



# UNDERSTANDING THE ENERGY SUPPLY CHAIN

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# Presentation Coverage



Bakit kinailangang ma-  
**privatize** ang mga planta ng  
**NPC**?

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

Magkakaroon nga ba ng  
**sufficient competition** sa  
WESM?

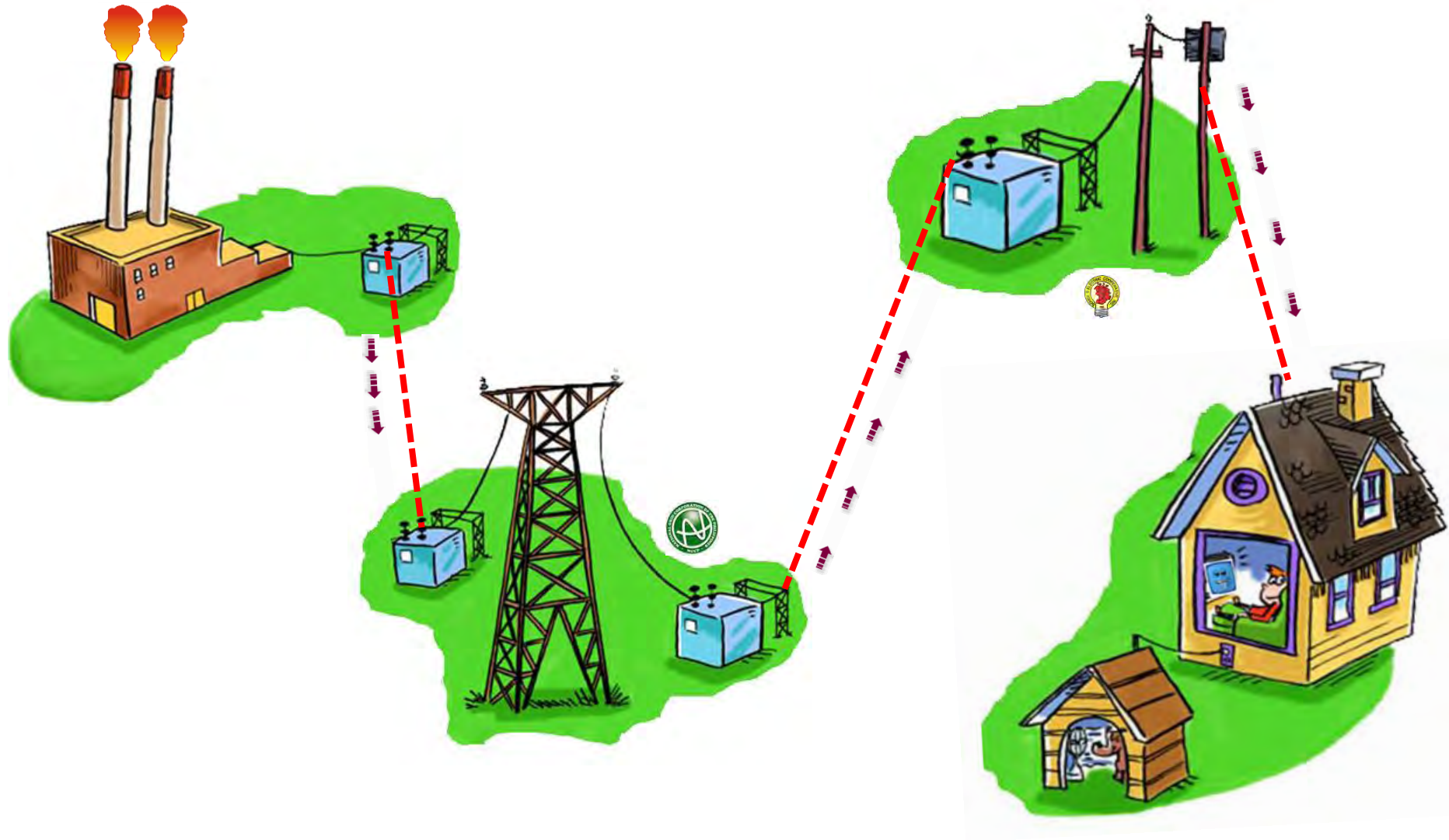
Ano ang **effect ng WESM** sa existing  
bilateral contracts or **power supply**  
**agreement** ng generating companies  
with the DUs?

Paanong masisiguro na  
walang **collusion** ng mga  
gencos sa WESM?

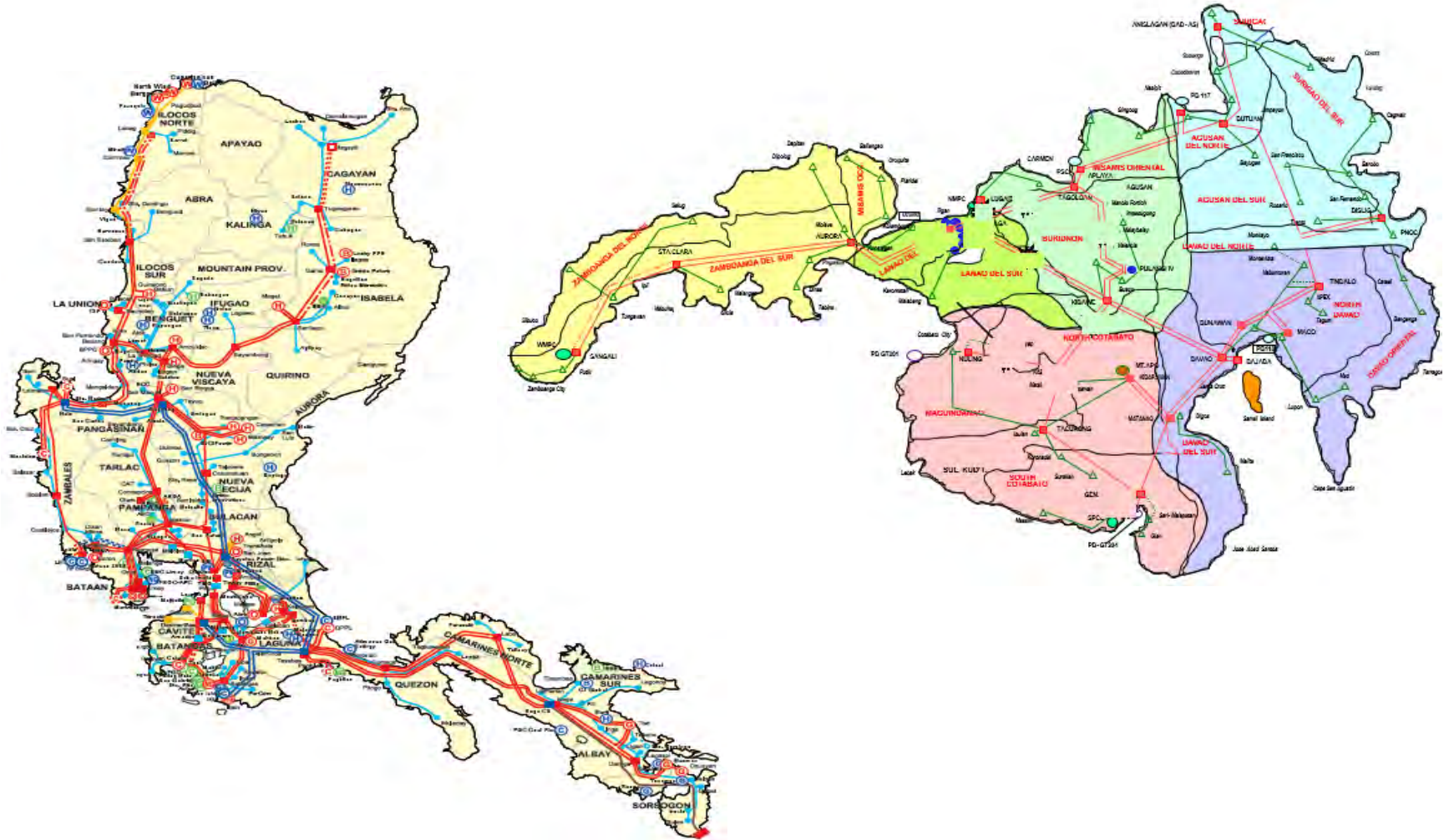
Magdudulot ba ng pagtaas ng singil  
ng power rate sa **WESM**?

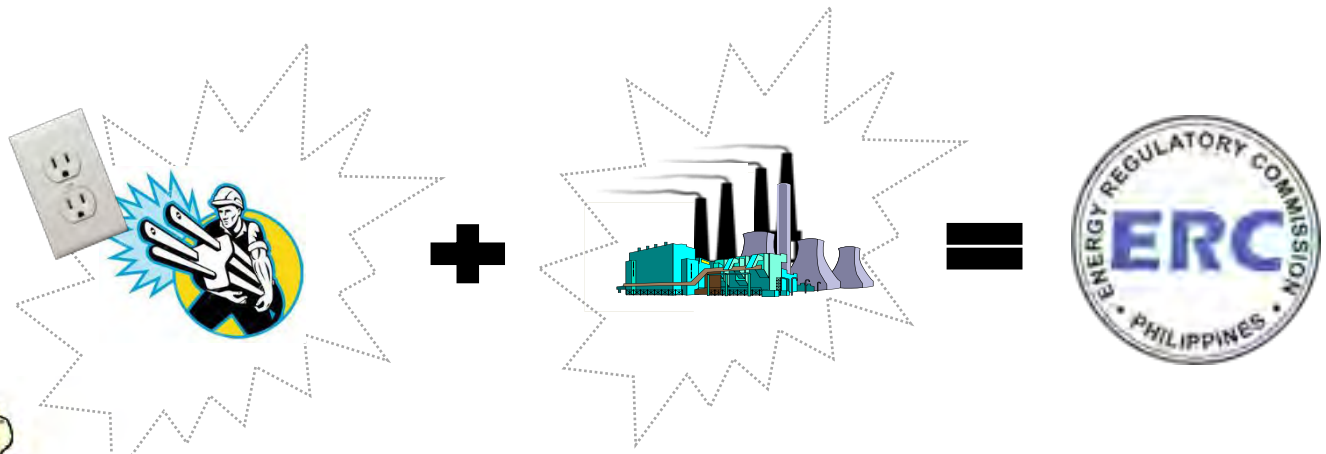


# Power Demand and Supply Chain



# Privatization of Power Plants

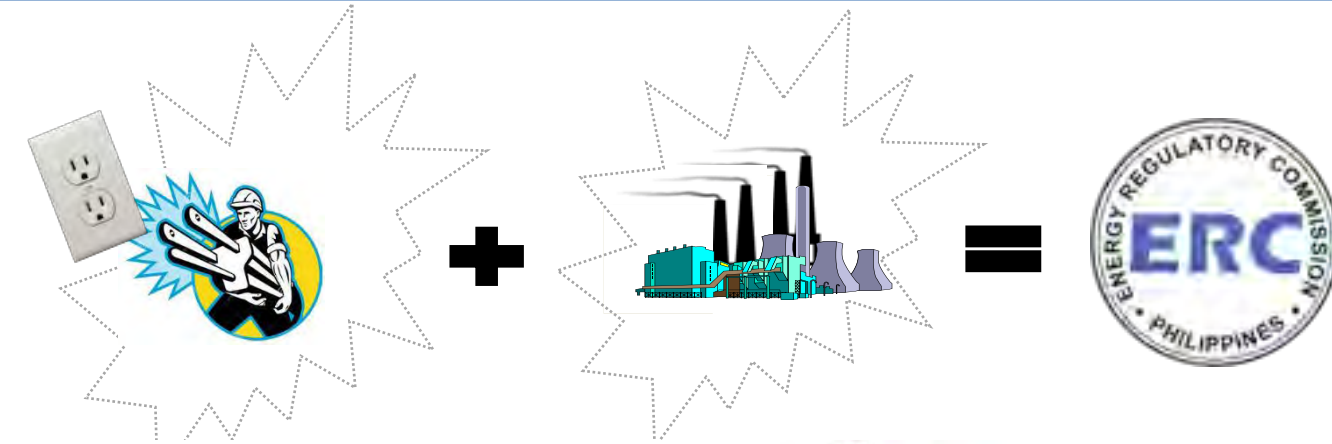




# Power Supply Contracting



# Power Supply Contracting

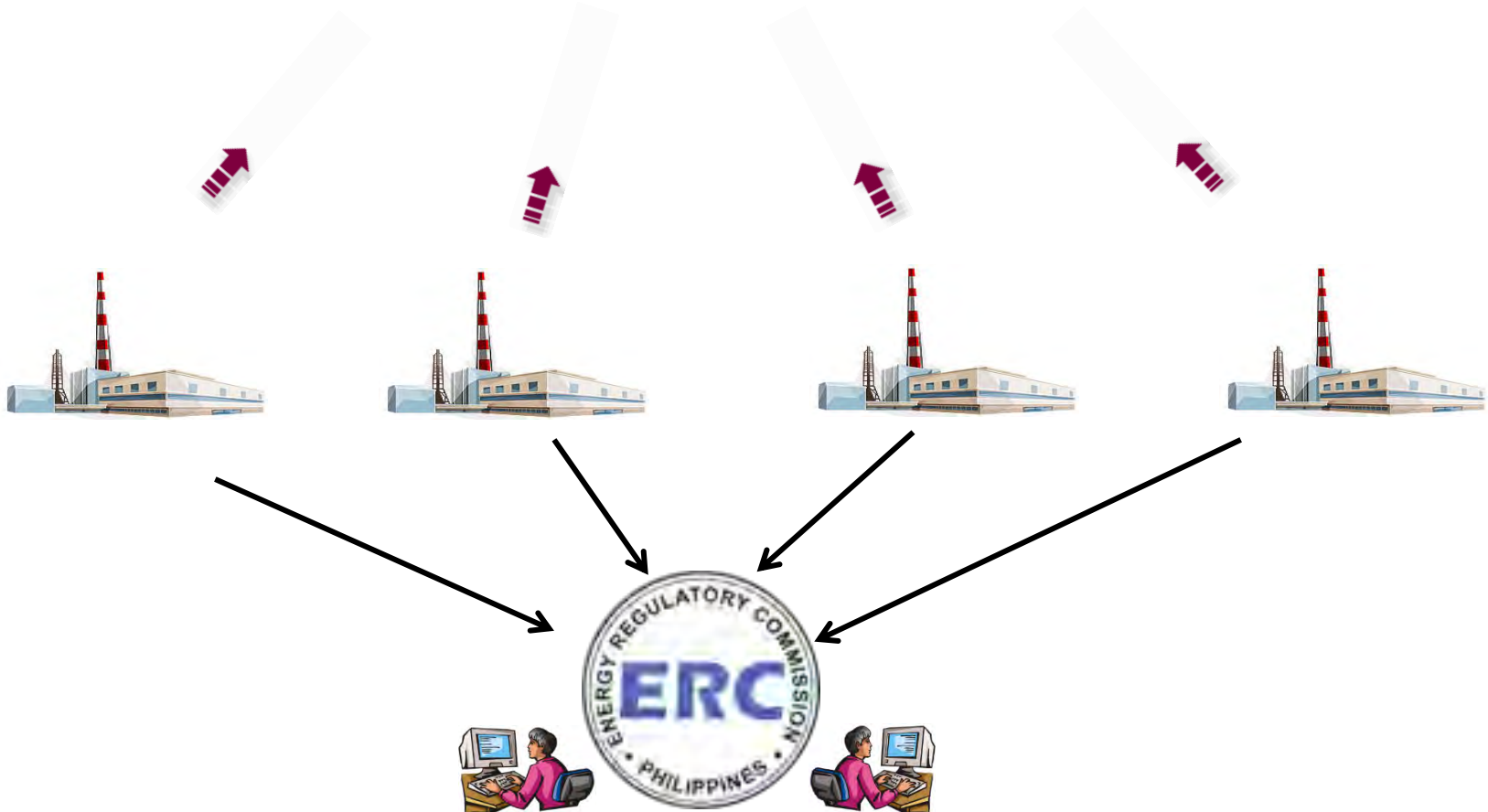


# RULES GOVERNING POWER SUPPLY AGREEMENT



**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.





# Rules Governing Power Supply Agreement

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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.



# Rules Governing Power Supply Agreement

Republic of the Philippines  
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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.

<b>Particulars</b>	<b>Rates</b>
<i>Capital Recovery Fee</i>	<i>PhP 147.35/kW/month</i>
<i>Fixed O&amp;M Fee</i>	<i>PhP 219/kW/month</i>
<i>Variable O&amp;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 0.2464<sup>1</sup> kg/kWh or actual, whichever is lower</i>



# Power Demand and Supply Chain

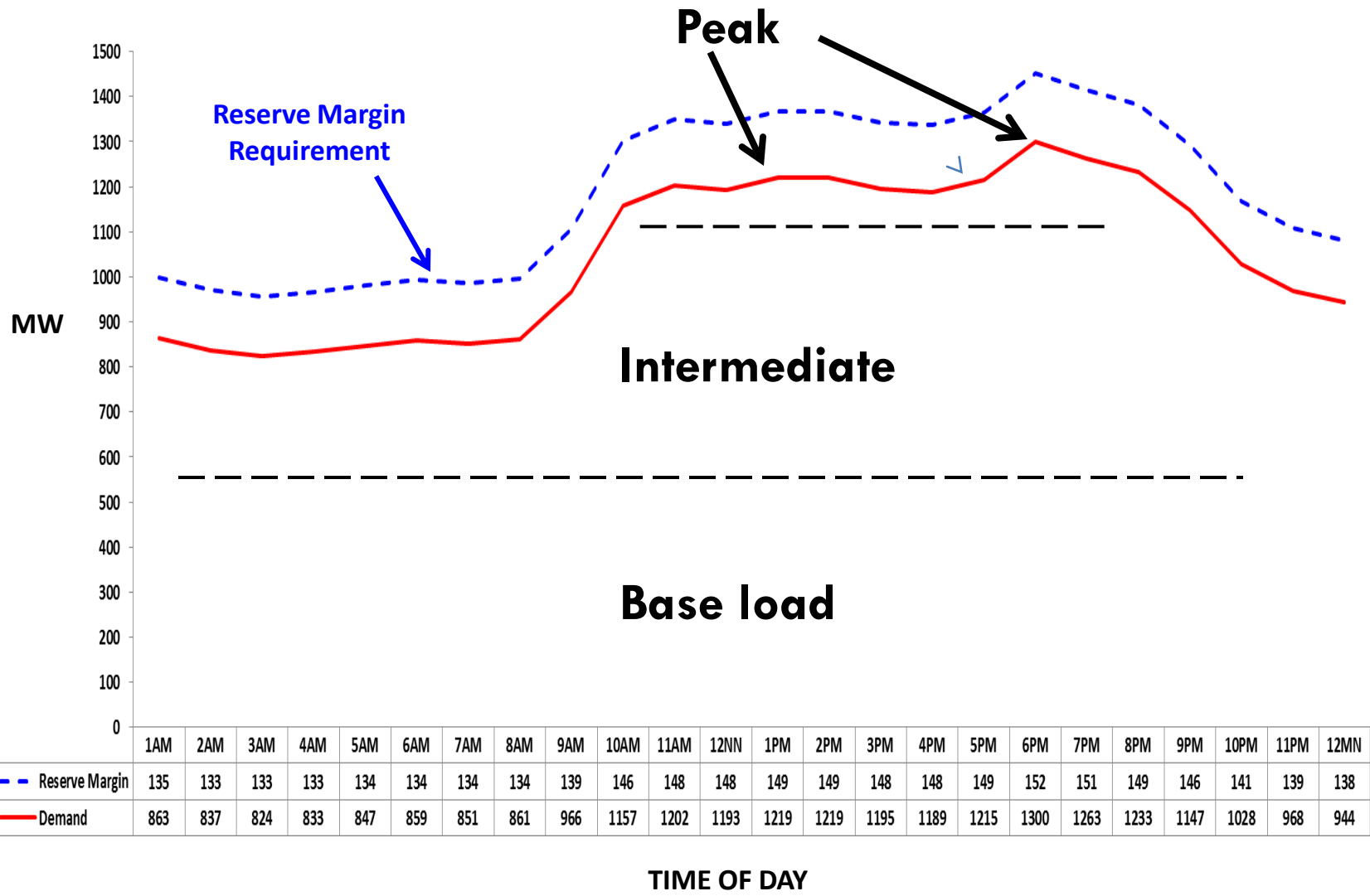


PSA Rate is based on CRF, O&M Fee and Fuel Fee

WESM Rate is based on market forces



# Typical Load Curve



# Types of Power Plant



## Base Load Plants

- 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**



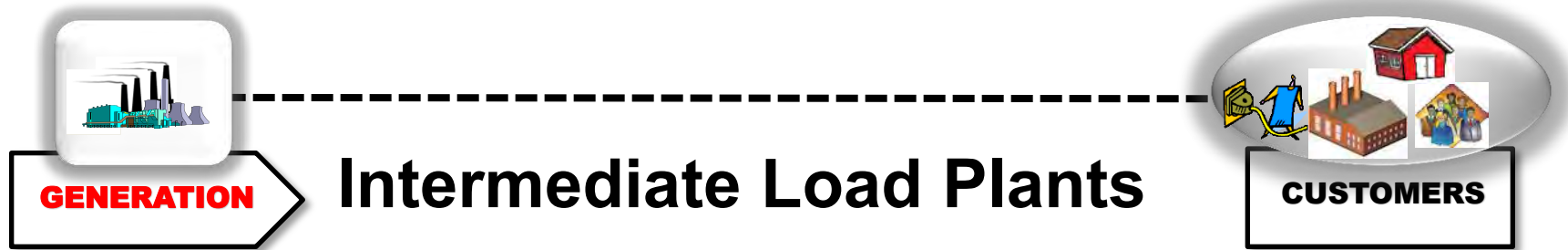
**600 MW**  
**Pagbilao Coal-fired Power Plant**



**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

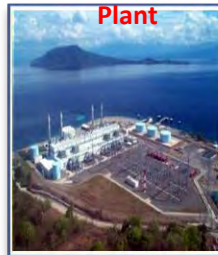
1060 MW

Sta Rita Natural Gas-fired Plant



1200 MW

Ilijan Natural Gas-fired Plant



500 MW

San Lorenzo Natural Gas-fired Plant

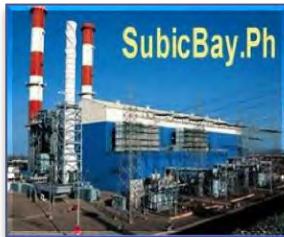


# Types of Power Plant



- 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



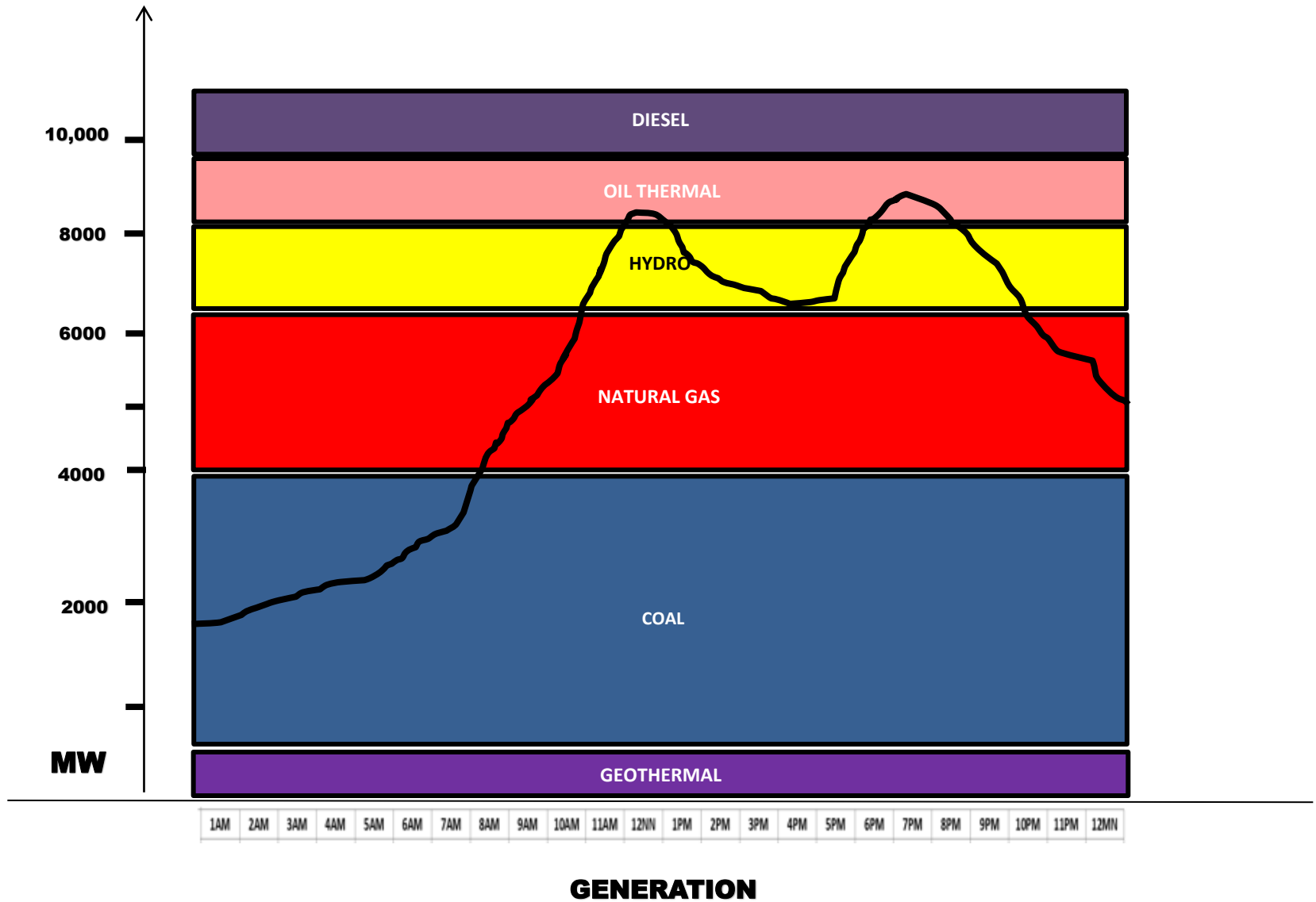
360 MW  
Magat Hydroelectric Power Plant



755MW  
CBK Hydroelectric Power Plant



# Stacking of Power Plants





# WESM Stakeholders



PHILIPPINE ELECTRICITY MARKET CORPORATION (PEMC)



NATIONAL GRID CORPORATION (NGCP)



DEPARTMENT OF ENERGY (DOE)



ENERGY REGULATORY COMMISSION (ERC)



POWER GENERATION COMPANIES (GENCOs)

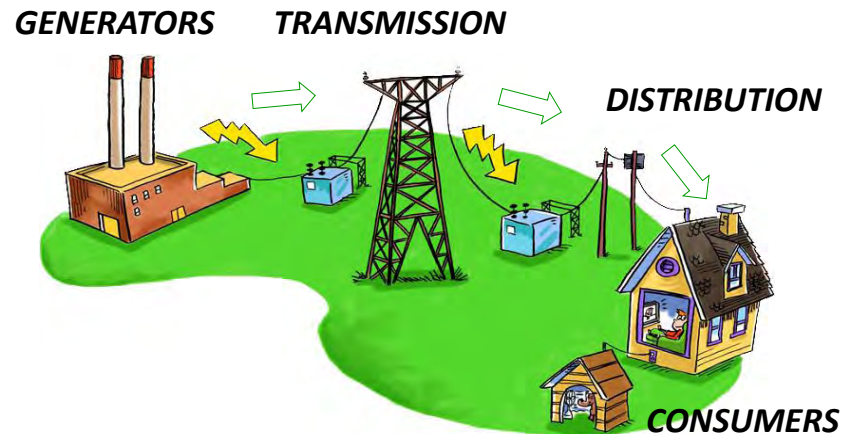


DISTRIBUTION UTILITIES (DU)



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**



**DUs/ECs**



**NGCP**

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

**7**  
Billing & Settlement  
Charges & Payments

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

**2**  
• Energy demand  
• Reserve requirements

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

**5**  
Dispatch Instructions:  
Dispatch targets

**6**  
Revenue Meters:  
Metered values



# 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

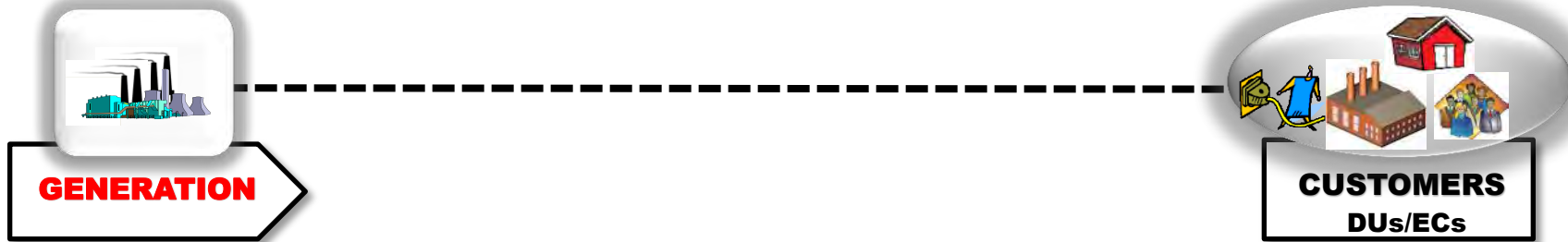


**NET SETTLEMENT** - Bilateral Contract quantities transacted in the pool, but, can be settled outside of the market. Ex-ante price and quantity aligned with ex-post price and quantity



**BILLING & SETTLEMENT** - 60 days period for B&S

# How WESM Bidding Works



**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



**Coal D**  
P 2,500/MWh  
115 MW



**Natgas E**  
- P  
1,000/MWh  
100MW

**Diesel H**  
P 4,000/MWh  
200 MW



**Bunker G**  
P 3,500/MWh  
300 MW



**Biomass**  
5MW  
Priority  
Dispatch

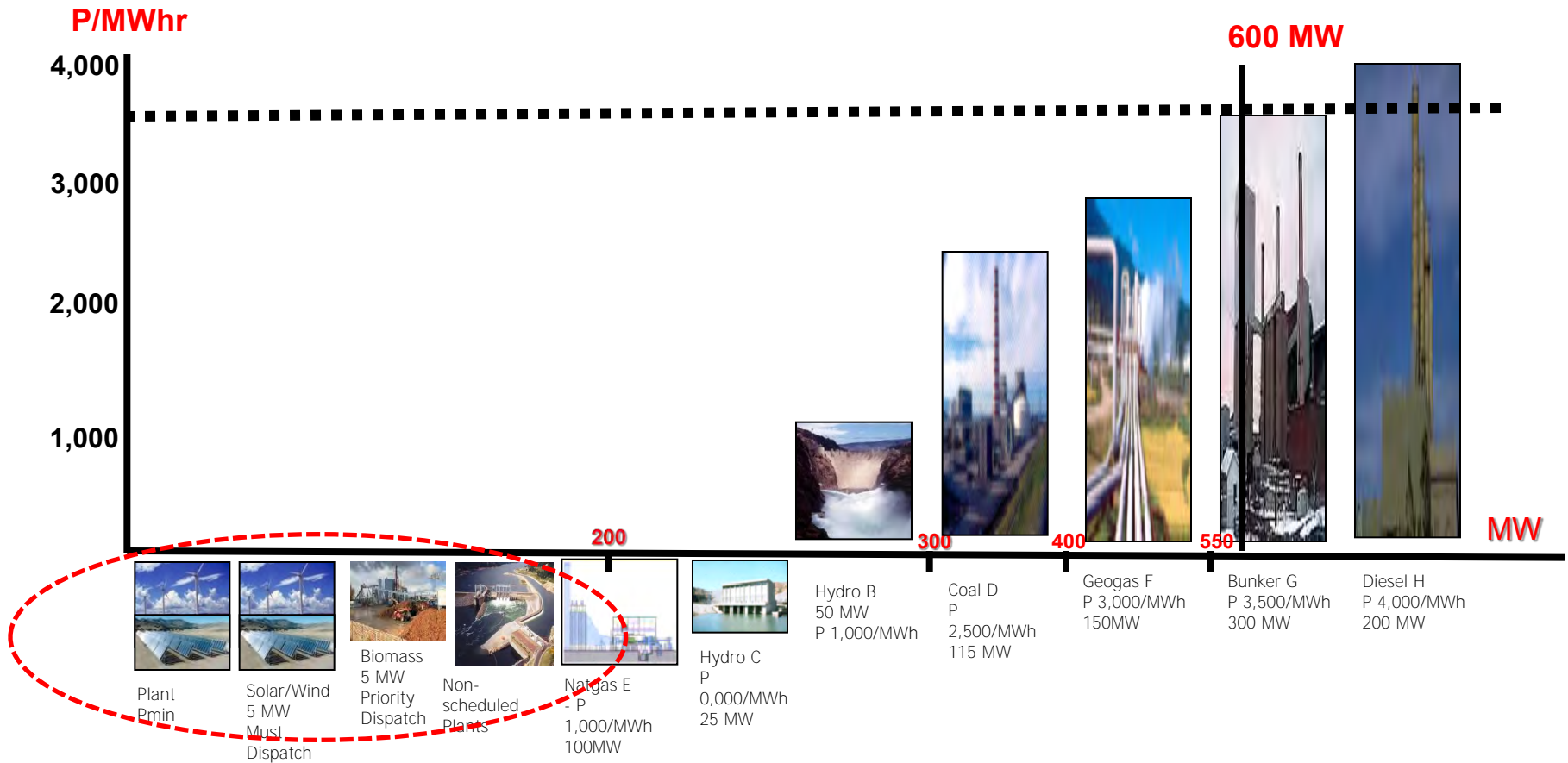


**CLARK**  
Demand Requirements:  
**600 MW**

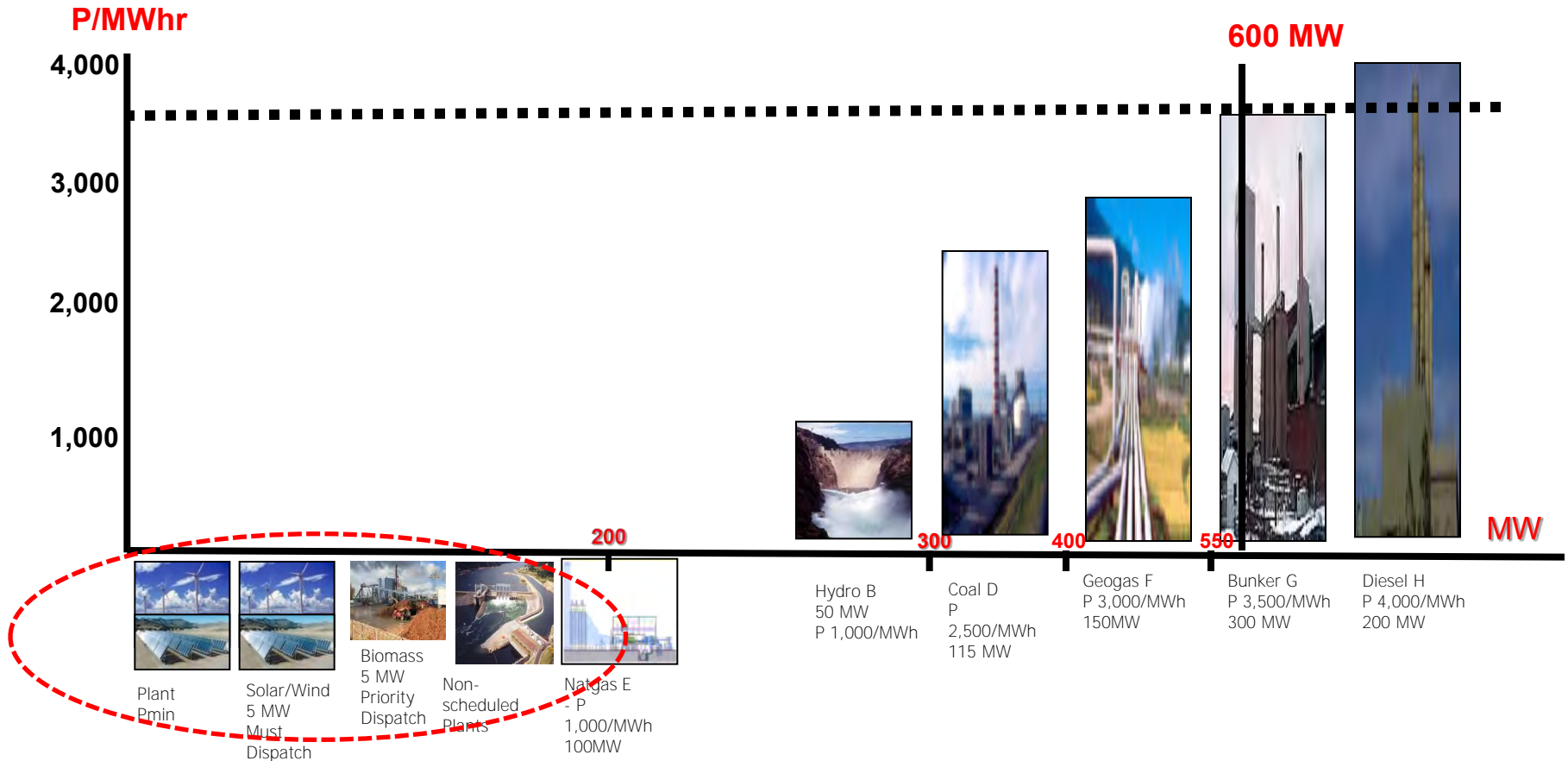


# Merit Order Table

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

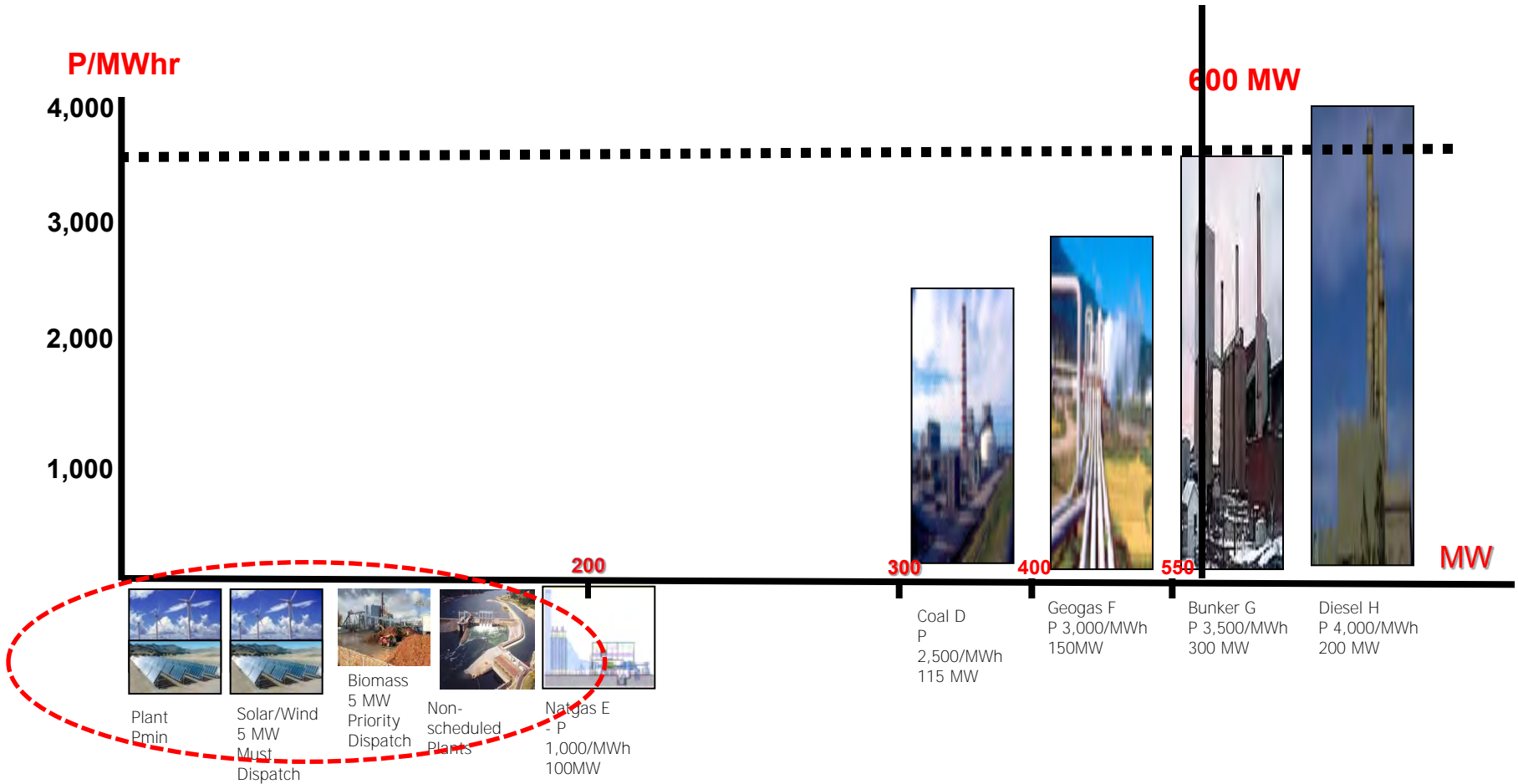


# Merit Order Table



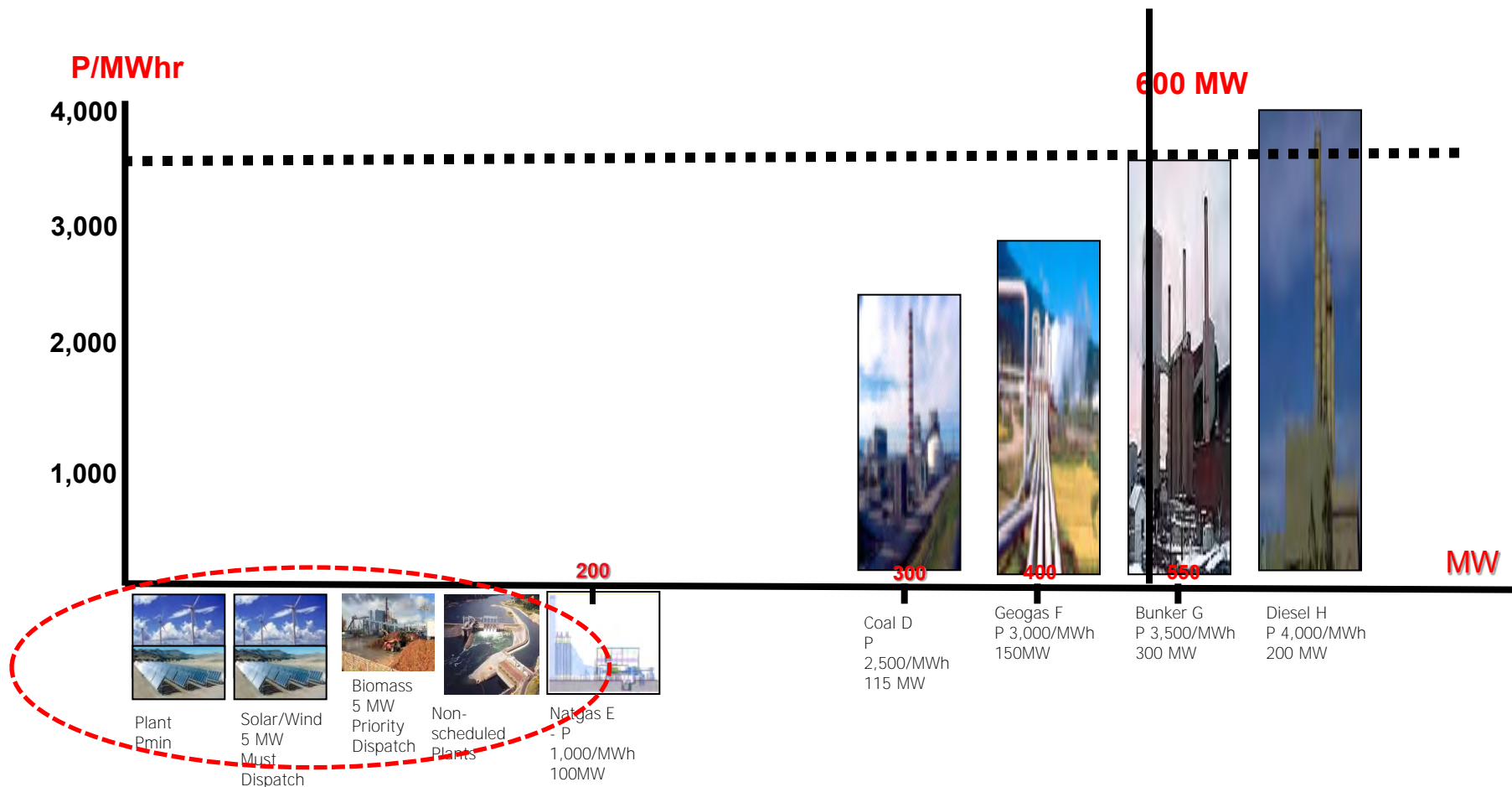
# Merit Order Table

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

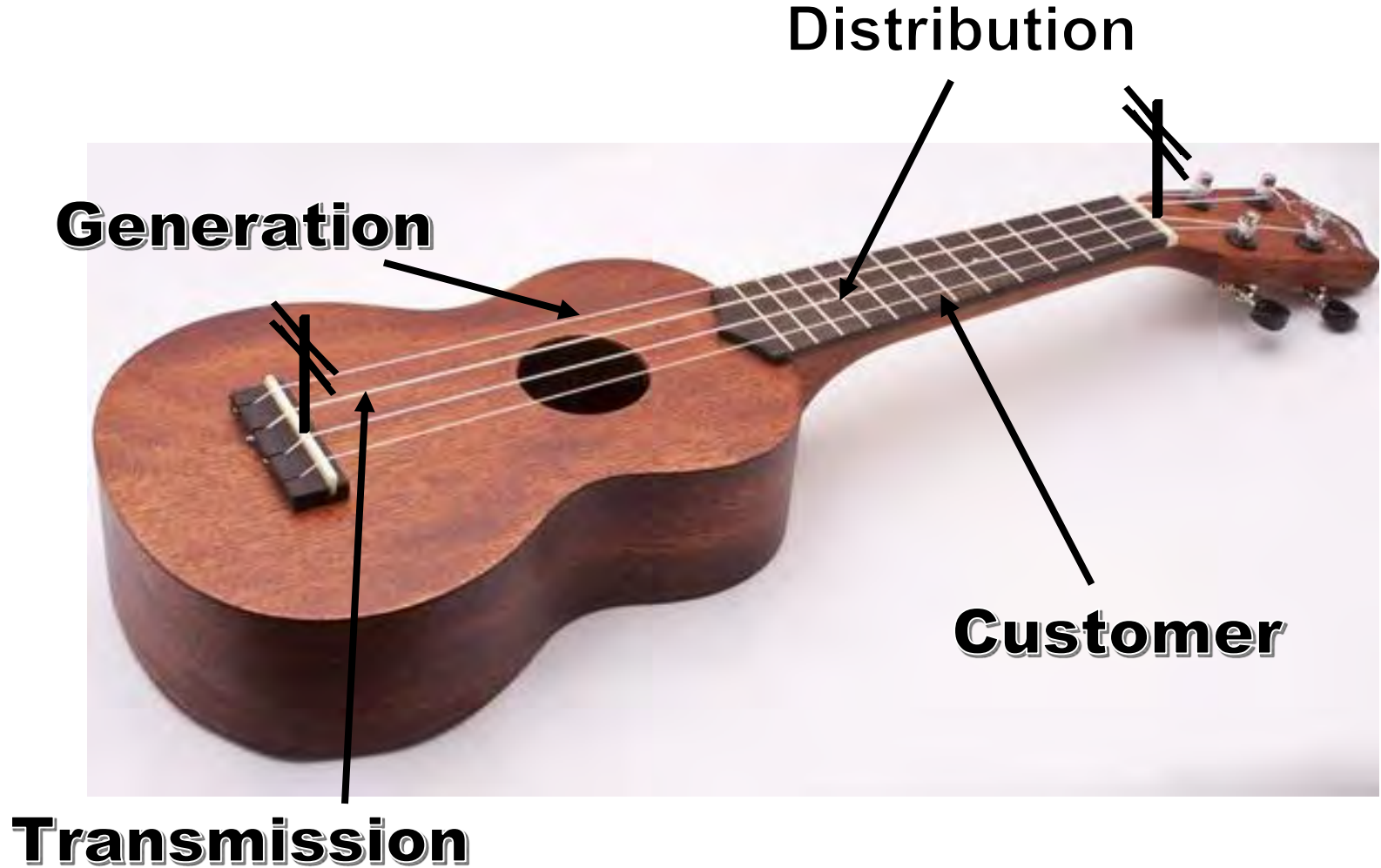




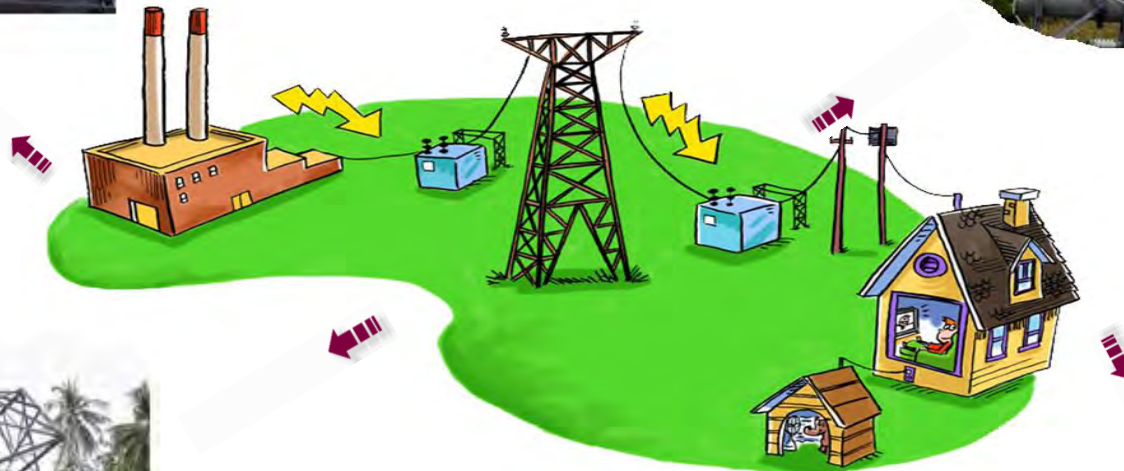
# Merit Order Table



# GTDC



# Real Time Facility Status



# Thank You!



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