



Philippine Electricity
Market Corporation

INTRODUCTION TO THE WHOLESALE ELECTRICITY SPOT MARKET (WESM)



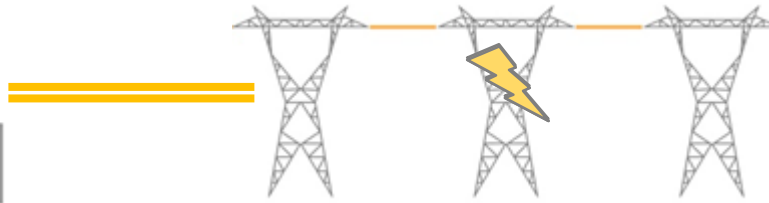
WHAT IS THE WESM?

WHOLESALE ELECTRICITY SPOT MARKET

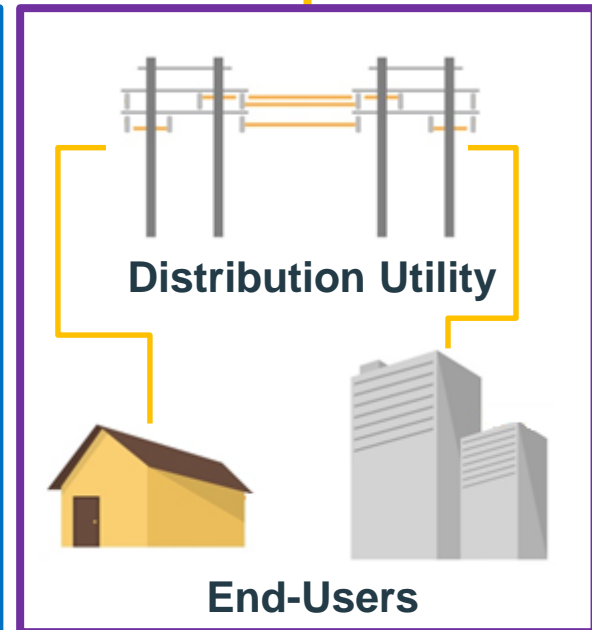
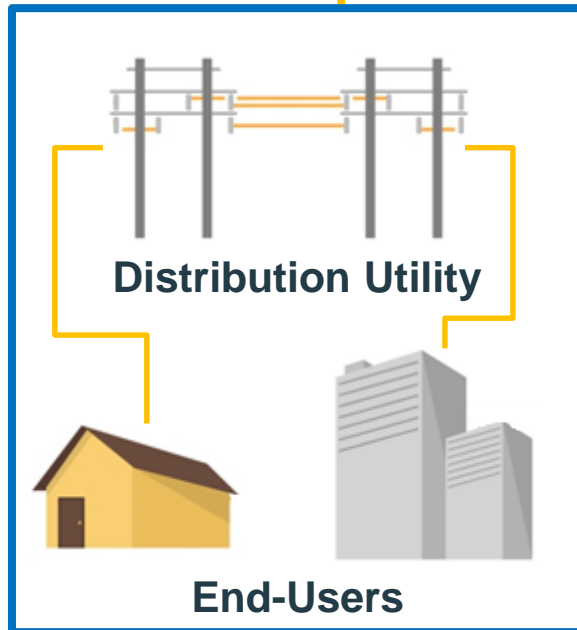
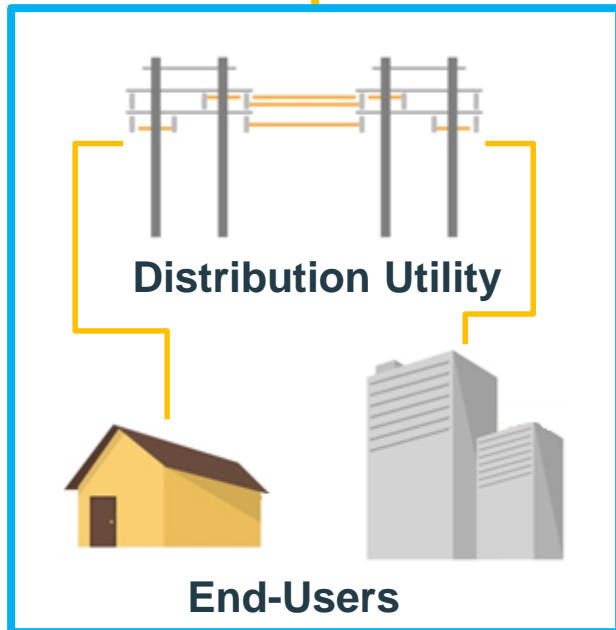
How is power delivered to customers?

Generation Companies

Power Station



Transmission System Operator



POWER INDUSTRY PARTICIPANTS

Before 2001

Generation Companies



Independent Power Producers



Transmission System Operator



- Scheduling
- Pricing
- Dispatch
- Settlement



Distribution Utilities / Directly-Connected Customers (DCC)



ELECTRIC POWER INDUSTRY

Transition to competitive regime



Electric Power Industry Reform Act (EPIRA)

- Generation is competitive and open
- Establishment of the Wholesale Electricity Spot Market (WESM)
- Transmission and distribution are regulated services



POWER INDUSTRY PARTICIPANTS

After 2001

Generation Companies



Market Operator



- Scheduling
- Pricing
- Settlement



Transmission System Operator



- Dispatch



Distribution Utilities / DCCs

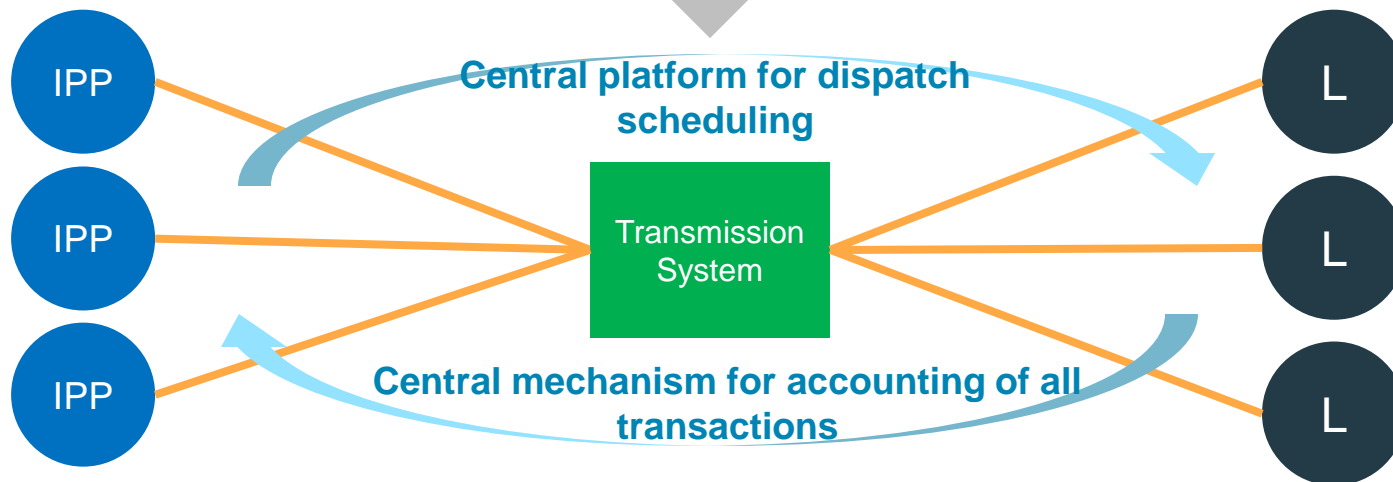
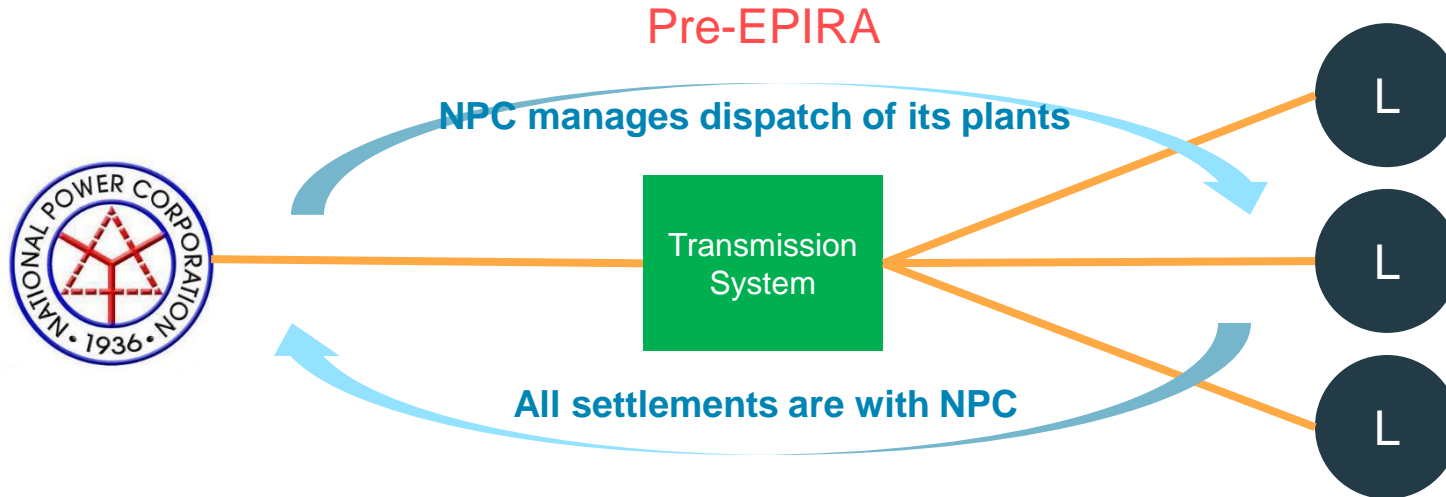


Retail Electricity Suppliers



WHOLESALE ELECTRICITY SPOT MARKET

What is the role of the WESM?



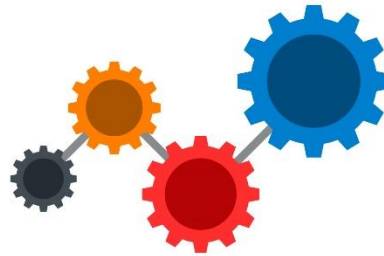
EPIRA

WHOLESALE ELECTRICITY SPOT MARKET

Advantages of the WESM

- Settlement of imbalances beyond contracts
- Economic scheduling and dispatch of capacities
- Promotion of cost-effective operations through competition
- Transparency on power system operations
- Accountability of trading participants

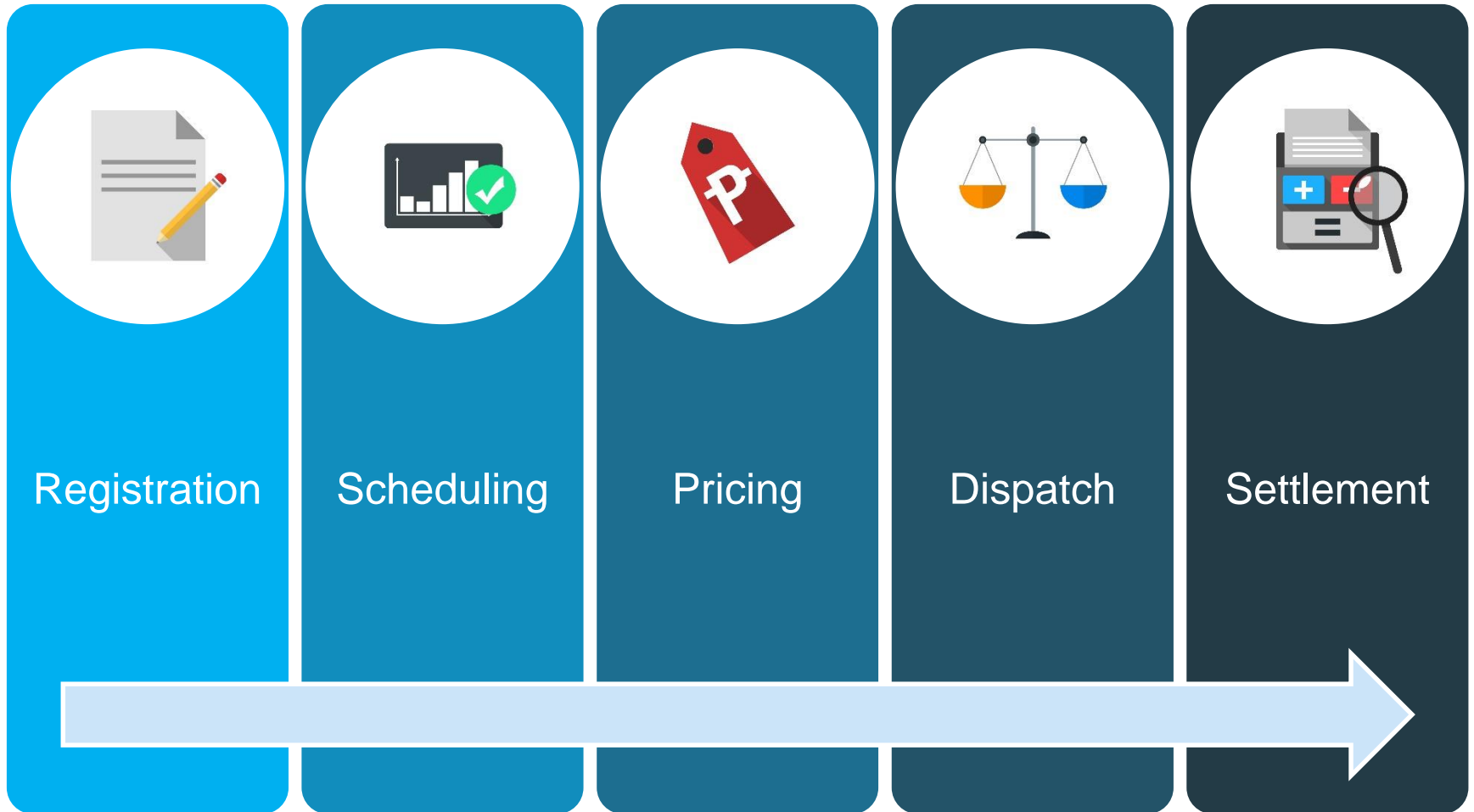




HOW DOES THE WESM WORK?

HOW DOES THE WESM WORK?

Market Processes



HOW DOES THE WESM WORK?

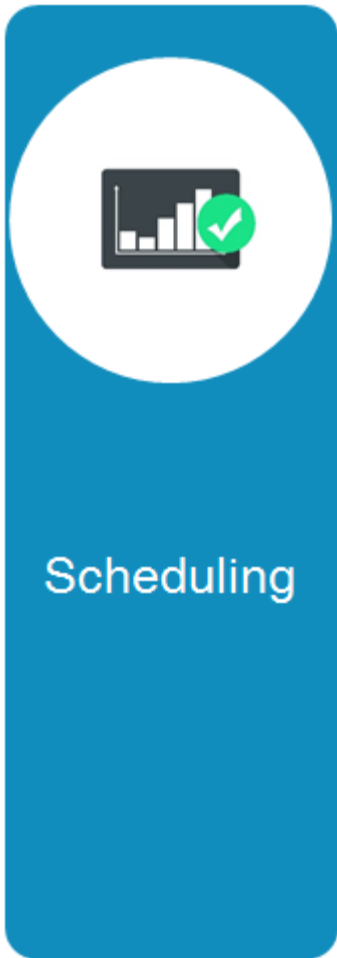
Market Processes



- Mandatory registration prior to injecting or withdrawing electricity
- Direct or indirect participation

HOW DOES THE WESM WORK?

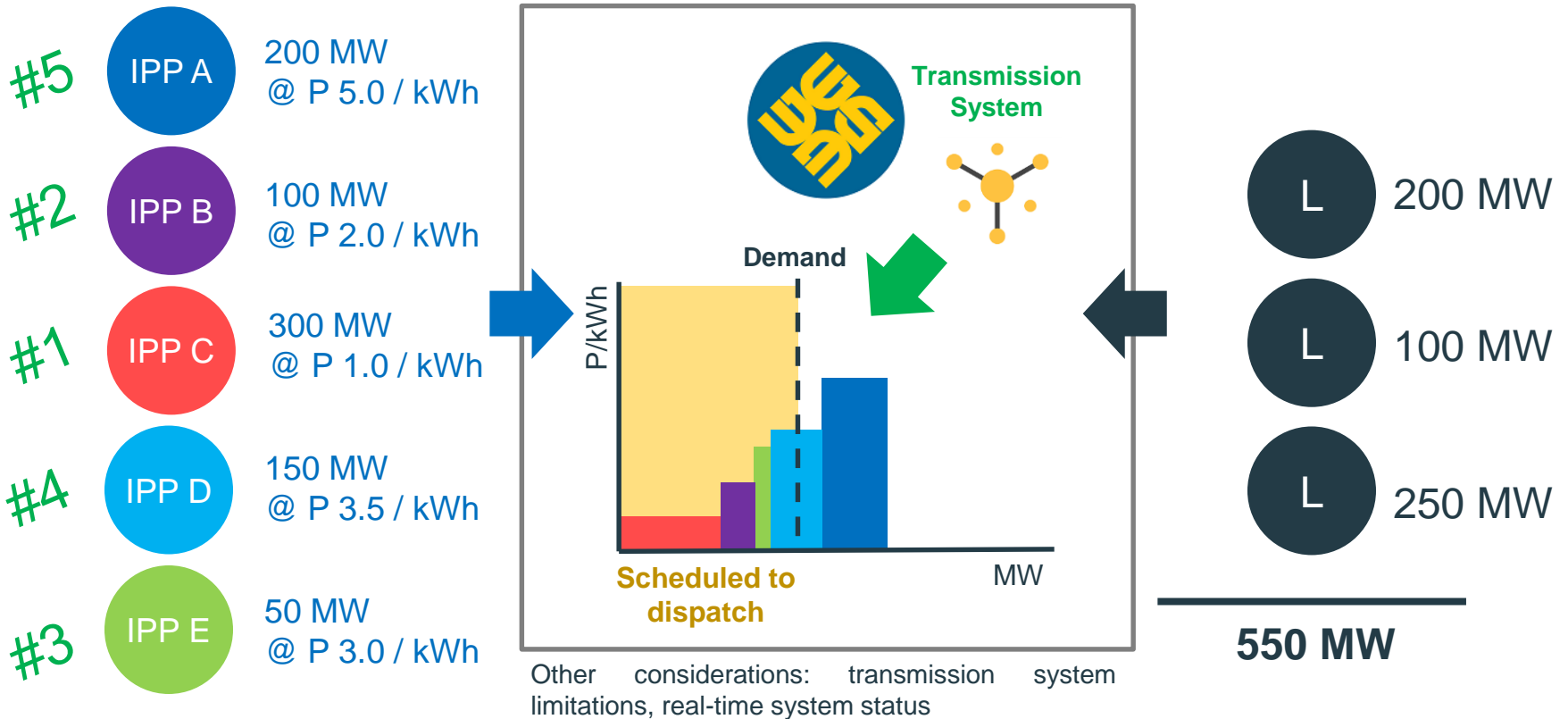
Market Processes



- Gross pool scheduling based on offers and bids
- 5-min dispatch intervals
- Schedules are published every 5 minutes
- Considers transmission system capacities
- Facilitated through the Market Management System (MMS)

SCHEDULING

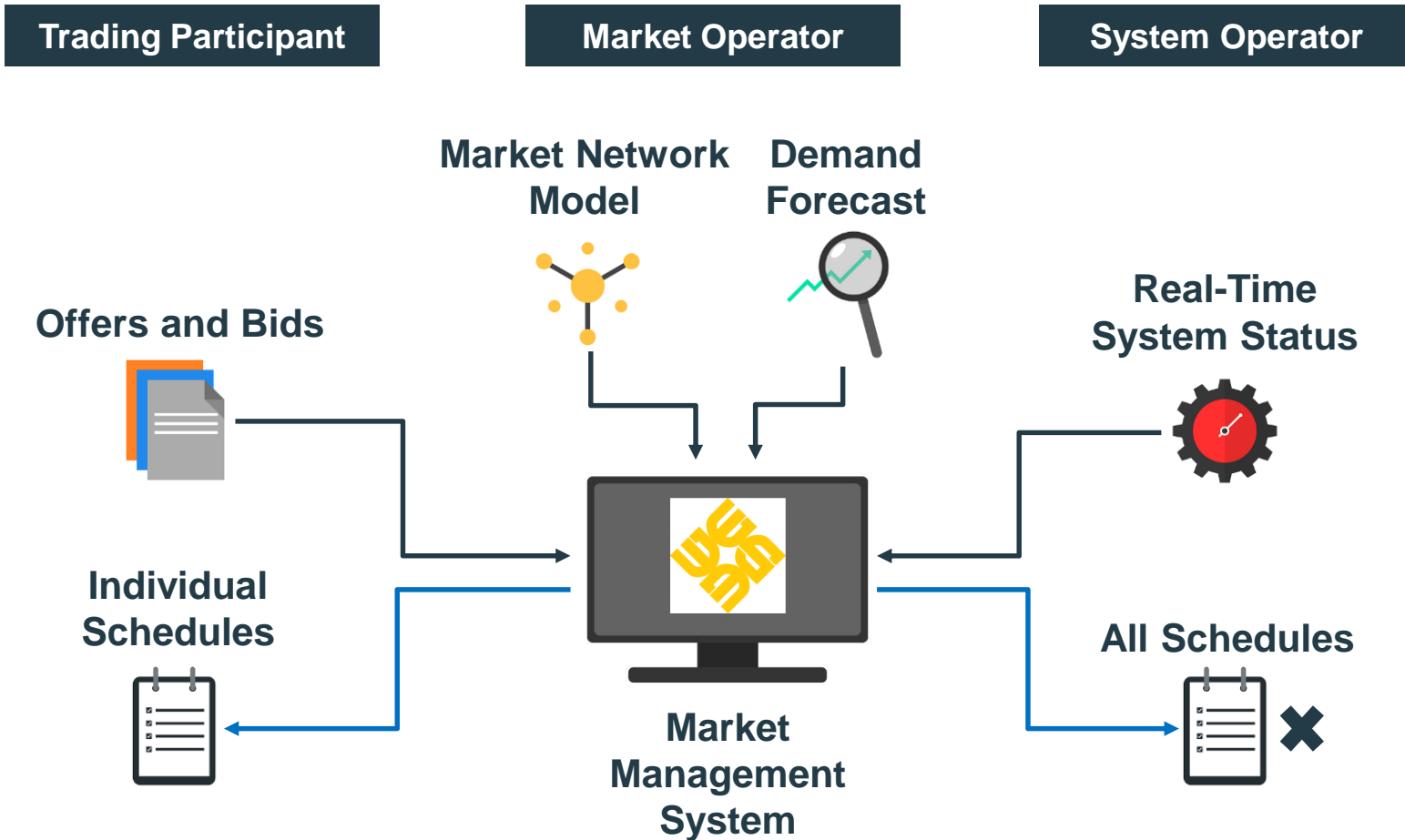
How are the schedules determined?



Generators are dispatched according to their offer price from the cheapest to the most expensive

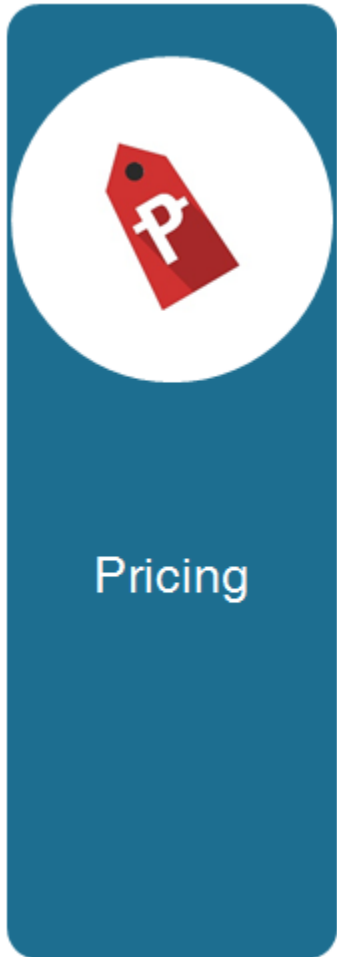
SCHEDULING

How is scheduling facilitated in the WESM?



HOW DOES THE WESM WORK?

Market Processes



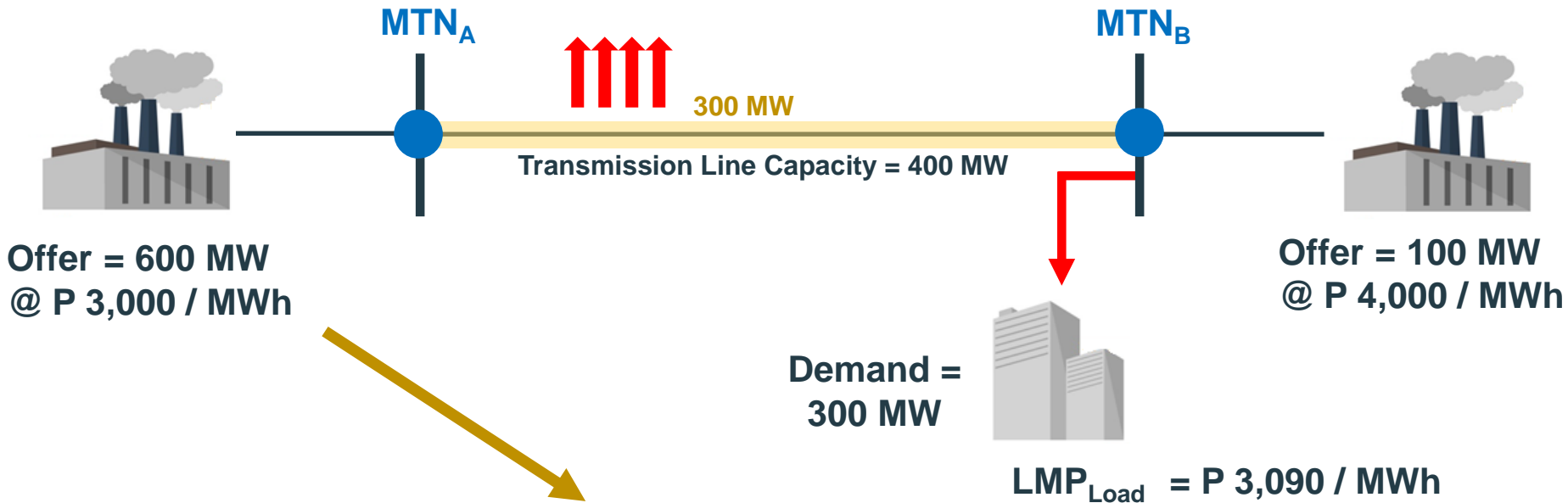
- Set by the offer price of the plant necessary to serve the demand
- Locational Marginal Pricing
- Prices are published every 5 minutes
- Special pricing conditions (e.g., must-run unit, administered pricing, price substitution methodology, secondary cap)

PRICING

Locational Marginal Pricing



$$\text{Locational Marginal Price} = \text{System Marginal Price} + \text{Transmission Loss Price} + \text{Congestion Price}$$



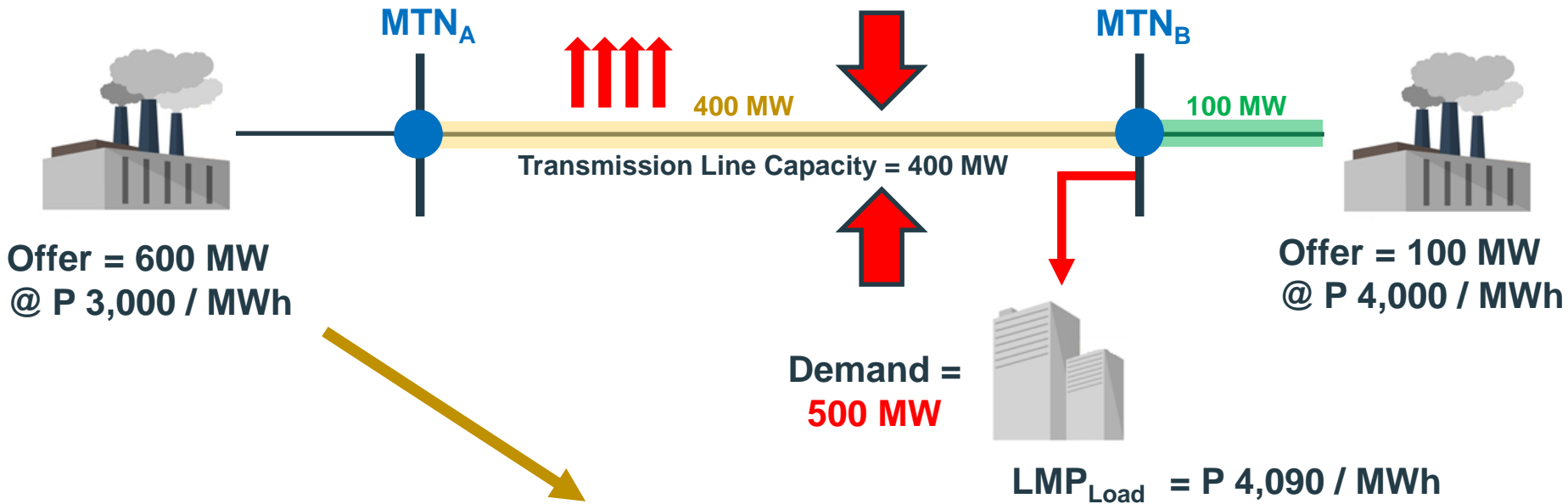
$$\text{LMP}_{\text{Load}} = 3,000 + 90 + 0$$

PRICING

Locational Marginal Pricing



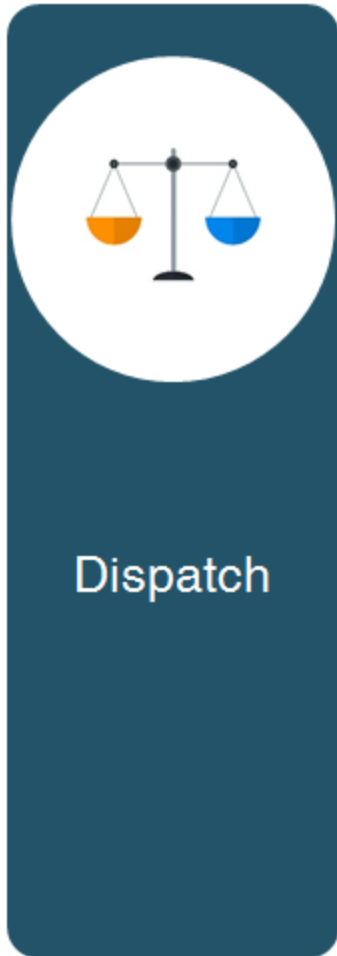
$$\text{Locational Marginal Price} = \text{System Marginal Price} + \text{Transmission Loss Price} + \text{Congestion Price}$$



$$\text{LMP}_{\text{Load}} = 3,000 + 90 + (4,000 - 3,000 = 1,000)$$

HOW DOES THE WESM WORK?

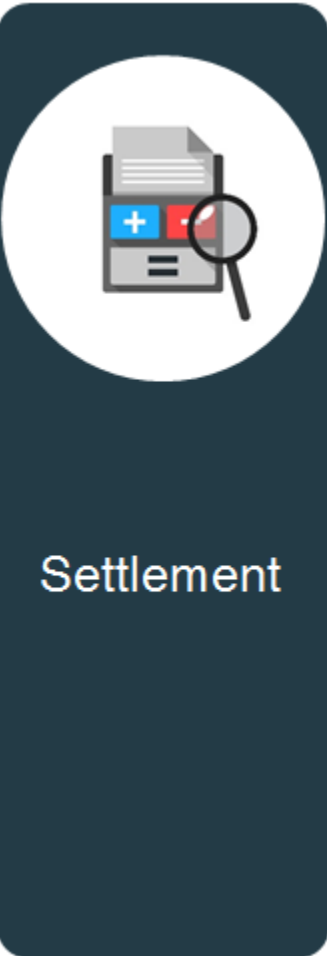
Market Processes



- 5-min dispatch intervals
- Dispatch schedules are published every 5 minutes
- Self-compliance to schedules
- Week-ahead, day-ahead, and hour-ahead projections
- Market intervention or suspension

HOW DOES THE WESM WORK?

Market Processes



- Day-after contract declaration
- Net settlement
- Monthly billing period (26th to 25th)
- Preliminary and final settlement

TYPICAL DAY FOR A GENERATION COMPANY



WESM Participation

- Submit generation offers
- Comply with 5-min dispatch schedules and SO instructions
- If necessary, submit reports related to dispatch
- Submit contract quantities for transactions the previous day

TYPICAL DAY FOR A CUSTOMER



WESM Participation

- Confirm contract quantities submitted by GenCos
- (Optional) Submit load forecasts
- (Optional) Submit demand bids

Recommended Practices

- Monitor prices
- Monitor real-time consumption

WESM GOVERNANCE



- Oversight Regulation: DOE & ERC
- PEM Board
- Governance Committees:
 - PEM Auditor
 - Rules Change Committee
 - Dispute Resolution Administrator
 - Market Surveillance Committee
 - Technical Committee

MITIGATING MEASURES



- WESM Offer Price Cap and Floor
 - Generators can only offer up to P 32 / kWh
 - Generators can offer as low as P -10 / kWh

- Secondary Cap
 - Sustained high prices (average of P 9 / kWh) for 168 trading intervals
 - Prices will be capped at P 6.245 / kWh until average goes below P 9 / kWh

WESM MINDANAO

Target Launch Date



Luzon – 26 June 2006


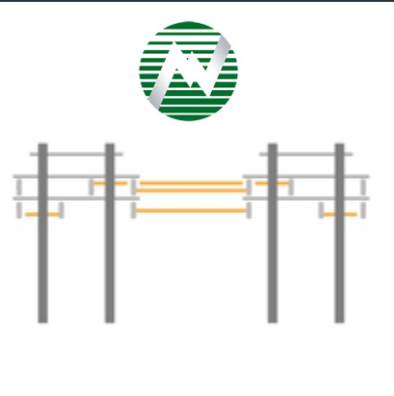
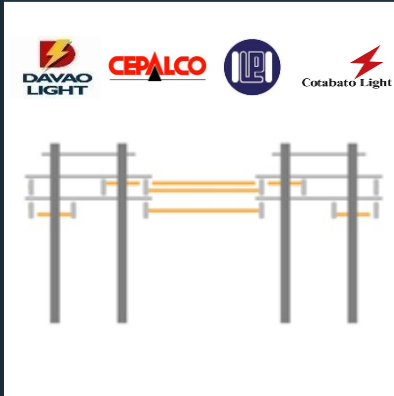
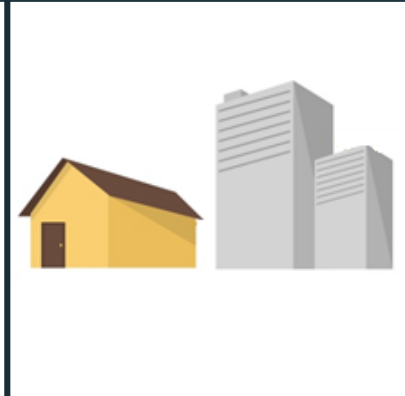
Visayas – 26 December 2010

Mindanao – 26 June 2017*

WESM MINDANAO

Expected Trading Participants

83 Trading Participants

			
32 Generation Companies	28 Electric Cooperatives	4 Private Distribution Utilities	19 End-Users

51 Customers

WESM MINDANAO

Preparatory Activities

- Capacity Building
 - Trial Operations
 - Information Dissemination
 - Participant Trainings
- WESM Registration
- Readiness Assessment



Philippine Electricity
Market Corporation

END OF PRESENTATION

WESM Works.



WESM Helpdesk Ticketing System
www.wesm.ph/wesm-helpdesk



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www.wesm.ph