

MINDANAO **D**ISPATCH

PROTOCOL

WESM Mindanao Public Consultations

Mindanao System Operations

Mindanao Grid



Existing Dispatch Protocol



2016 Power Situation

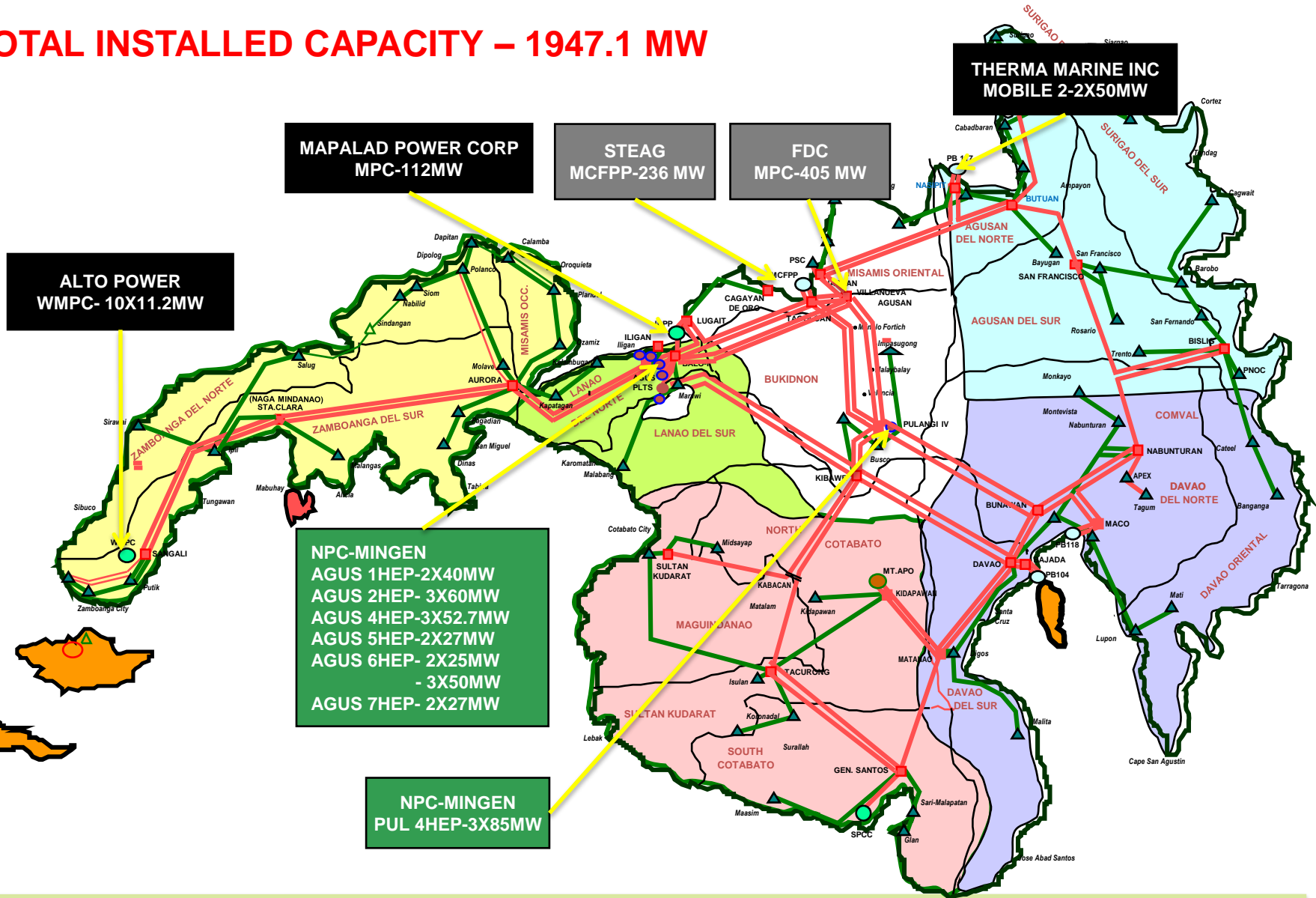


Operational Concerns



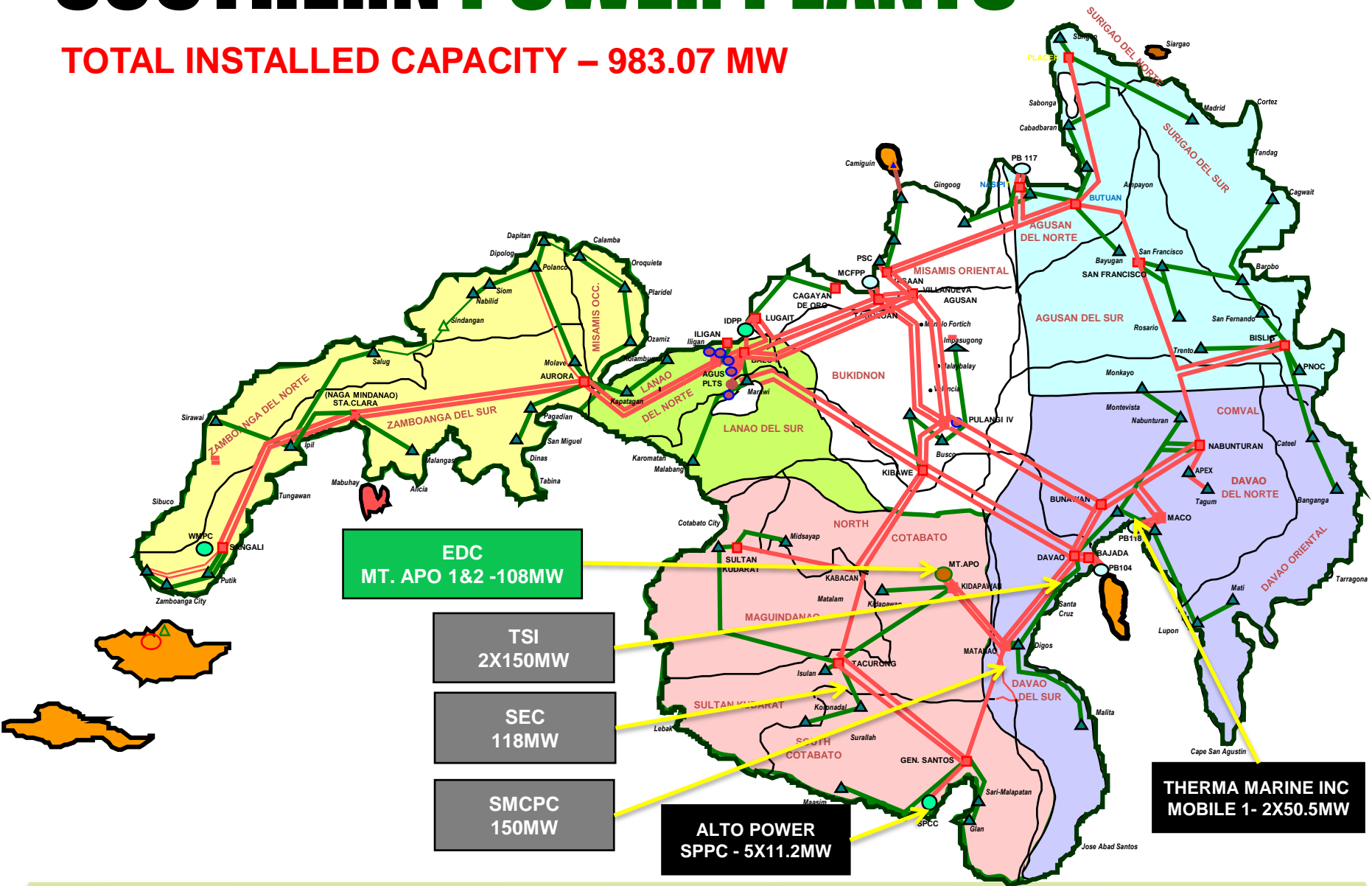
NORTHERN POWER PLANTS

TOTAL INSTALLED CAPACITY – 1947.1 MW



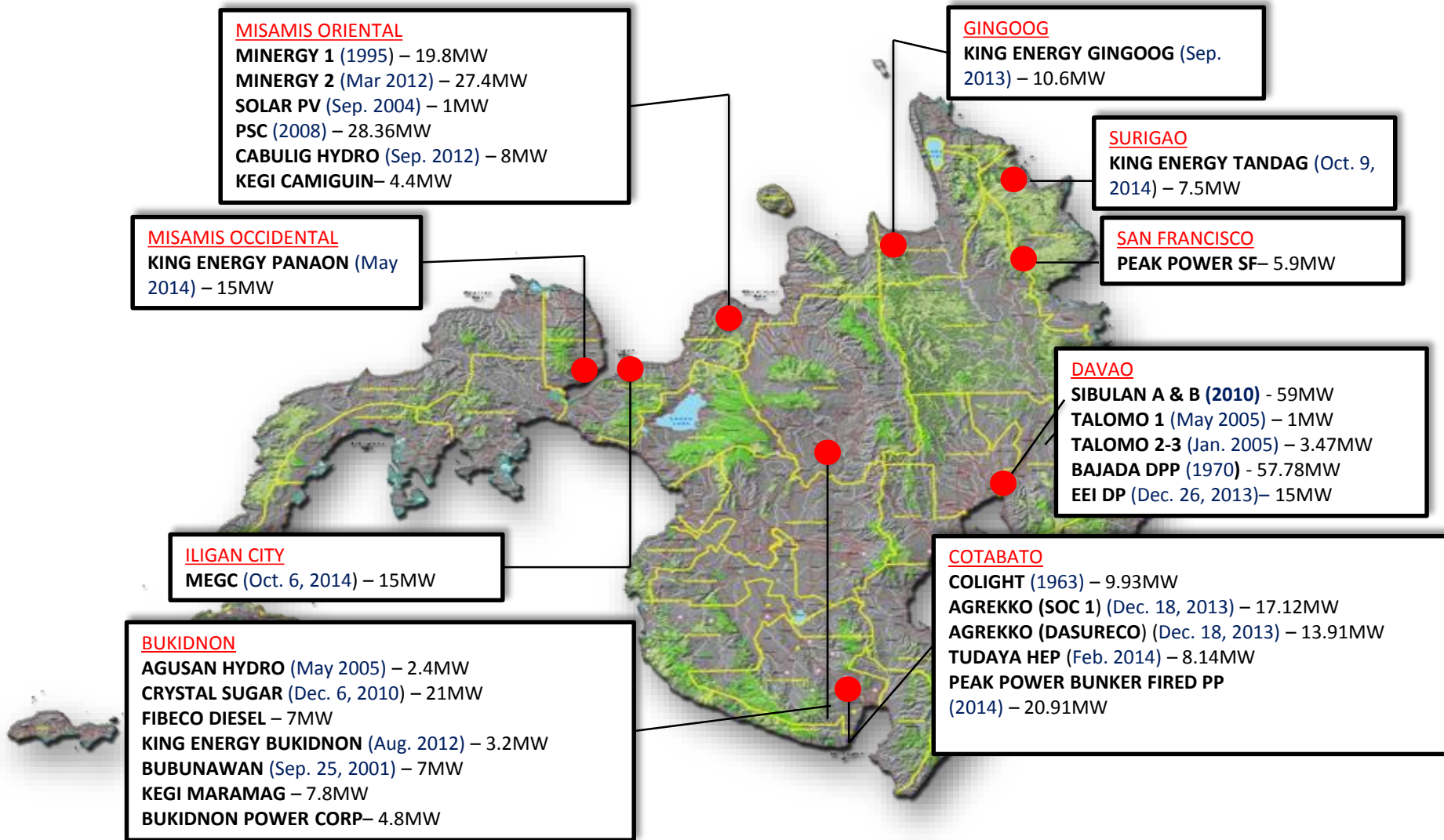
SOUTHERN POWER PLANTS

TOTAL INSTALLED CAPACITY – 983.07 MW



DU Embedded Power Plants

TO A INSTALLED CAPACITY = 388.12MW



SOLAR POWER PLANTS

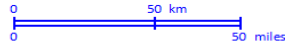
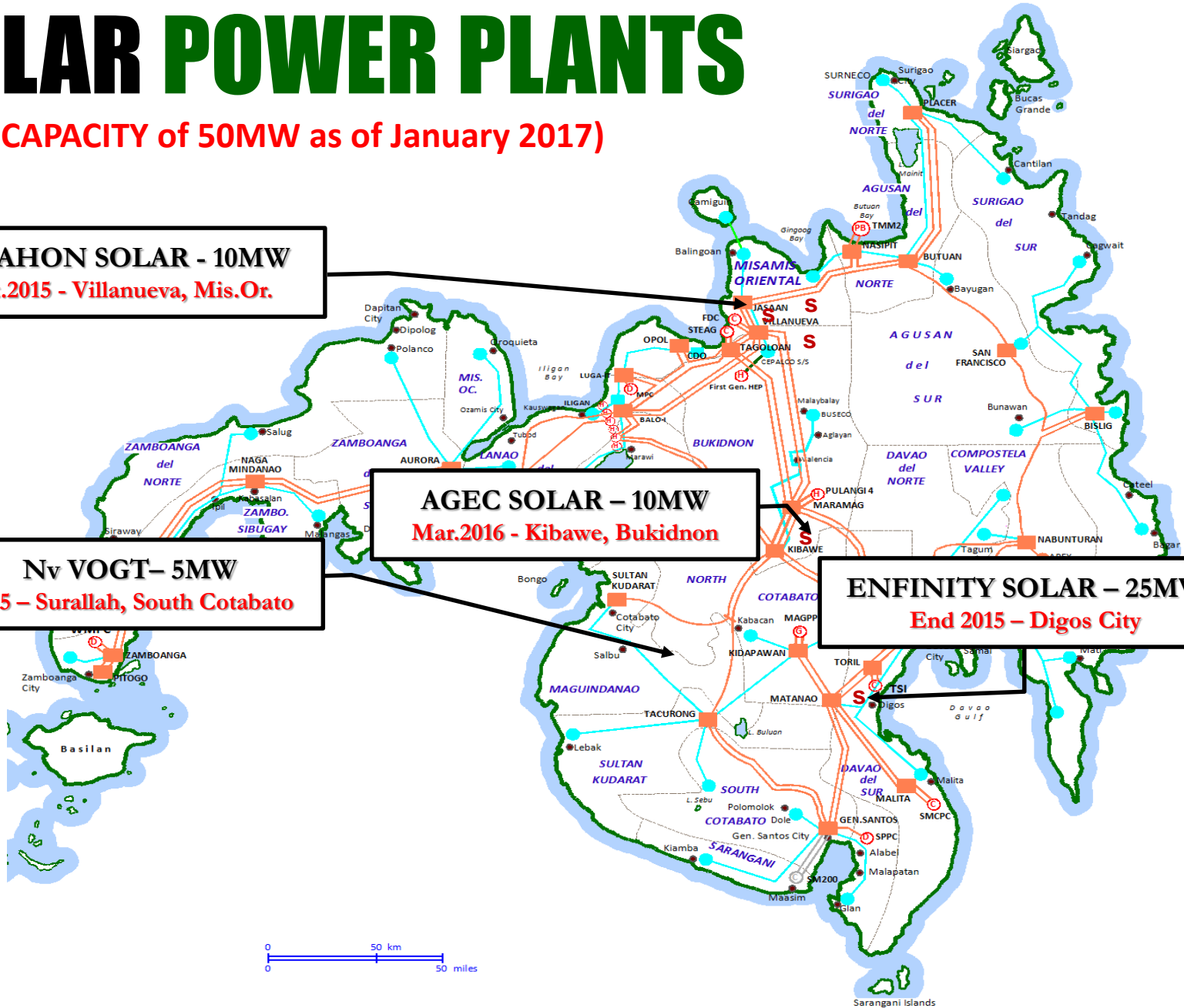
TOTAL CAPACITY of 50MW as of January 2017)

KIRAHON SOLAR - 10MW
Oct.2015 - Villanueva, Mis.Or.

AGEC SOLAR - 10MW
Mar.2016 - Kibawe, Bukidnon

Nv VOGT- 5MW
2015 - Surallah, South Cotabato

ENFINITY SOLAR - 25MW
End 2015 - Digos City



INSTALLED CAPACITY in MW

1. Northern Power Plants	-	1,947.10
2. Southern Power Plants	-	983.07
3. Embedded (including VRE/RE Plants)	-	438.21
	TOTAL	- 3,368.38



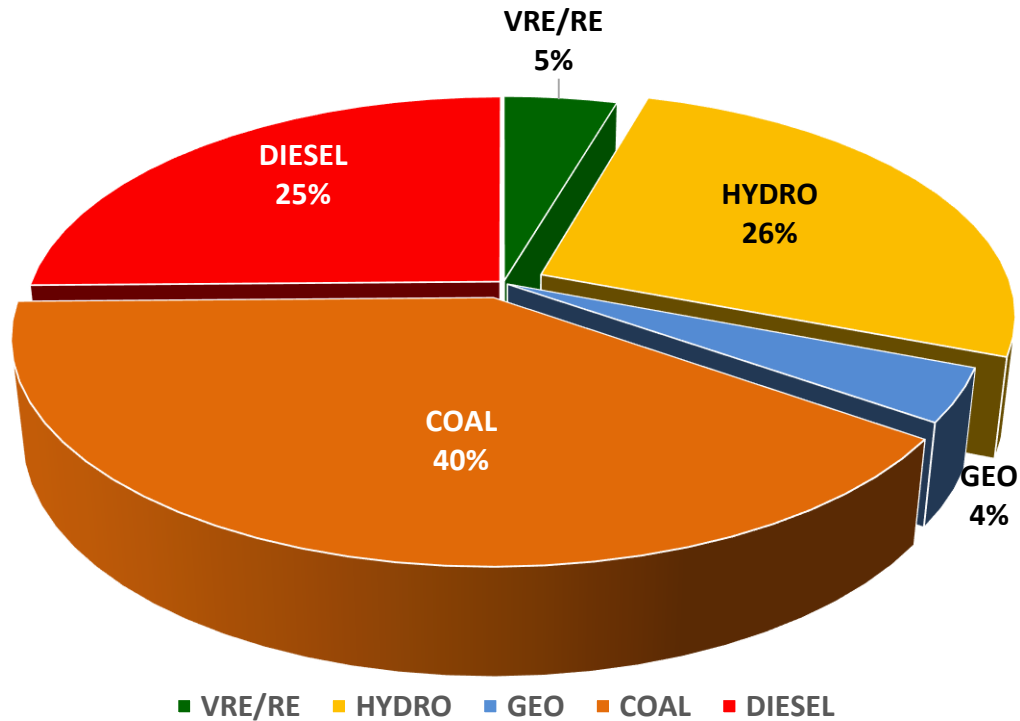
2016 Power Situation



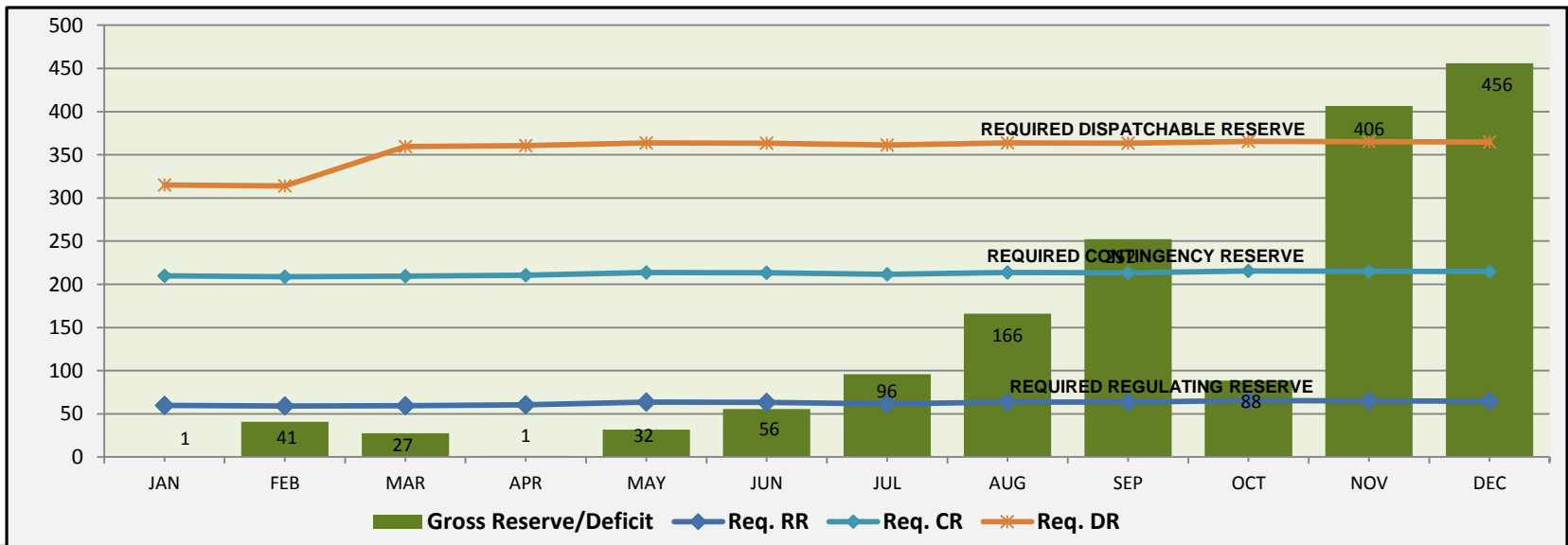
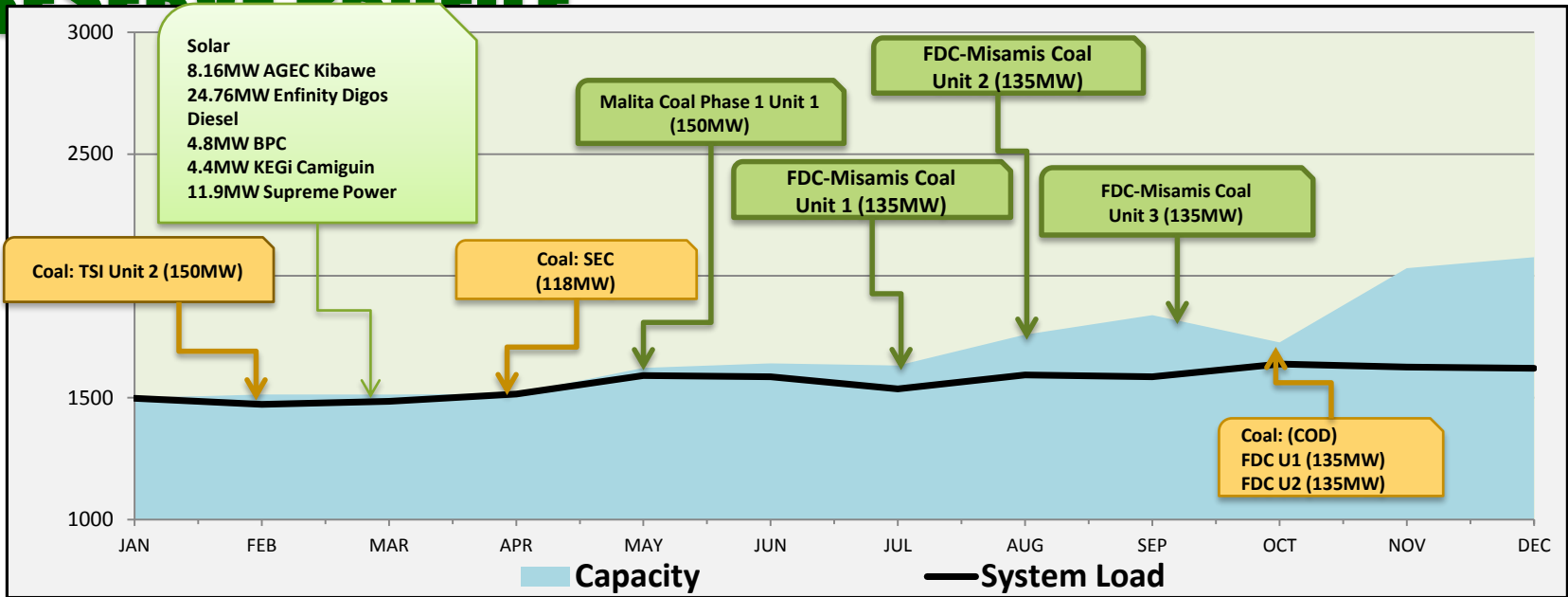
2016 Actual Data

- Actual Peak Demand (Spot Peak) of **1653MW** occurred on December 1, 2016.
- Actual Rated Power Plant Capacity **3368.38MW**

ACTUAL DEPENDABLE CAPACITY, **2574.46MW**



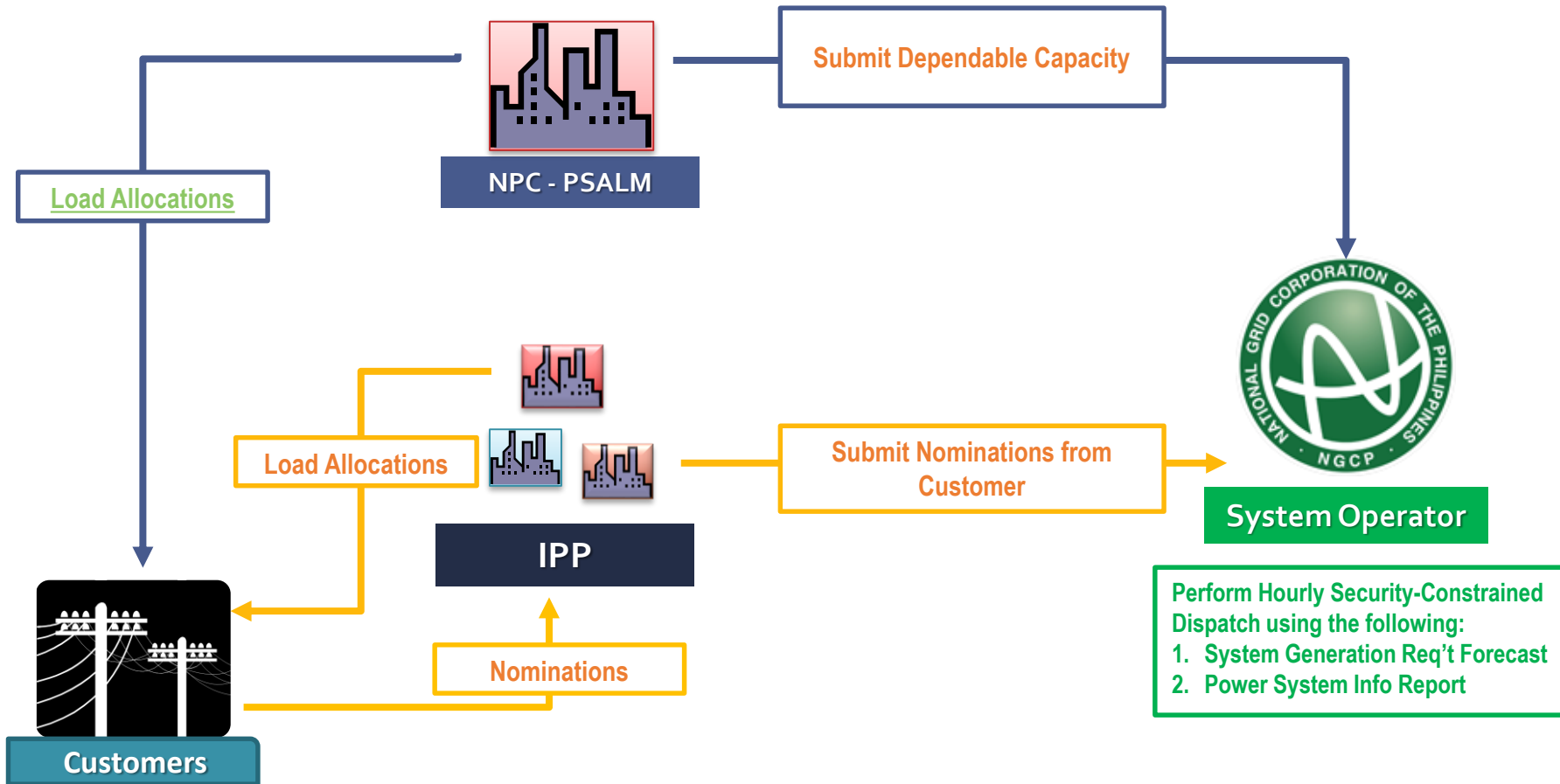
2016 ACTUAL DEMAND & SUPPLY AND RESERVE PROFILE



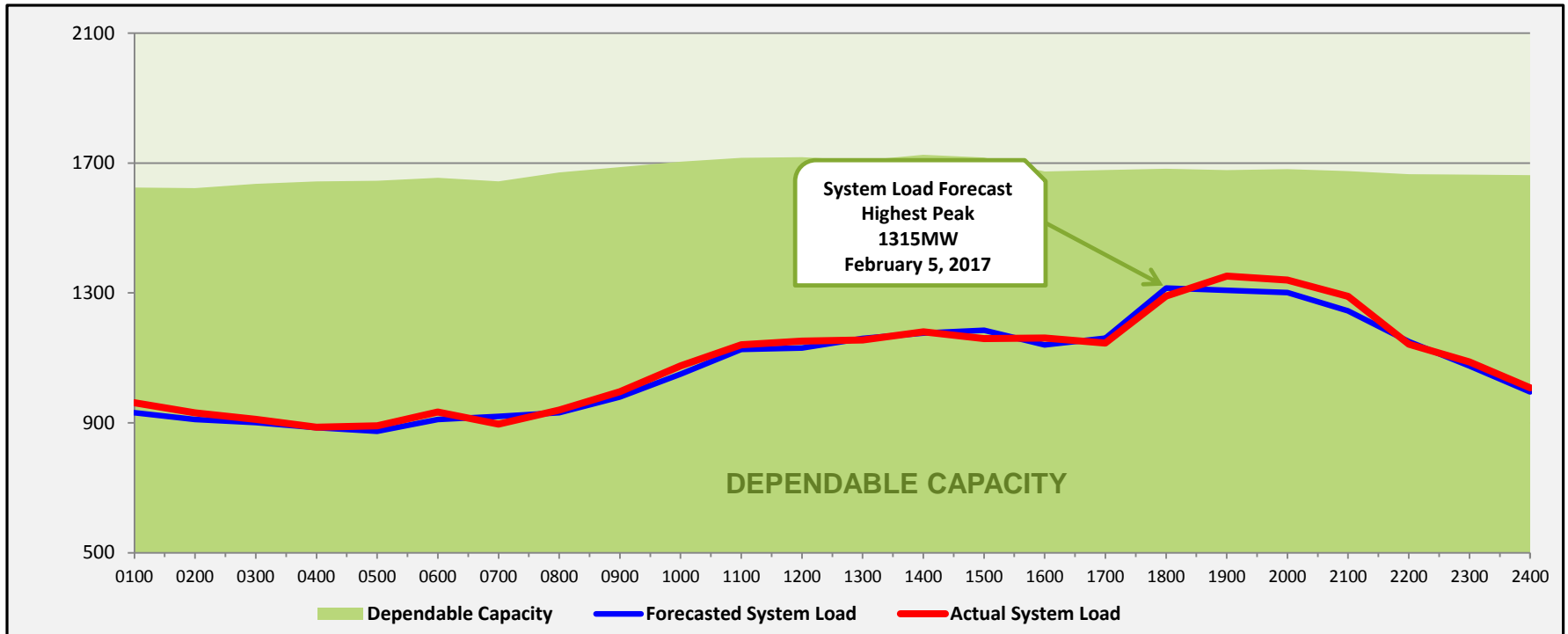
Existing Dispatch Protocol



Day-Ahead Generation Dispatch Protocol



Day-Ahead Generation Scheduling

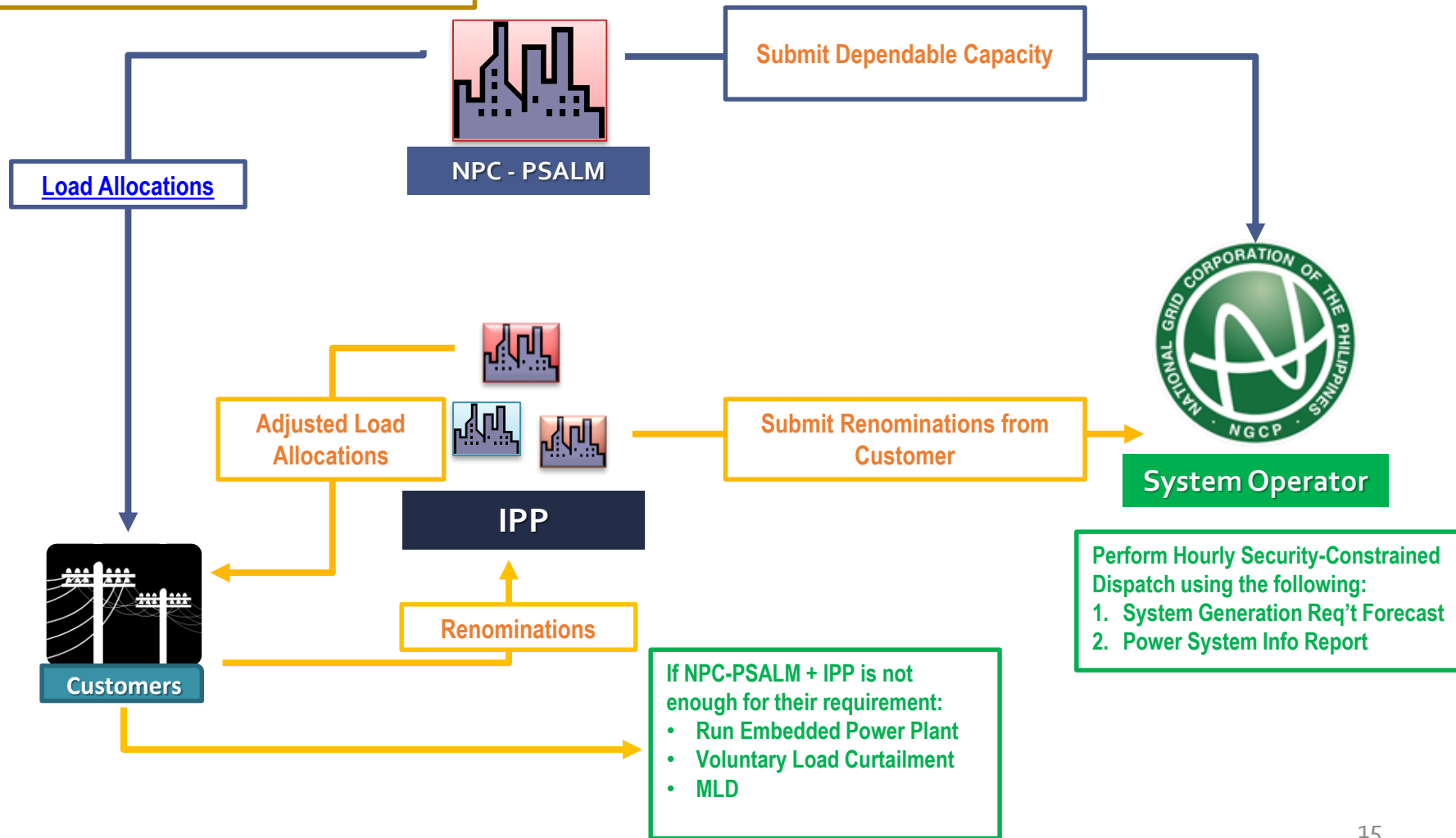


Expected System Condition	MORNING (0700 – 1200)	AFTERNOON (1300 – 1700)	EVENING (1800 – 1000)
System Load Forecast	1130 MW	1185 MW	1315 MW
Available Capacity	1178 MW	1717 MW	1682 MW
Gross Reserve	588	532	367
Required RR	45	47	53
Required CR	130	130	130
Required DR	105	105	105

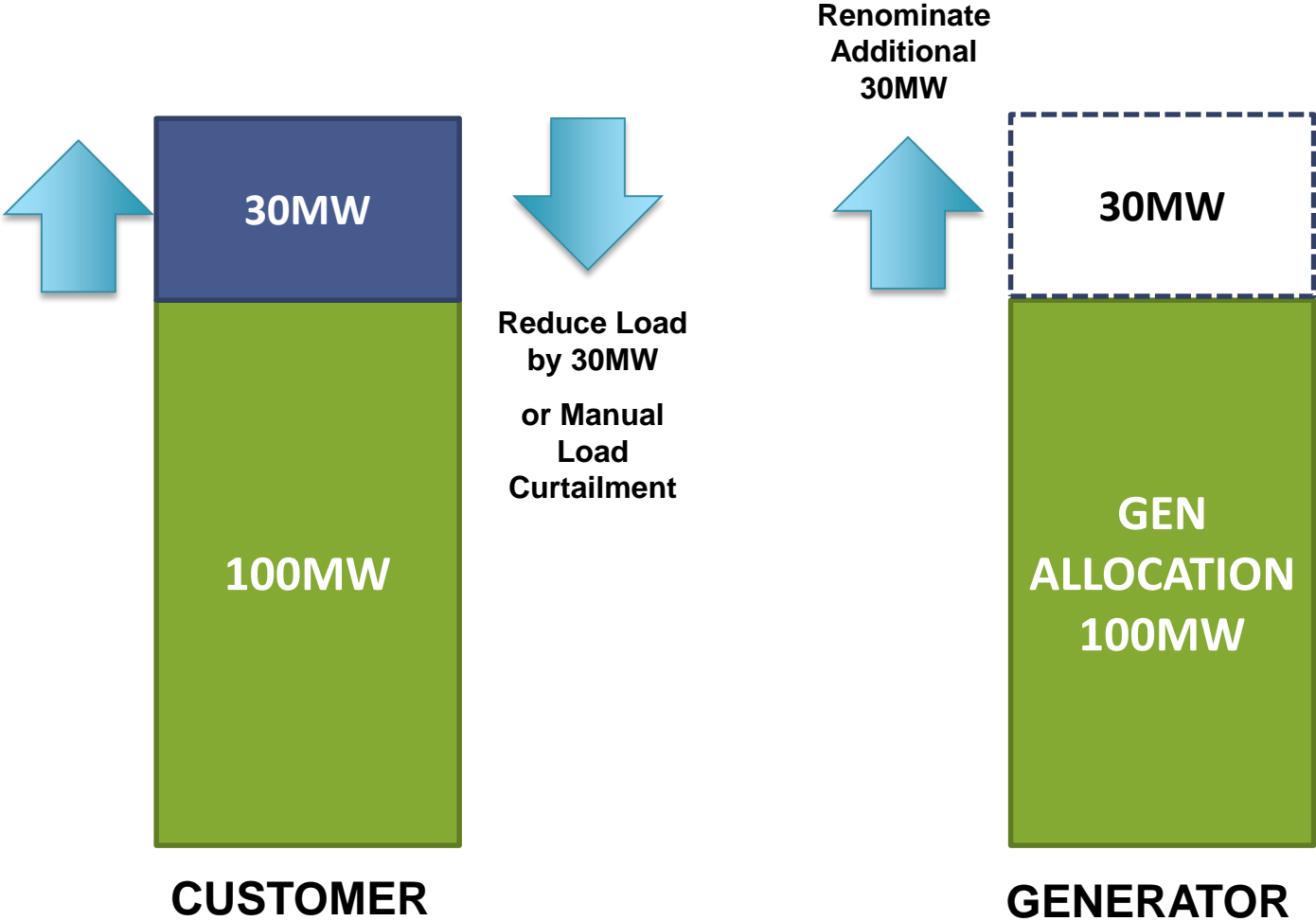
In-Day Dispatch Protocol

NOTE: NPC-PSALM Load-to-Maintain Matrix

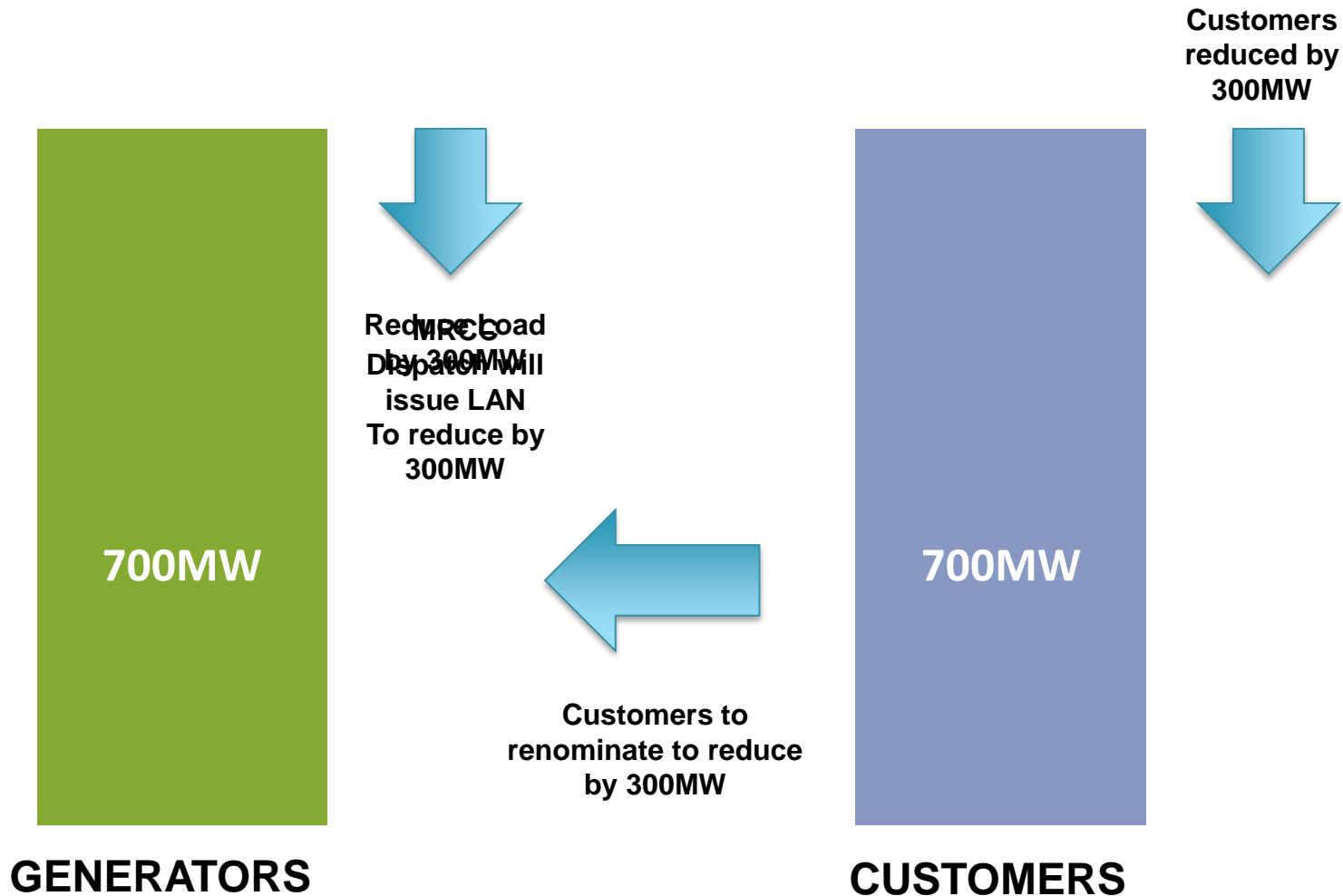
- Generation Deficiency
- Excess Generation



In-Day Dispatch **Load Curtailment**

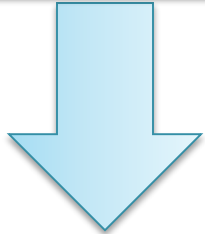


In-Day Dispatch Load Adjustment Notice (LAN)



Dispatch Priority Order

FOR DECREASE TO PMIN / SHUTDOWN



Diesel Plants including, IPPs, Small Diesel and Modular Plants



DIESEL

TSI, SEC, SMC and FDC - New Base Load Plants with corresponding Bilateral Contracts



IPP - COAL

MT. APO - Based load plant, renewable and with operational and environmental constraints.



GEOTHERMAL

STEAG - Currently has the least generation cost among Coal-Fired power plants



NPC - COAL

AGUS AND PULANGI - Least generation cost among all plants. Provider of RR & CR.



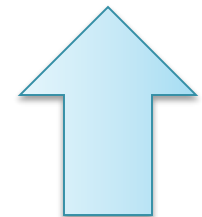
NPC HYDRO

SOLAR, SMALL HYDROS & BIOMASS - Must dispatch per RE Law for Small Hydro, Solar, Biomass, & Wind.



RE / VRE

FOR INCREASE OF LOAD TO PMAX



Dispatch Priority Order

(Decrease to Pmin/Shutdown)

FOR DECREASE TO P_{MIN} / SHUTDOWN



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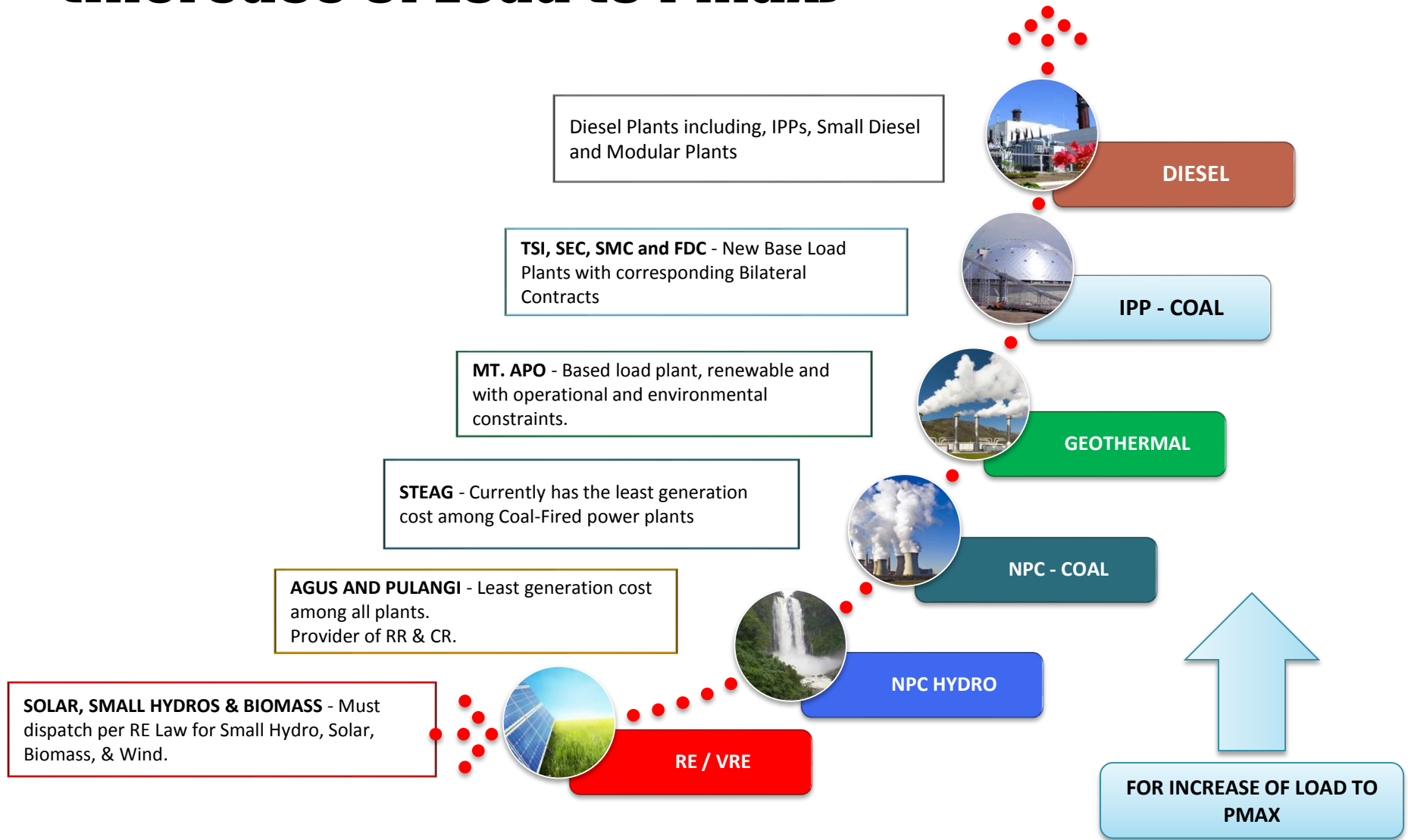
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RE / VRE



Dispatch Priority Order (Increase of Load to Pmax)





**Operatio
nal
Concerns**

Operational Concerns

- Manual Load Curtailment still exist even with the Excess Capacity
 - Issuance of Load Adjustment Notice still prevail due to inaccurate nomination of customers and generators
 - Non Compliance to Dispatch Instruction during Excess Generation
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Way Forward

- Looking forward for the commercial operation of WESM Mindanao to address the Operational Issues of Mindanao



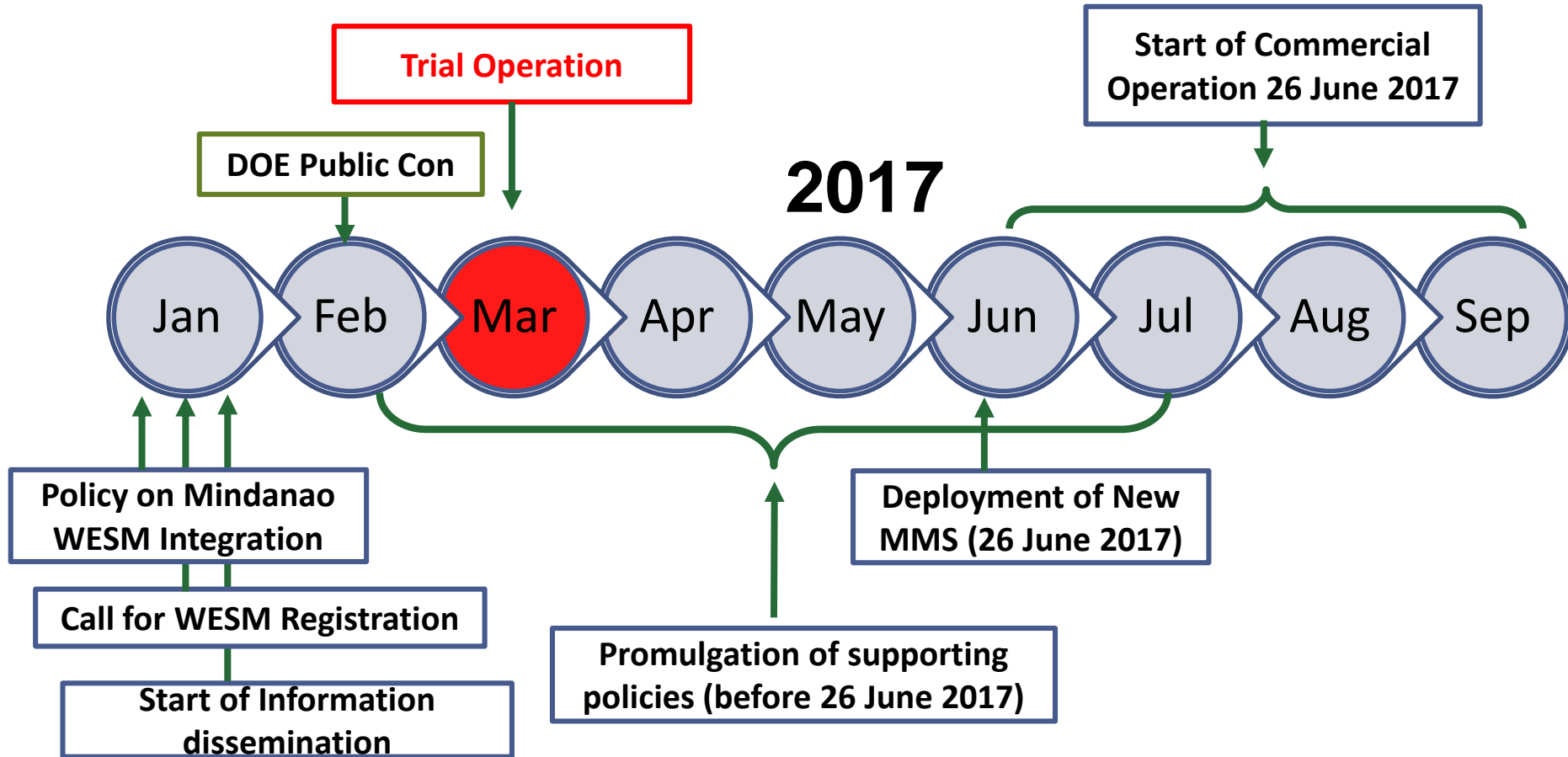
DC Section 8: Responsibilities of

NACP

The National Grid Corporation of the Philippines as the System Operator, Transmission Network Service Provider and WESM Metering Service Provider shall:

- 8.1 Coordinate with the Market Operator for the preparation and completion of procedures necessary for the efficient operation of the WESM Mindanao;
 - 8.2 Provide to the Market Operator necessary information and data relevant to the development of the market network model for the WESM Mindanao;
 - 8.3 Ensure the readiness and robustness of all its transmission networks and related facilities such as to comply with systems security requirements and other processes to allow non-discriminatory access and optimal dispatch of generating facilities in Mindanao;
 - 8.4 Ensure the readiness of all metering facilities in accordance with the WESM Rules;
 - 8.5 Ensure readiness and availability of relevant interfaces with the Market Operator for seamless workflow during the trial runs and the actual market operations;
 - 8.6 Complete the Visayas Mindanao interconnection by December 2020 to ensure the integration of Mindanao WESM into the Philippine WESM.
 - 8.7 Participate in all fora, conduct of trainings and other activities for the smooth integration of Mindanao the WESM Mindanao; and
 - 8.8 Assist in all activities relating to the integration of Mindanao in the WESM, as may be necessary, or, as may be directed by the DOE.
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WESM Implementation Timeline (Indicative)





NGCP

END OF PRESENTATION



*Stronger transmission
for a stronger nation*