



WESMO

Overview

A blue magnifying glass icon is positioned over the letter 'O' in "WESMO" and extends downwards and to the right, partially overlapping the word "Overview".

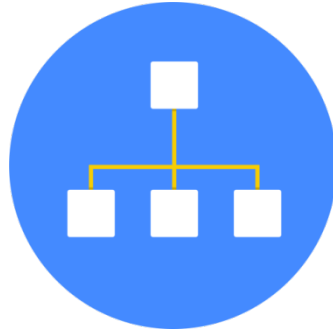
WESM Fundamentals



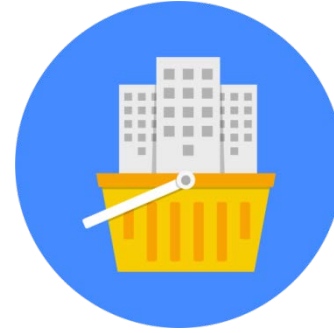
Establishment of WESM



Features of the WESM



WESM Structure



Market Design

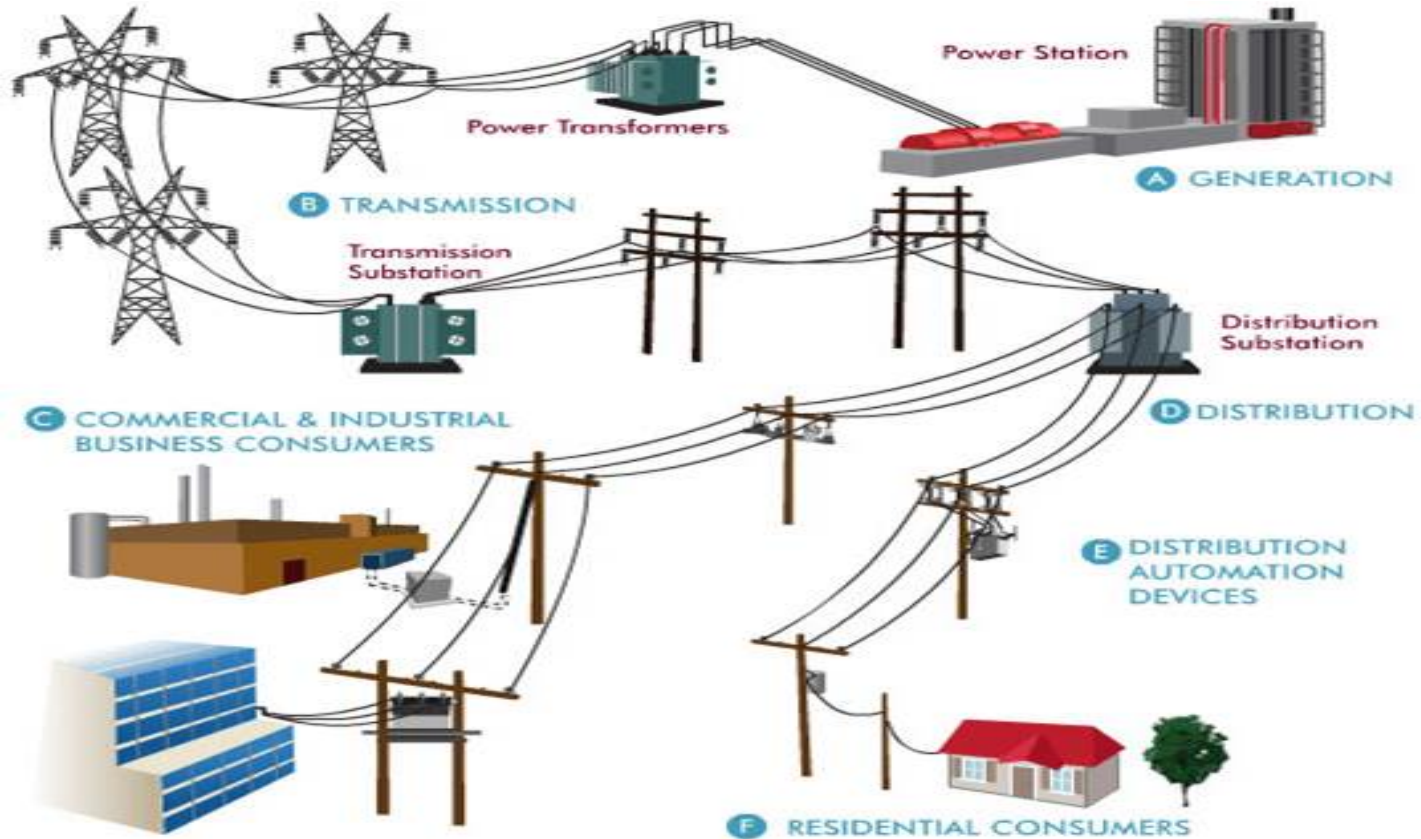


Market Results

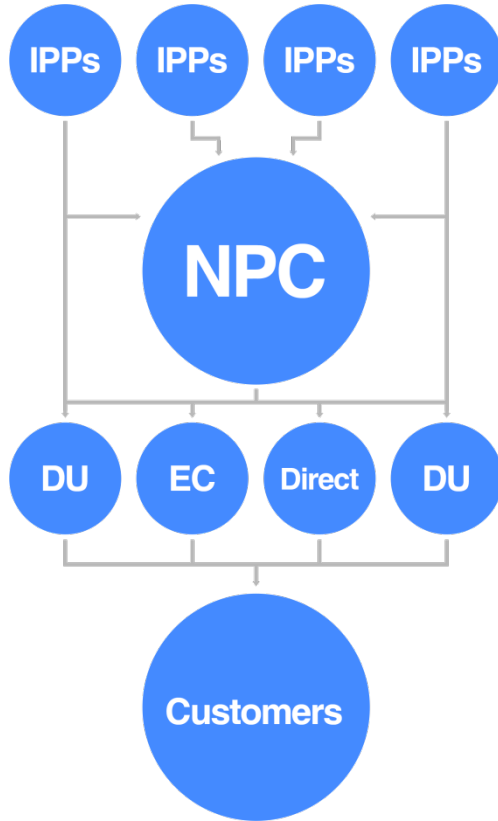


Establishment of WESM

New Industry Structure



Electric Power Industry Structure MONOPOLY (Pre-EPIRA)



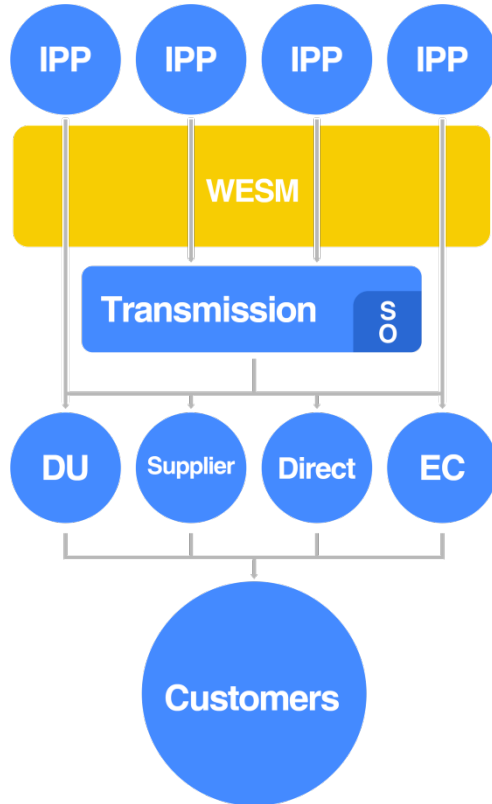
Generation – NPC, IPPs (*IPPs – wholesale contract with NPC and some distribution companies*)

Transmission – NPC

Distribution and Supply –
distribution utilities, electric
cooperatives, NPC

Electric Power Industry Structure

NEW STRUCTURE - EPIRA



- **Competitive generation**
- **Regulated transmission and distribution**
- **Open access to high voltage wires**
- **Open access to distribution networks**
- **Wholesale electricity spot market (WESM)**
- **Competitive retail market**

New Industry Structure

Generation

- Competitive; privatized

Transmission

- Regulated; privatized
- Includes systems operations functions

Distribution

- Regulated; privately-owned & electric cooperatives

Retail / Supply

- Competitive

Implementation: Timeline

Electric Power Industry Reform Act (EPIRA) (RA 9136) <i>(June 2001)</i>	EPIRA Implementing Rules and Regulation (IRR)	Philippine Electricity Market Corporation (PEMC) <i>(November 18, 2003)</i>	WESM Market Management System (MMS) Project <i>(March 2004)</i>	WESM Trial Operation Program	Luzon WESM Commercial Operations <i>(June 26, 2006)</i>	Visayas WESM Commercial Operations <i>(Dec 26, 2010)</i>	Retail Competition and Open Access <i>(Jun 26, 2013)</i>
Philippine Grid Code (RA 9136) <i>(December 2001)</i>	WESM Rules <i>(June 2002)</i>						IMEM <i>(Sep 26, 2013)</i>
<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2010</i>	<i>2013</i>

Legal Basis – WESM Establishment

EPIRA Sec. 30: *Wholesale Electricity Spot Market (WESM)*

- Within one (1) year from the effectivity of this Act, the DOE shall establish a wholesale electricity spot market composed of the wholesale electricity spot market participants.
- The market shall provide the mechanism for identifying and setting the price of actual variations from the quantities transacted under contracts between sellers and purchasers of electricity.

Legal Basis – Related Provisions

GENERATION Section 6, RA 9136

- **Generation of electric power, a business affected with public interest, shall be competitive and open.**
- **Upon implementation of retail competition and open access, the prices charged by a generation company for the supply of electricity shall not be subject to regulation by ERC except as otherwise provided in this Act.**



Features of the WESM

General Features

WESM as a venue for “trading” of electricity –

- Centralized scheduling generation and supply of electricity, including those covered by supply contracts
- Determining prices of un-contracted quantities (i.e., spot market transactions)
- Settlement of spot market transactions (billing, payment and collections)

General Features

WESM is a real-time energy market.

- **Generation schedules to meet customer demand or requirements for each hour of the day are determined an hour ahead.**

WESM is a mandatory market.

- **All persons or entities connected to the grid are required to become members of the WESM. Failure to register is a ground for disconnection from the grid.**

General Features

WESM operates in Luzon and Visayas.

- **Commercial operations commenced in Luzon on 26 June 2006 and in the Visayas on 26 December 2010.**
- **WESM operates as a single market, and this is possible as the grids are connected through the Leyte-Luzon HVDC link.**

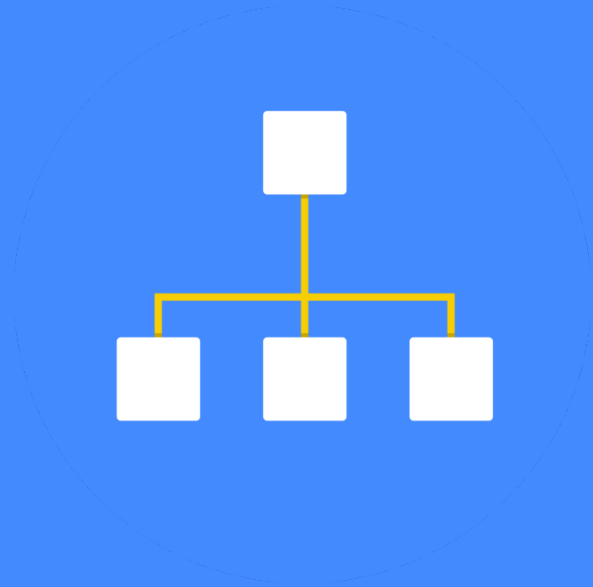
General Features

Market Operator of WESM

- WESM is administered by the Philippine Electricity Market Corporation (PEMC).
- The Market Operator or PEMC, as administrator of the WESM, is not a party to the selling and buying of electricity that passes through the market.

System Operations

- In the EPIRA, the systems operations functions resides in an entity different from the market operator.



WESM Structure

Market Structure

Participation

- Trading Participants (Generation Companies & Customers)
- Ancillary Service Providers

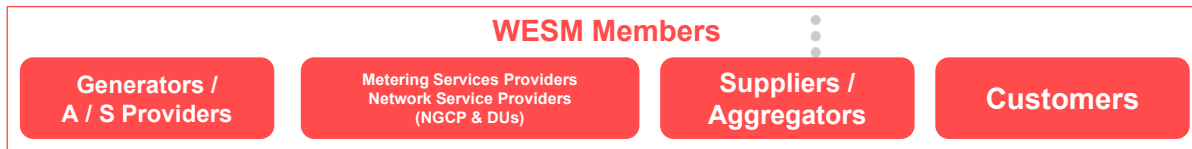
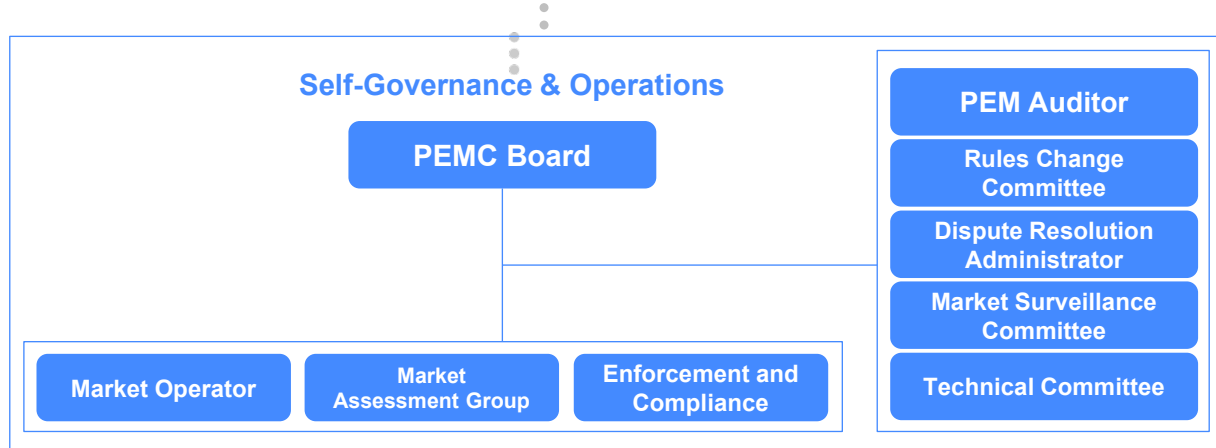
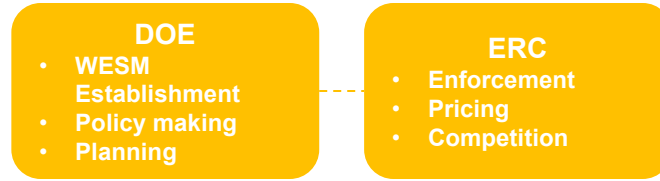
Operations/Services

- Market Operator (PEMC)
- Systems Operator (NGCP)
- Network Service Provider (NGCP and DUs)
- Metering Services Provider (NGCP)

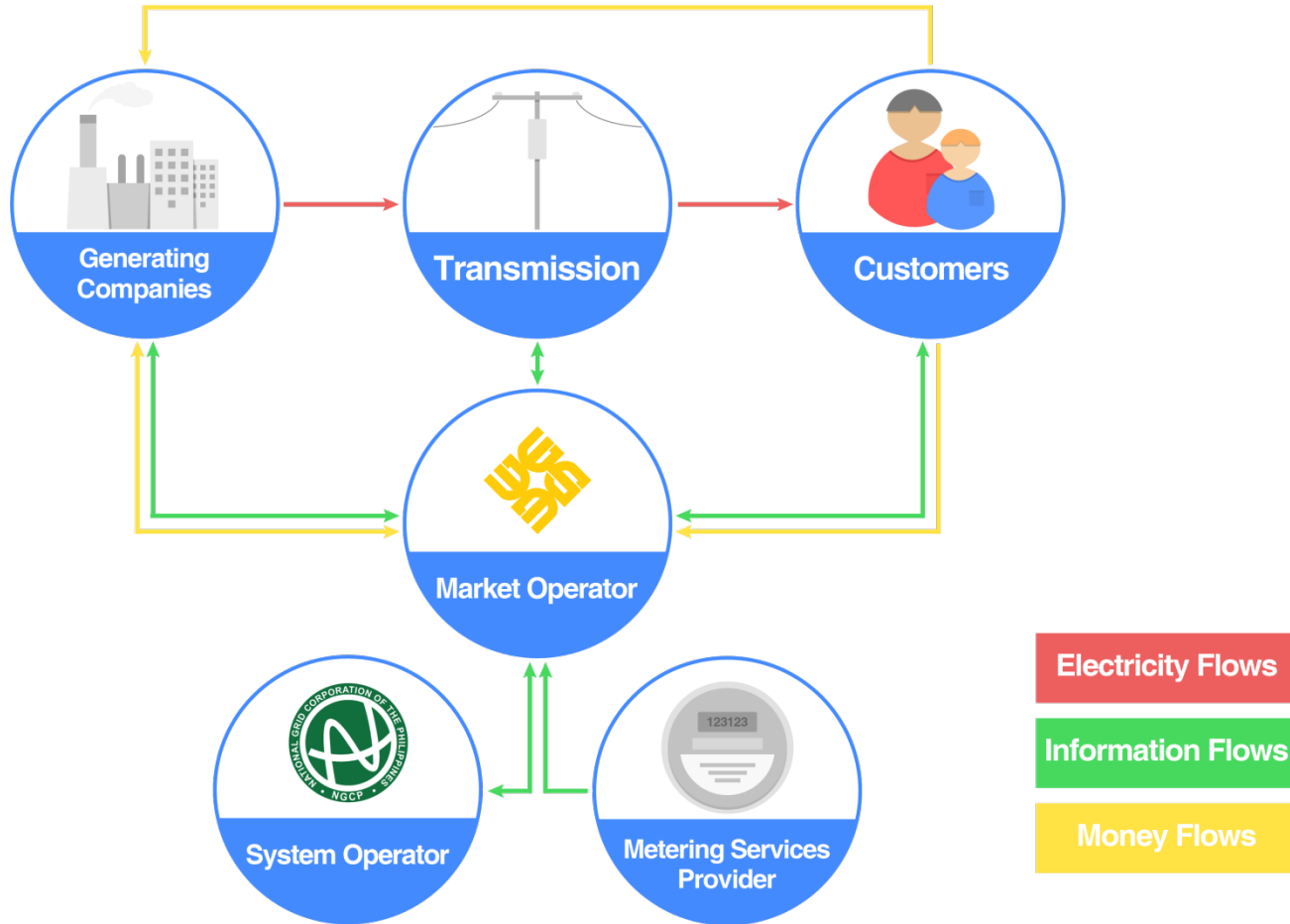
Governance and Regulation

- PEM Board, WESM Governance Committees and PEMC governance units
- Department of Energy
- Energy Regulatory Commission

Market Structure



Market Structure - Transactions





Market Design

Market Design

Scheduling

- Hourly
- Bid-based
- Gross pool
- Mandatory market

Pricing

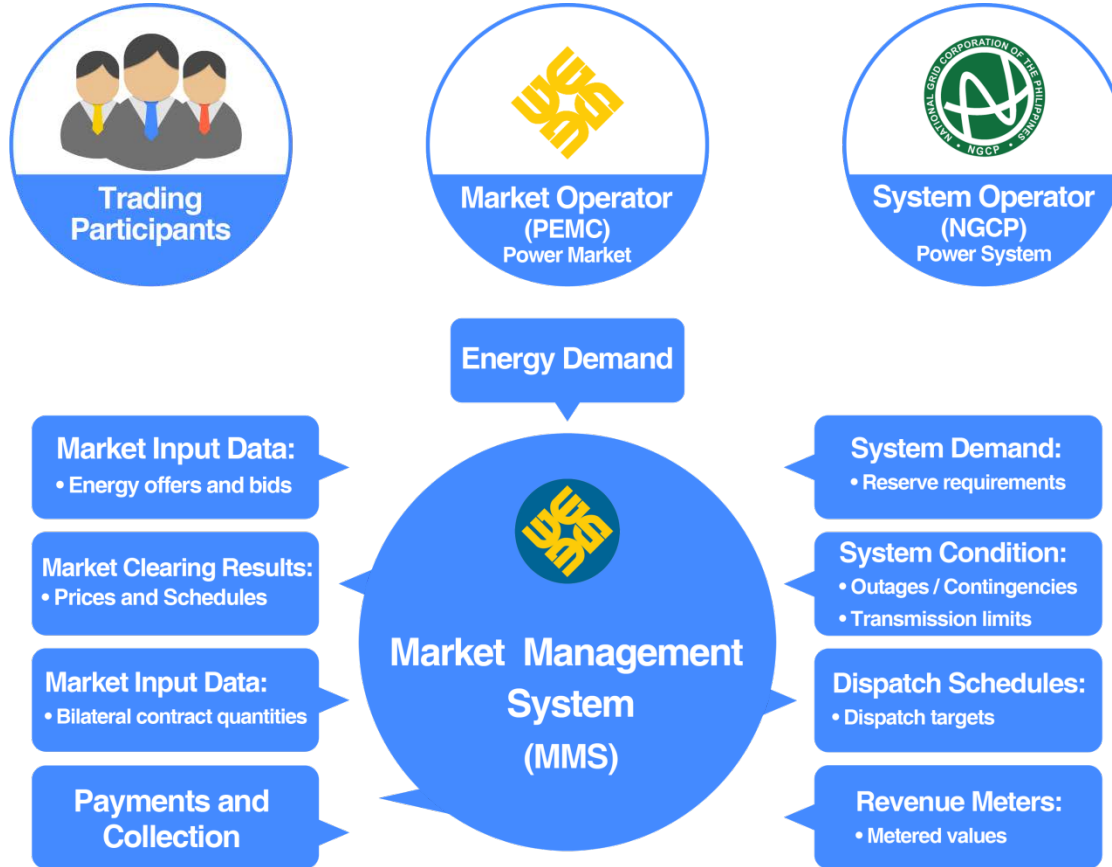
- Locational marginal pricing

Settlement

- Net settlement
- Two-settlement system (Ex-ante and ex-post settlement)

Market Design

Hourly/Daily Trading Mechanism



Market Design

Hourly/Daily Trading Mechanism



- Fully contracted
- Partially contracted

Gross Pool

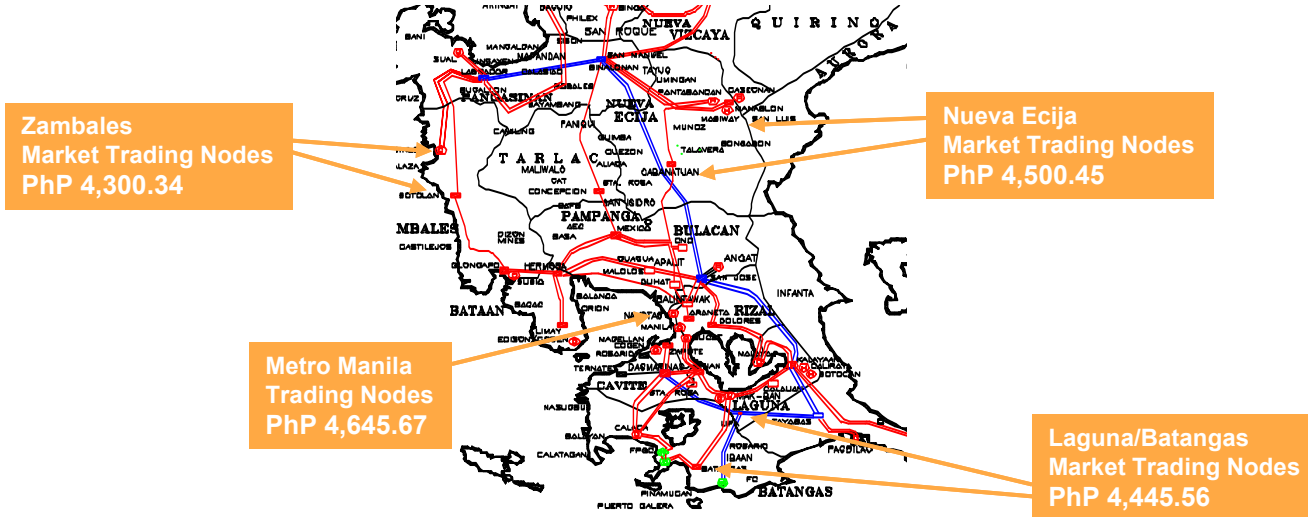
(Every Generator submits offers to be scheduled in the power system)

Energy Offer (Price & Quantity)



Locational Marginal Pricing (LMP)

$$\text{LMP} = \text{Generation Price (SMP)} + \text{Cost of Losses} + \text{Transmission Congestion Cost}$$



Market Design

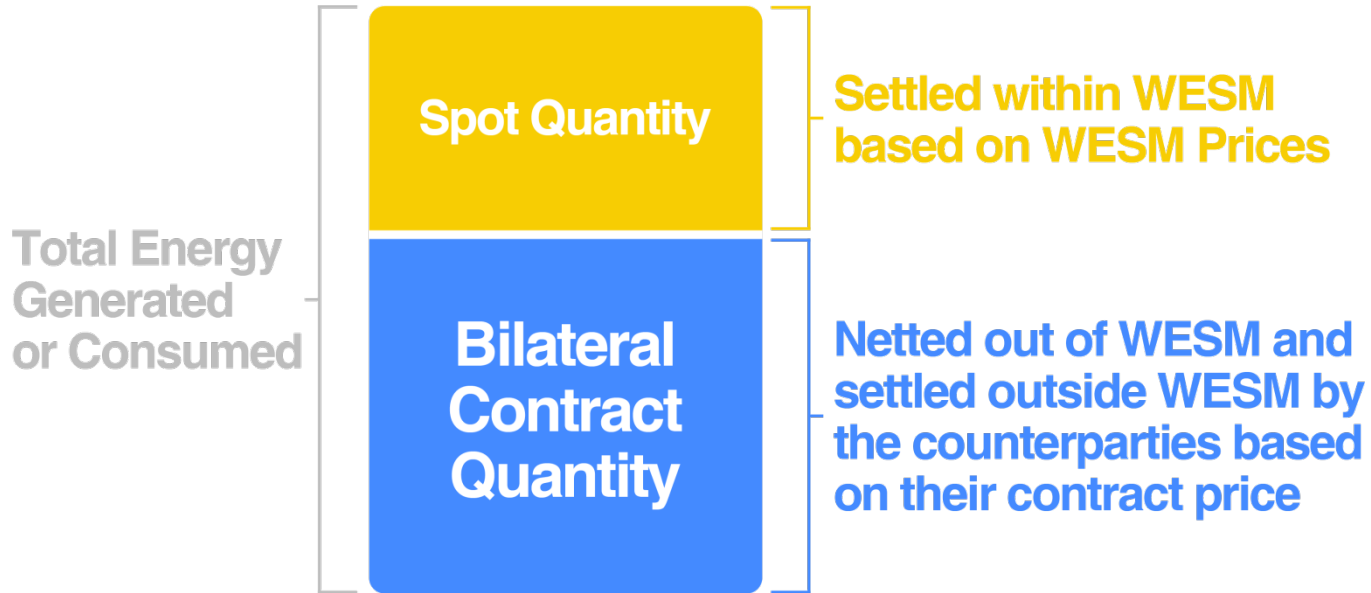
Determining Schedules and Clearing Price



Market Design

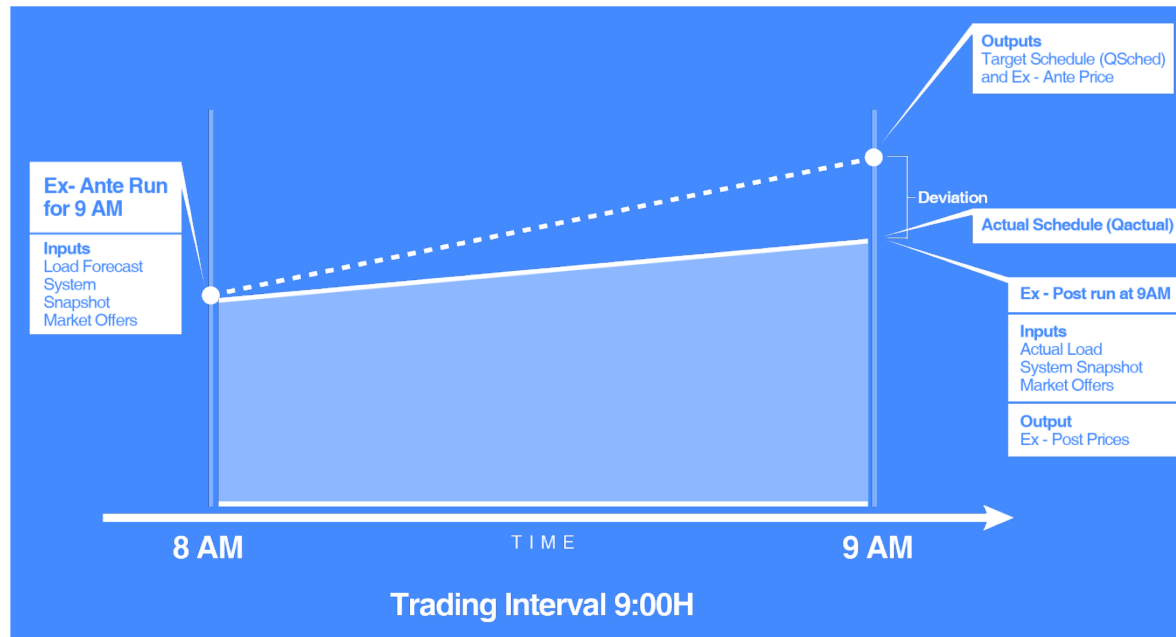
Net Settlement

(Only Spot quantity is settled at market price)



Market Design

Two-Settlement System



$$\text{Trading Amount}_{(\text{hour})} = \text{Ex - ante Amount} + \text{Ex - post Amount}$$
$$= Q_{\text{sched}} * P_{\text{ex - ante}} + (Q_{\text{actual}} - Q_{\text{sched}}) * P_{\text{expost}}$$

Market Design Settlement Timeline

Cut-off Period

+ 7 days

Preliminary
Statement

+ 11 days

Final
Statement

+ 12 days

EFT Payment



NOVEMBER

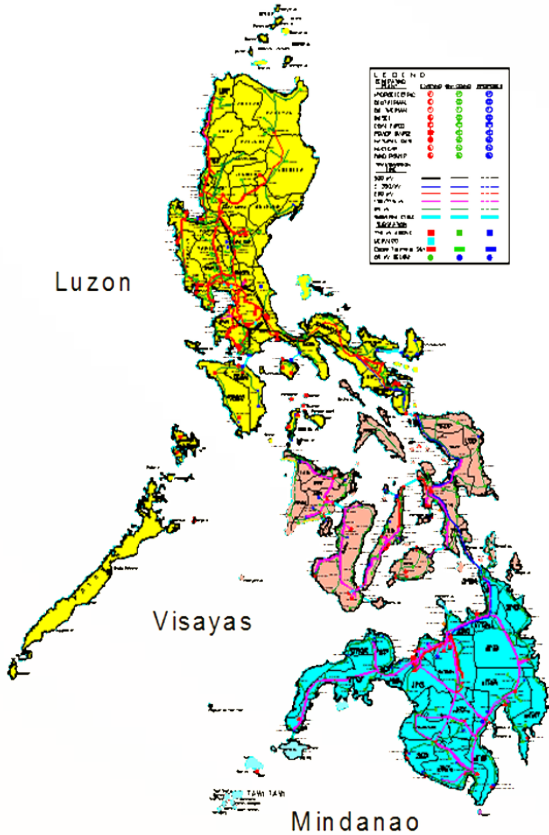
Collection



Market Results

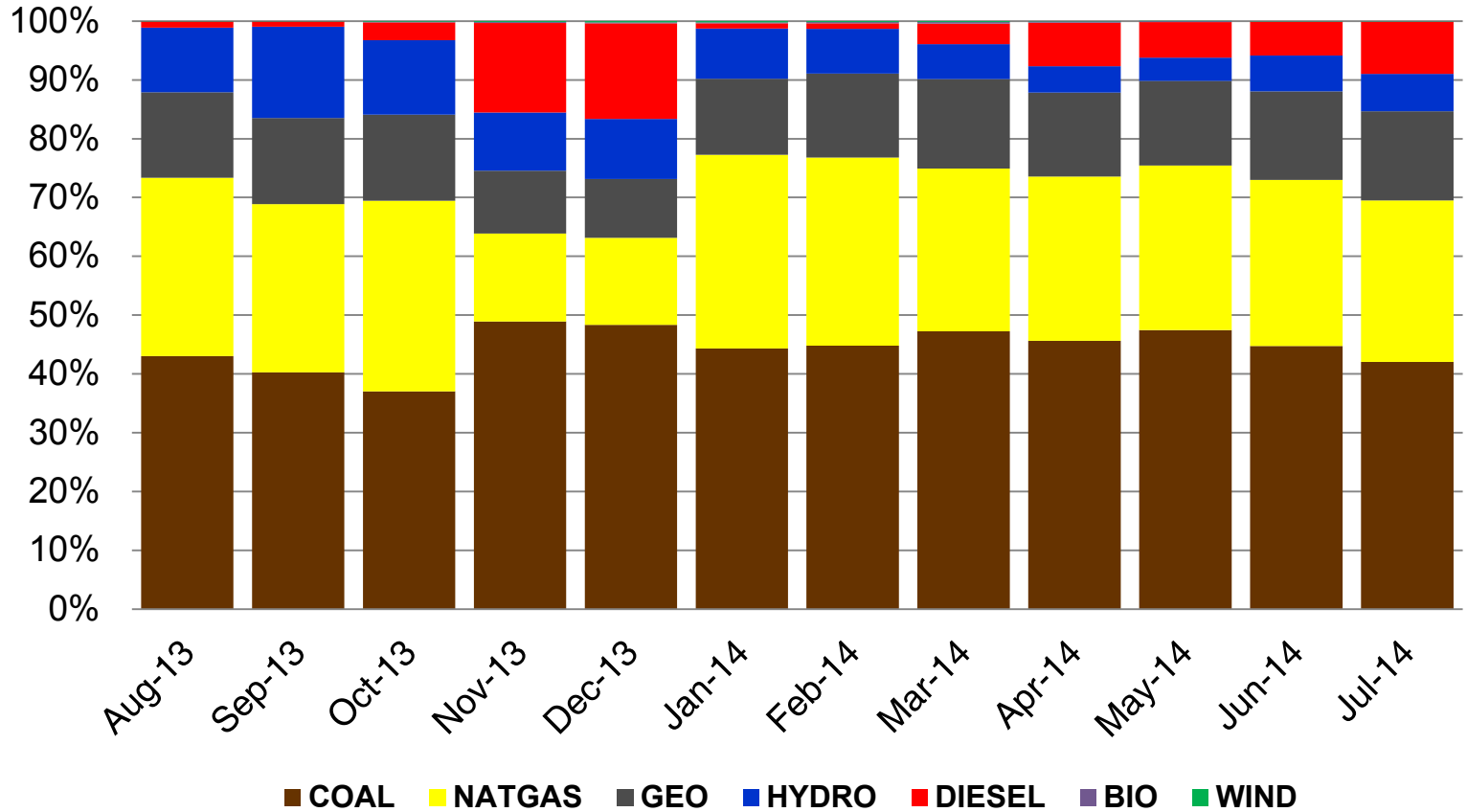
Background – Philippine Power Grids

Supply & Demand

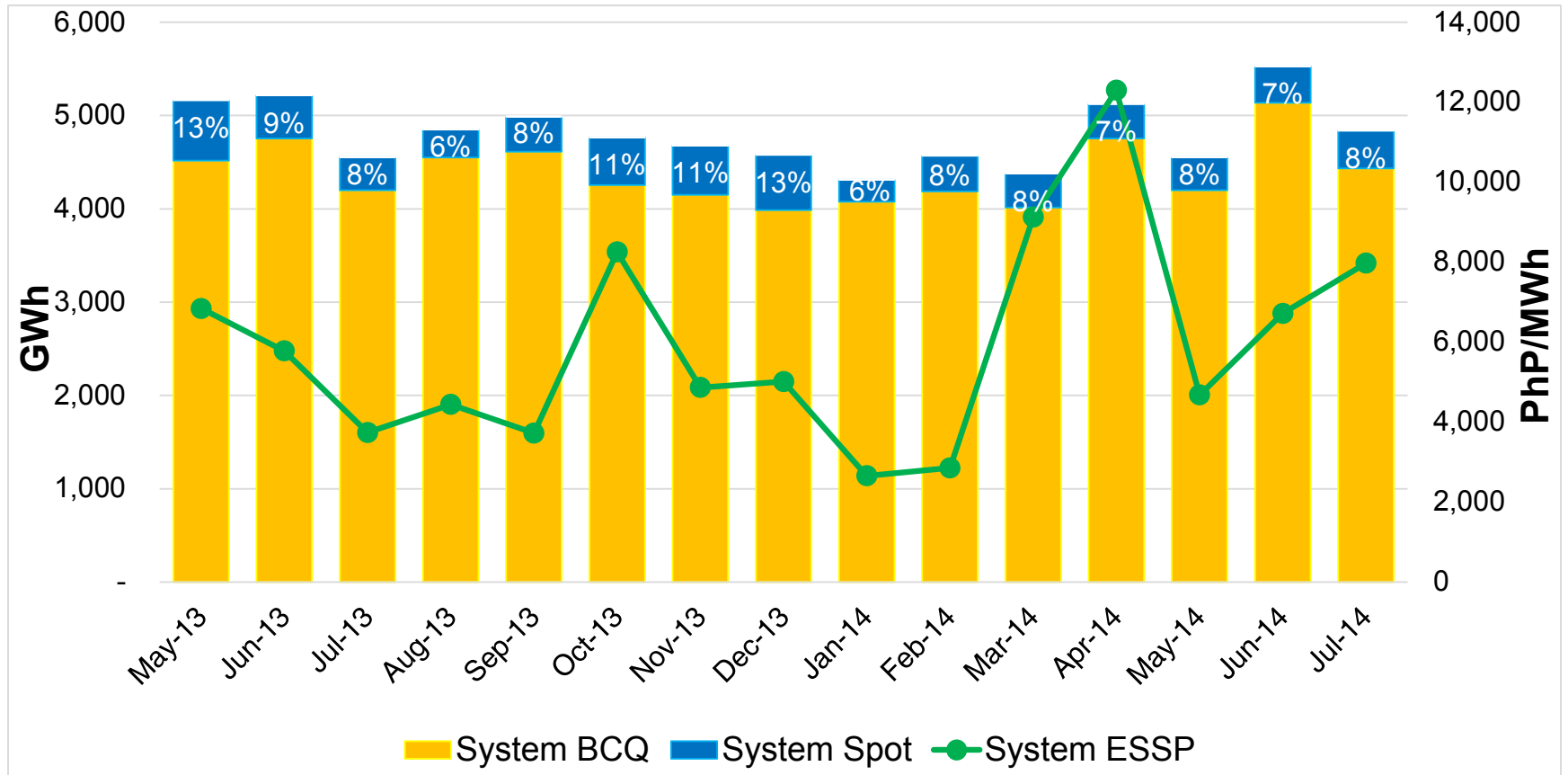


	Luzon	Visayas	Mindanao
Rated Capacity (MW)	12,523	2,031	1,682
2013 Peak Demand (MW)	8,232	1,540	1,594
Rated Capacity (MW)	12,516	2,133	1704
2014 Peak Demand (MW)	8,671	1,572	1,402

Generation Mix



Market Transaction Volume





THAN YOU'D THINK VERY MUCH
WESM *WESM Works.* MUCH
Overview

A blue magnifying glass graphic is positioned over the right side of the text. The lens of the magnifying glass is centered over the letters "MUCH" in the second line of the main text. The handle of the magnifying glass extends downwards and to the right.