PUBLIC CONSULTATION ON THE INTERIM MINDANAO ELECTRICITY MARKET (IMEM) RULES

Department of Energy
www.doe.gov.ph

N HOTEL
Kauswagan, Cagayan de Oro City
10 April 2013

OUTLINE

- ❑ Mindanao Roadmap
- ❑ Mindanao Power Situation
- ❑ Potential Additional Supply Sources

MINDANAO ROADMAP

Antecedent Facts

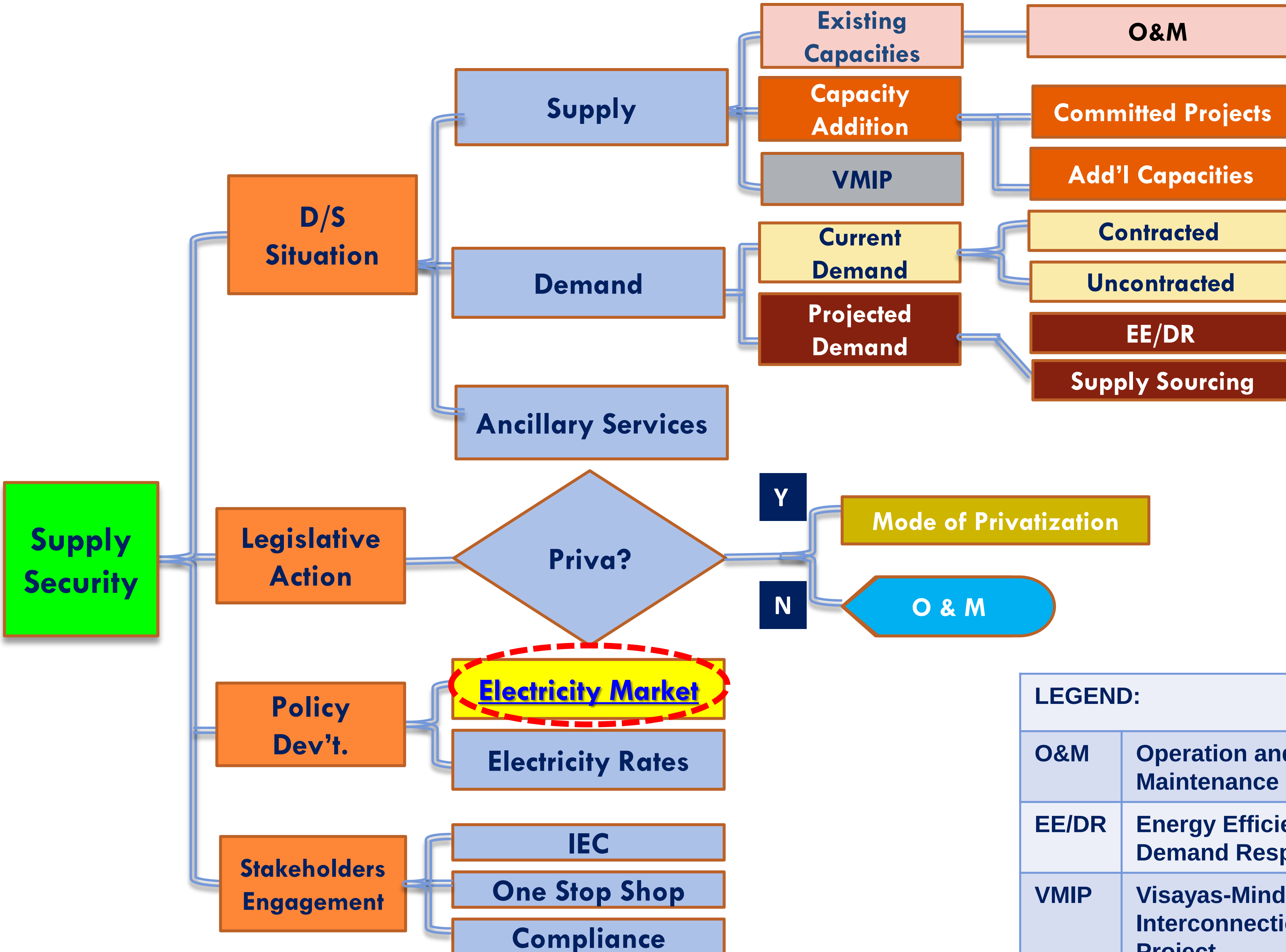
1. Existing generation capacities not enough to meet both the demand and reserve requirements
2. Low appetite for new power generation investments
3. Needs further improvements of transmission and distribution facilities
4. Load Customers e.g., DUs and industries, need to secure short- to long-term supply contracts
5. Mindanao 2020: Peace and Development Framework Plan, 2011-2030
6. Creation of Mindanao Power Monitoring Committee

Proposed Framework

Roadmap to Sustainable Power Supply in Mindanao

1. **Continuous assessment of the Demand and Energy situation and engagement of stakeholders**
2. **Special focus or studies will be undertaken and submit recommendations, on:**
   a. **Legislative Actions**
   b. **Policy Development**
3. **Each identified action or task will cover short-term, medium-term, and long-term measures**
   a. **Short-term will cover 2013 and 2014**
   b. **Medium-term will cover 2015 until 2017**
   c. **Long-Term will cover beyond 2017**

MINDANAO ROADMAP TO SUSTAINABLE POWER SUPPLY

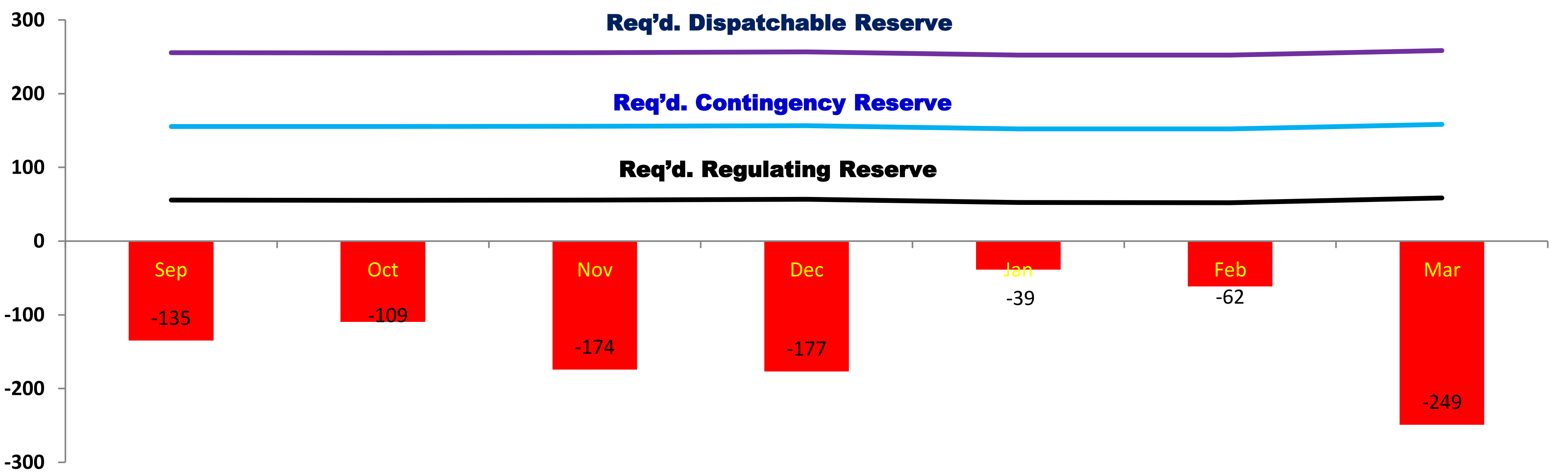


LEGEND:	
O&M	Operation and Maintenance
EE/DR	Energy Efficiency & Demand Response
VMIP	Visayas-Mindanao Interconnection Project

MINDANAO POWER SITUATION

Mindanao Grid Historical Supply-Demand

FUEL TYPE	2012 Supply-Demand, MW				2013 Supply-Demand, MW		
	Sep	Oct	Nov	Dec	Jan	Feb	Mar
COAL	202	200	201	200	201	202	200
OIL-BASED	296	324	317	292	313	343	299
GEOTHERMAL	90	90	69	90	91	95	96
HYDROELECTRIC	667	660	634	658	662	604	616
TOTAL CAPACITY	1,255	1,275	1,220	1,240	1,267	1,243	1,211
Demand + Curtailed Load	1,390	1,384	1,394	1,417	1,306	1,305	1,460
GROSS RESERVE	-135	-109	-174	-177	-39	-62	-249
Req'd. Regulating Reserve	56	55	56	57	52	52	58
Req'd. Contingency Reserve	100	100	100	100	100	100	100
Req'd. Dispatchable Reserve	100	100	100	100	100	100	100



Causes of Supply Deficit (March 2013)

- Limited Hydro capability (Especially during dry months)
  - Agus 4 Unit 2 (52.7 MW) with average available capacity of 40 MW, on shutdown due to low forebay elevation from 9 to 22 March 2013
  - Agus 7 Unit 1 (27 MW) on limited capability (12 MW) due to low forebay elevation since 20 March 2013
- Planned outages of Large Power Plant Unit
  - Pulangi IV Unit 1 (85 MW) with available capacity of 75 MW, on Planned Outage from 1 to 26 March 2013
- Non-operation of power plant
  - IDPP (100 MW) with contracted capacity of 98 MW, on rehabilitation, To be operational in April 2013 at initial capacity of 15 MW
- Un-expected/Forced Outages
  - Agus 6 Unit 1 (25 MW) with average available capacity 17 MW, out since 4 January 2013 due to guide bearing problem. ETC: 10 April 2013
  - TMI 1 Unit 2 (50.16 MW) on forced outage since 18 March 2013. No ETC, most of the equipment for repair will be coming from Denmark

Causes of Supply Deficit (April 2013)

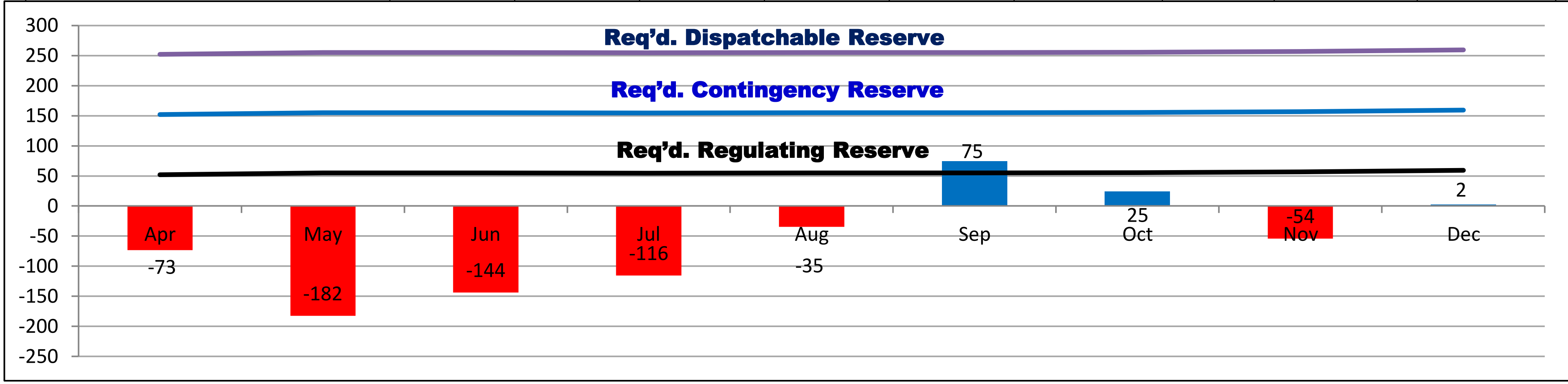
- Limited Hydro capability (Especially during dry months)
  - Agus 7 Unit 2 (27 MW) on economy shutdown due to low water elevation from 6 to 9 April 2013
- Planned outages of Large Power Plant Unit
  - Pulangi IV Unit 3 (85 MW) with available capacity of 75 MW, on Planned Outage from 1 April 2013 to 1 May 2013
  - Agus 6 Unit 4 (50 MW) with available capacity of 40 MW, on planned outage from 8 to 10 April 2013
  - Agus 2 Unit 1 (60 MW) with available capacity of 40 MW, on planned outage from 2 to 20 April 2013
- Non-operation of power plant
  - IDPP (100 MW) with contracted capacity of 98 MW, on rehabilitation, To be operational in April 2013 at initial capacity of 15 MW
    - 5 MW on 15 April 2013, to be followed by another 2 units (5 MW each)
- Un-expected/Forced Outages
  - TMI 1 Unit 2 (50.16 MW) on forced outage since 18 March 2013. No ETC, most of the equipment for repair will be coming from Denmark

Note: Plant Outage as of 8 April 2013

2013 Mindanao Grid Supply-Demand Projections

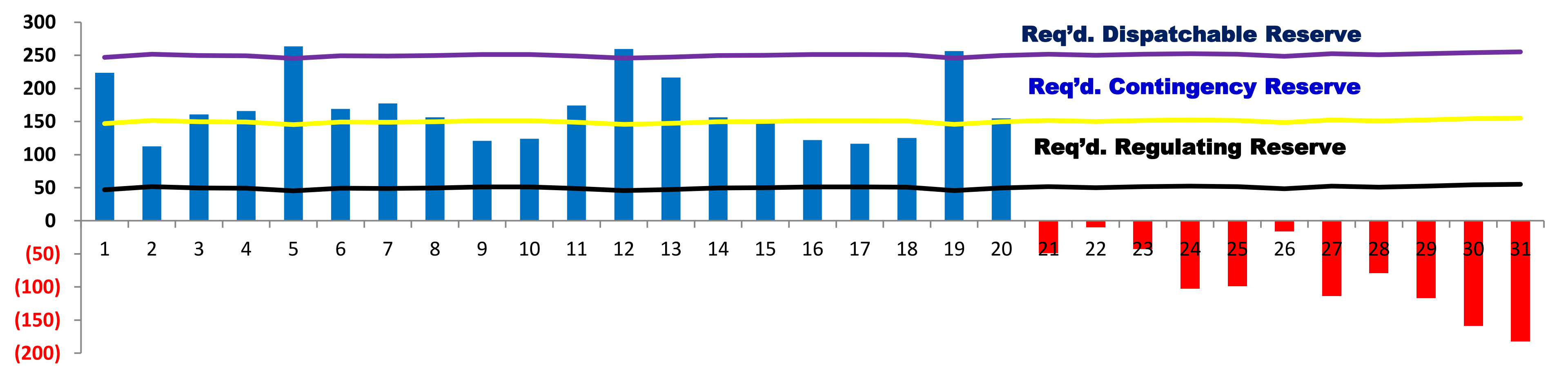
With Iligan Diesel Power Plant (IDPP)

	April	May	June	July	August	September	October	November	December
Coal	200	200	200	200	200	200	200	200	200
Oil-based	289	325	309	307	308	314	308	309	310
IDPP	15	30	50	50	60	98	98	98	98
Geothermal	93	90	92	92	92	91	92	92	92
Hydro	629	550	585	595	683	747	717	670	787
Available Capacity	1226	1195	1236	1243	1342	1450	1415	1369	1486
Projected Demand	1299	1377	1380	1359	1377	1375	1390	1423	1484
System Gross Reserve	-73	-182	-144	-116	-35	75	25	-54	2
Req'd. Regulating Reserve	52	55	55	54	55	55	56	57	59
Req'd. Contingency Reserve	100	100	100	100	100	100	100	100	100
Req'd. Dispatchable Reserve	100	100	100	100	100	100	100	100	100



Mindanao Grid Daily Operating Program in May 2013

In Megawatts, MW	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri
Dependable Capacity	1616																														
Declared Dependable Capacity	1399																			1394	1244			1205	1195						
Coal	200																														
Diesel - NPC	160																								150						
TMI	190																														
IDPP	30																														
Geothermal	90																														
Hydroelectric	729																			724	574			535							
Projected Demand	1175	1287	1238	1233	1135	1230	1222	1243	1278	1275	1225	1140	1183	1243	1247	1277	1282	1274	1143	1239	1293	1254	1287	1308	1294	1211	1309	1274	1312	1354	1377
Gross Reserve	224	112	161	166	264	169	177	156	121	124	174	259	216	156	152	122	117	125	256	155	(49)	(10)	(43)	(103)	(99)	(16)	(114)	(79)	(117)	(159)	(182)
Required Regulating	47	51	50	49	45	49	49	50	51	51	49	46	47	50	50	51	51	51	46	50	52	50	51	52	52	48	52	51	52	54	55
Required Contingency	100																														
Required Dispatchable	100																														



Rotating Brownouts per EC Customers

EC NAME	2012 Average Brownouts (in Hours)	2013 (in Hours)
	4th Quarter	March
REGION 9		
ZAMCELCO	4	8
ZANECO	0	1.5
ZAMSURECO I	4	8
ZAMSURECO II	2	2-3
REGION 10		
FIBECO	0	0
MOELCI I	0.5	3
MOELCI II	4	6
MORESCO I	0	0
MORESCO II	4	5
LANECO	2	5
BUSECO	0	2
CAMELCO	0.5	0.5
REGION 11		
DANECO	4	2-3
DASURECO	4	1
DORECO	1	4

Rotating Brownouts per EC Customers

EC NAME	2012 Average Brownouts (in Hours)	2013 (in Hours)
	4th Quarter	March
REGION 12		
SOCOTECO I	1	3
SOCOTECO II	2	4
COTELCO	0.75	4
SUKELCO	1	2-3
CARAGA		
ANECO	0.5	1.5
SURNECO	1.5	2-4
ASELCO	4	4
SURSECO I	2	8
SURSECO II	0.5	1
SIARELCO	0.5	2
ARMM		
LASURECO	2	NS
MAGELCO	4	8

Note: NS – No Submission

Mindanao ECs Supply and Demand

MARCH 2013

EC NAME	2013 Actual Peak Demand (Coincident)	EXISTING CONTRACTED SUPPLY				DEFICIT MW	OTHER CONTRACTED CAPACITY				SURPLUS /DEFICIT MW
		PSALM MW	TMI MW	OTHER MW	TOTAL CAPACITY MW		IDPP MW	OTHER MW	MODULAR GENSET MW	TOTAL CAPACITY MW	
REGION 9											
ZAMCELCO	83.5	43.3	18.0		61.3	-22.2	18.0		10.0	28.0	5.8
ZANECO	30.0	15.8	9.0		24.8	-5.2			10.0	10.0	4.8
ZAMSURECO I	34.1	12.8	5.0		17.8	-16.4	5.0	5.0		10.0	-6.4
ZAMSURECO II	22.0	8.0	4.0		12.0	-10.0			10.0	10.0	0.0
Total Region 9	**169.6**	**79.9**	**36.0**	**0.0**	**115.9**	**-53.8**	**23.0**	**5.0**	**30.0**	**58.0**	**4.2**
REGION 10											
FIBECO	30.0	23.7		9.5	33.2	3.2					3.2
MOELCI I	9.0	3.6	2.0		5.6	-3.4		3.6	3.0	6.6	3.2
MOELCI II	25.0	10.4	3.0		13.4	-11.6		10.0		10.0	-1.6
MORESCO I	54.0	48.0		6.0	54.0	0.0			15.0	15.0	15.0
MORESCO II	20.0	6.8			6.8	-13.2			15.0	15.0	1.8
LANECO	13.0	5.0			5.0	-8.0			5.0	5.0	-3.0
BUSECO	24.0	9.0	5.0		14.0	-10.0			10.0	10.0	0.0
CAMELCO					0.0	0.0					
Total Region 10	**175.0**	**106.5**	**10.0**	**15.5**	**132.0**	**-43.0**		**13.6**	**48.0**	**61.6**	**18.6**
REGION 11											
DANECO	80.0	30.1	15.0		45.1	-34.9		13.0	22.0	35.0	0.1
DASURECO	42.0	15.9	12.0		27.9	-14.1			14.0	14.0	-0.1
DORECO	17.0	5.4	6.0		11.4	-5.6			3.0	3.0	-2.6
Total Region 11	**139.0**	**51.4**	**33.0**	**0.0**	**84.4**	**-54.6**		**13.0**	**39.0**	**52.0**	**-2.6**

Note: No submissions from CAMELCO

Mindanao ECs Supply and Demand

MARCH 2013

EC NAME	2013 Actual Peak Demand (Coincident)	EXISTING CONTRACTED SUPPLY				DEFICIT MW	OTHER CONTRACTED CAPACITY				SURPLUS /DEFICIT MW
		PSALM MW	TMI MW	OTHER MW	TOTAL CAPACITY MW		IDPP MW	OTHER MW	MODULAR GENSET MW	TOTAL CAPACITY MW	
REGION 12											
SOCOTECO I	33.0	32.3	4.0		36.3	3.3			15.0	15.0	18.3
SOCOTECO II	112.0	52.0	30.0		82.0	-30.0	30.0		20.0	50.0	20.0
COTELCO	30.0	13.6	8.0		21.6	-8.4			10.0	10.0	1.6
COTELCO (PALMA)	11.0	4.9			4.9	-6.1			5.0	5.0	-1.1
SUKELCO	21.0	10.0	5.0		15.0	-6.0			6.0	6.0	0.0
Total Region 12	**207.0**	**112.8**	**47.0**	**0.0**	**159.8**	**-47.2**	**30.0**		**56.0**	**86.0**	**38.8**
CARAGA											
ANECO	52.0	22.9	15.0		37.9	-14.1	15.0			15.0	0.9
SURNECO	26.0	10.7	8.0		18.7	-7.3			15.0	15.0	7.7
ASELCO	24.0	6.9	5.0		11.9	-12.1	10.0		2.0	12.0	-0.1
SURSECO I	8.0	3.7	2.0		5.7	-2.3			5.0	5.0	2.7
SURSECO II	11.5	4.3	5.0		9.3	-2.2		5.0		5.0	2.8
SIARELCO	3.3	2.7			2.7	-0.6			0.5	0.5	-0.1
Total CARAGA	**124.8**	**51.2**	**35.0**	**0.0**	**86.2**	**-38.6**	**25.0**	**5.0**	**22.5**	**52.5**	**13.9**
ARMM											
LASURECO					0.0	0.0					0.0
MAGELCO	9.8	3.7			3.7	-6.1			3.5	3.5	-2.6
Total ARMM	**9.8**	**3.7**	**0.0**	**0.0**	**3.7**	**-6.1**			**3.5**	**3.5**	**-2.6**
Total	**825.2**	**405.5**	**161.0**	**15.5**	**582.0**	**-243.2**	**78.0**	**36.6**	**199.0**	**313.6**	**70.4**

Note: No submissions from LASURECO

POTENTIAL
ADDITIONAL SUPPLY SOURCES

List of Embedded Generator

Off-taker	Plant Name	Fuel Type	Installed Capacity (MW)	Location
DAVAO LIGHT	Bajada DPP	Oil-based	59	Davao City
	Talomo HEP	Hydro	5	Mintal, Davao City
	Sibulan HEP	Hydro	42	Davao del Sur
	Sub-total		**105**	
CEPALCO	Minergy 1	Oil-based	19	Cagayan de Oro
	Minergy 2	Oil-based	28	Cagayan de Oro
	Agusan Hep	Hydro	2	Bukidnon
	Bubunawan HEP	Hydro	7	Bukidnon
	Cabulig HEP	Hydro	8	Misamis Oriental
	Solar PV	Solar	1	Cagayan de Oro
	Sub-total		**64**	
COLIGHT	Colight DPP	Oil-based	10	Cotabato
	Sub-total		**10**	
FIBECO	Crystal Sugar	Biomass	21	Bukidnon
	KEG DPP	Oil-based	3	Bukidnon
	Sub-total		**24**	
Total Embedded			**203**	

Note:

- **Embedded generator not included on the total capacity in the main grid**
- ***Bubunawan HEPP, under rehabilitation (damaged by Typhoon Sendong), target completion Dec. 2013**
- **Cabulig Mini Hydro started commercial operation on 24 September 2012**
- **KEG DPP started commercial operation on 25 August 2012**

Potential Voluntary Load Curtailment Participants

No.	Company Name	Self-Generating Capacity (MW)
1	DOLE Philippines, Inc.	12.6
2	Philippine Sinter Corporation	7.5
3	Asia Brewery Inc. (Cagayan De Oro)	7.0
4	SM City-Cagayan de Oro	6.0
5	SM City-Davao	6.0
6	LTS Malls, Inc./ NCCC Mall - Davao	5.9
7	Del Monte Phils., Inc.	5.7
8	Coca-Cola Bottlers, Inc. – CCBPI – NMD (Davao)	5.5
9	Fit Mart Mall, Inc.	5.3
10	Philippine International Development, Inc. (PHIDCO)	4.8
11 to 1,121	Various	116.7
	TOTAL	**183.0**

Source: PSALM

THANK YOU and MABUHAY !

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