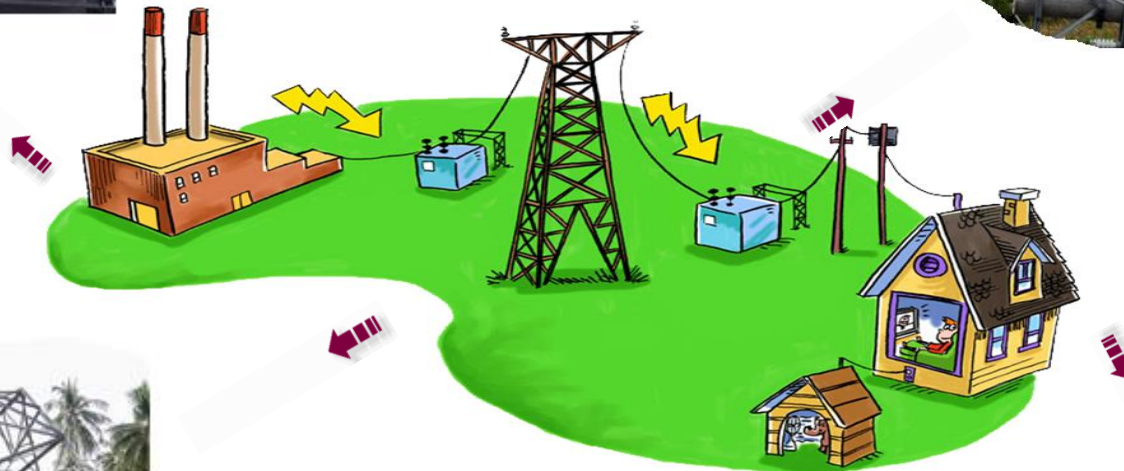


Merit Order Table





Real Time Facility Status



Thank You!



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