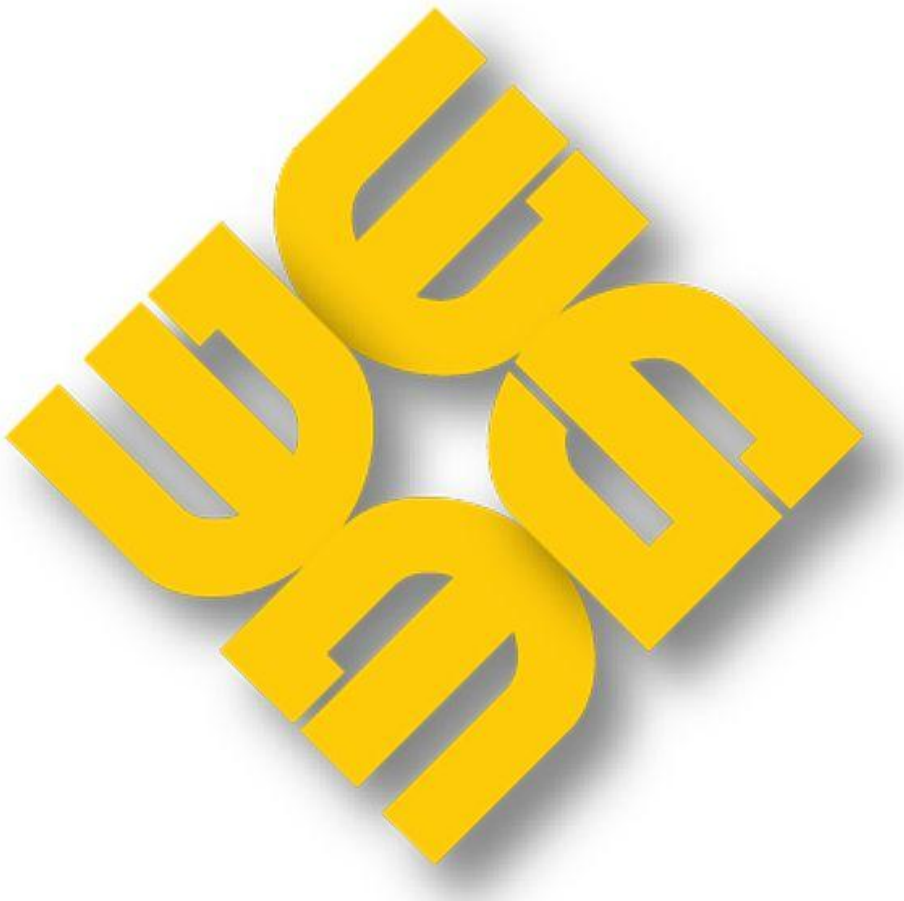
MONTHLY MARKET ASSESSMENT REPORT

For the Billing Period 26 June to 25 July 2011



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Market Assessment Highlights

This Report highlights the results of the integrated Luzon and Visayas market operation for the period 26 June to 25 July 2011 and how the market performed compared with the previous billing month.

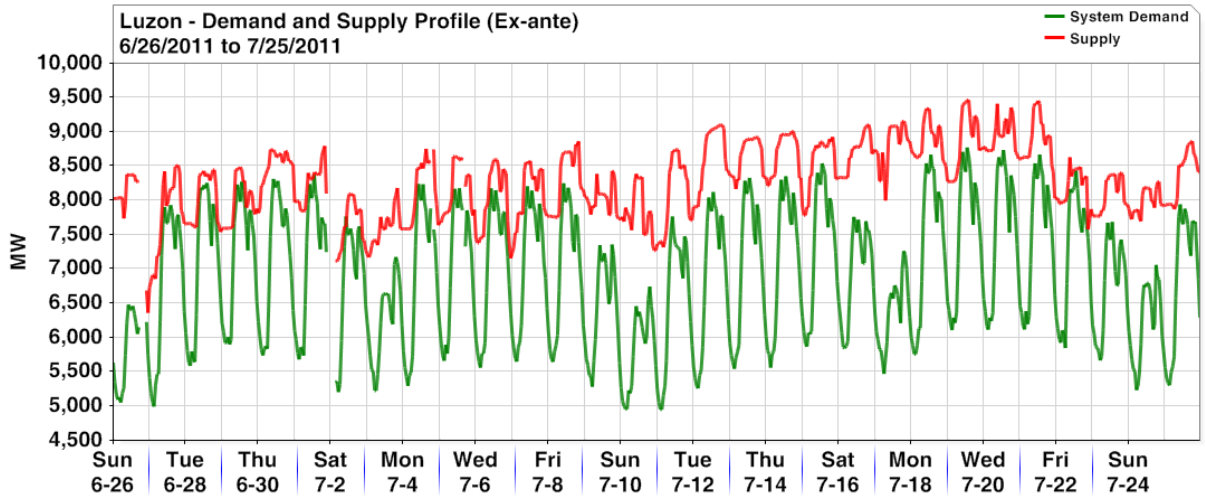
Supply and Demand Situation

The monthly average system demand[1] (ex-ante) in July 2011 decreased slightly by 0.1 percent to 6,904 MW with the hourly demand ranging from a minimum 4,951 MW to a maximum 8,773 MW *(Table 1)*. The regional average demand in Luzon decreased by 0.2 percent from 5,836 MW to 5,825 MW, while the average demand in Visayas increased by 0.8 percent from 1,066 MW to 1,075 MW *(Table 2)*.

The monthly average supply[2] in July also decreased from the previous billing month by 1.6 percent to 8,288 MW *(Table 1)*. Among others, the decrease in supply was brought about by the outages of major coal and natural gas plants in Luzon during the the billing month. On a per region, the average supply in Luzon region decreased by 2.2 percent to 6,740 MW, while the average supply in Visayas increased by around 1.3 percent to 1,541 MW *(Table 3)*.

The resulting margin between the supply and demand in July was calculated at an average of 1,384 MW (minimum at negative 155 MW and maximum at 3,048 MW). This was lower by 8.1 percent from the previous billing month's average margin of 1,506 MW *(Table 1)*. Tight supply and demand condition was experienced in the first half and particular trading days (e.g. July 22) in the latter part of the billing month.

Figure 1. Demand and Supply (Ex-ante), July 2011



Note: "Null" values were used during the trading intervals under market intervention in either or both the Luzon and Visayas regions.

[1] The system demand is equal to the total scheduled MW of all load resources in Luzon and Visayas plus losses.
[2] The supply is equal to the total offered capacity of all generator resources in Luzon and Visayas adjusted for any security limit provided by the System Operator. Other constraints considered during MMS simulation such as generator offered ramp rates may result to lower supply.

Table 1. Demand and Supply Summary (Ex-ante), June and July 2011

	June 2011 (In MW)			July 2011 (In MW)			% M-on-M Change (June 2011 - July 2011)		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
Demand	8,819	4,578	6,913	8,773	4,951	6,904	(0.5)	8.1	(0.1)
Supply	9,748	7,163	8,419	9,468	6,362	8,288	(2.9)	(11.2)	(1.6)
Supply/Demand Variance	3,703	72	1,506	3,048	(155)	1,384	(17.7)	(314.4)	(8.1)

Note: The derived values were non-coincident.

Table 2. Regional Demand Summary (Ex-ante), June and July 2011 (Non Coincident)

	June 2011 (In MW)			July 2011 (In MW)			% M-on-M Change (June 2011 - July 2011)		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
Luzon	7,458	3,750	5,836	7,403	4,105	5,825	(0.7)	9.5	(0.2)
Visayas	1,363	689	1,066	1,419	712	1,075	4.1	3.4	0.8

Note: The derived values were non-coincident.

Table 3. Regional Supply Summary (Ex-ante), June and Jul 2011 (Non Coincident)

	June 2011 (In MW)			July 2011 (In MW)			% M-on-M Change (June 2011 - July 2011)		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
Luzon	8,129	5,784	6,895	7,882	4,923	6,740	(3.0)	(14.9)	(2.2)
Visayas	1,693	1,310	1,522	1,681	1,339	1,541	(0.7)	2.2	1.3

Note: The derived values were non-coincident.

Plant Outages

The capacity on outage in Luzon (during ex-ante) averaged 1,532 MW ranging from 906 MW to 3,182 MW *(Figure 2, Table 4)*. The coal plants Pagbilao 1 and QPPL were placed on deactivated shutdown during the first week of the billing month *(Pagbilao 1 on June 26-27 and QPPL on June 26-29)* due to the multiple tripping of lines at Tayabas 500kV and 230kV substation on June 26. QPPL also went on emergency shutdown on July 2-3 due to equipment-related concerns. Two other coal plants encountered forced outages as well due to equipment-related concerns, namely: Sual 1 on July 10-12 and Calaca 2 on July 1-8 and July 18 onward.

The other unit of Sual *(Unit 2)* underwent annual preventive maintenance starting July 22 *(based on GOMP[3], the unit is scheduled to undergo annual preventive maintenance on August 23-September 21, 2011)*.

On separate occasions, three units of the natural gas plant Sta. Rita underwent maintenance on June 25-26 (Sta. Rita 3), July 1-4 (Sta. Rita 1) and on July 9-10 (Sta. Rita 4). Ilijan Block A also underwent maintenance on July 2-19 *(not part of the GOMP)*, while Ilijan Block went on forced outage on July 22 due to trouble at its main transformers.

[3] Refers to the 2011 Grid Operating and Maintenance Program provided by the National Grid Corporation of the Philippines (NGCP) on January 2011.

Figure 2. Plant Outage Capacity, July 2011 - Luzon

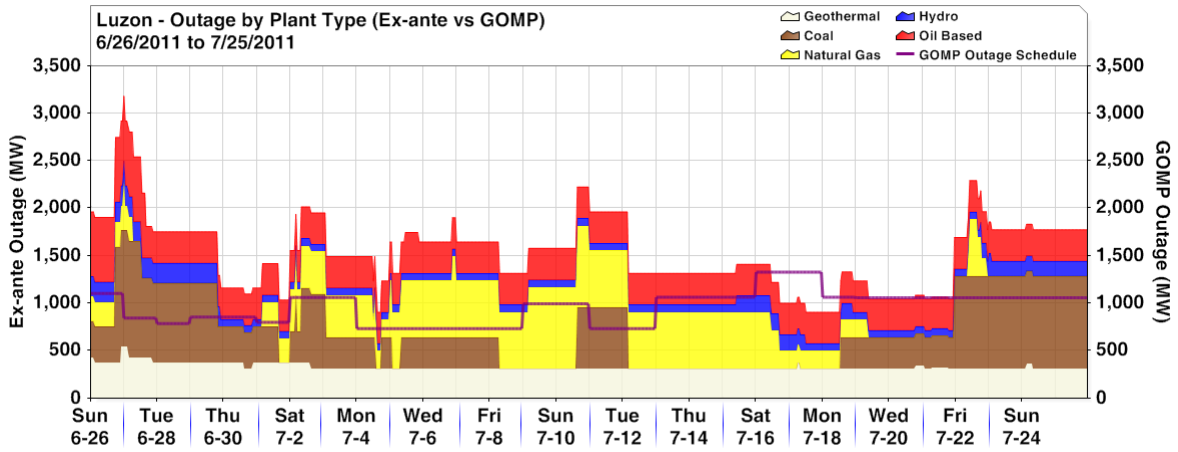


Table 4. Luzon Regional Outage Summary (Ex-ante), June and July 2011 (Non Coincident)

Resource Type	June 2011 (In MW)			July 2011 (In MW)			% M-on-M Change (June 2011 - July 2011)		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
Coal	712	0	335	1,223	0	408	71.8		21.8
Natural Gas	870	0	76	863	0	335	(0.8)		341.6
Geothermal	428	308	372	544	308	325	27.1	0.0	(12.5)
Hydro	952	76	375	241	76	110	(74.7)	0.0	(70.6)
Oil Based	682	332	464	682	332	353	0.0	0.0	(23.9)
TOTAL	2,057	959	1,622	3,182	906	1,532	54.7	(5.5)	(5.6)

Note: The derived values by resource type were non-coincident. The total values were derived based on aggregate hourly outage.

In Visayas, the capacity on outage averaged at 105 MW (minimum of 46 MW and maximum of 171 MW) *(Figure 3, Table 5)*. The coal plant Cebu TPP I went on forced outage from June 30 to July 2 while geothermal plant Northern negros was placed on maintenance outage starting July 1 for the conduct of plant rectfication.

Figure 3. Plant Outage Capacity, July 2011 - Visayas

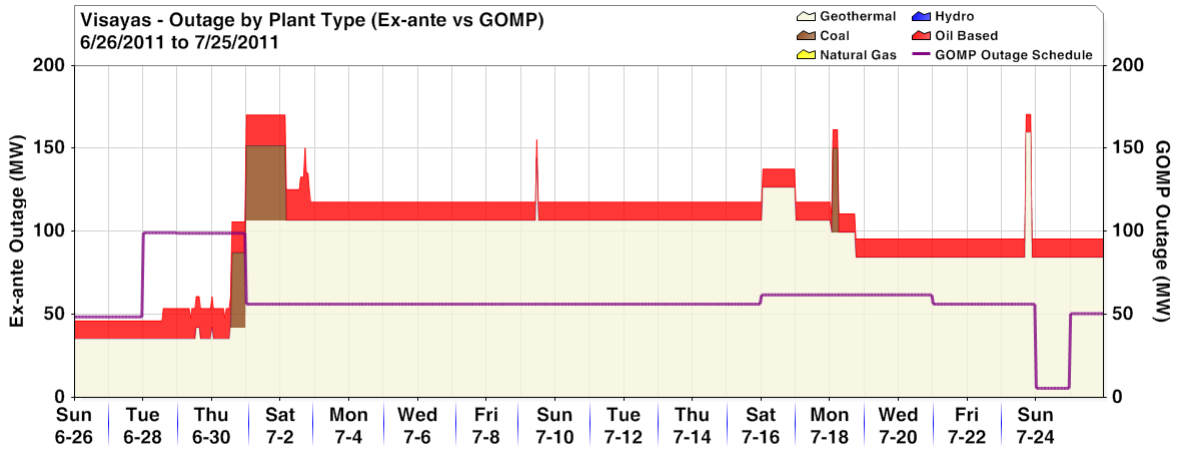


Table 5. Visayas Regional Outage Summary (Ex-ante), June and July 2011 (Non Coincident)

Resource Type	June 2011 (In MW)			July 2011 (In MW)			% M-on-M Change (June 2011 - July 2011)		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
Coal	148	0	43	51	0	3	(65.7)		(93.8)
Geothermal	117	0	30	160	35	91	36.8		197.0
Hydro	0	0	0	0	0	0			
Oil Based	24	11	12	44	11	12	81.3	0.0	(2.1)
TOTAL	204	11	86	171	46	105	(16.4)	319.0	23.0

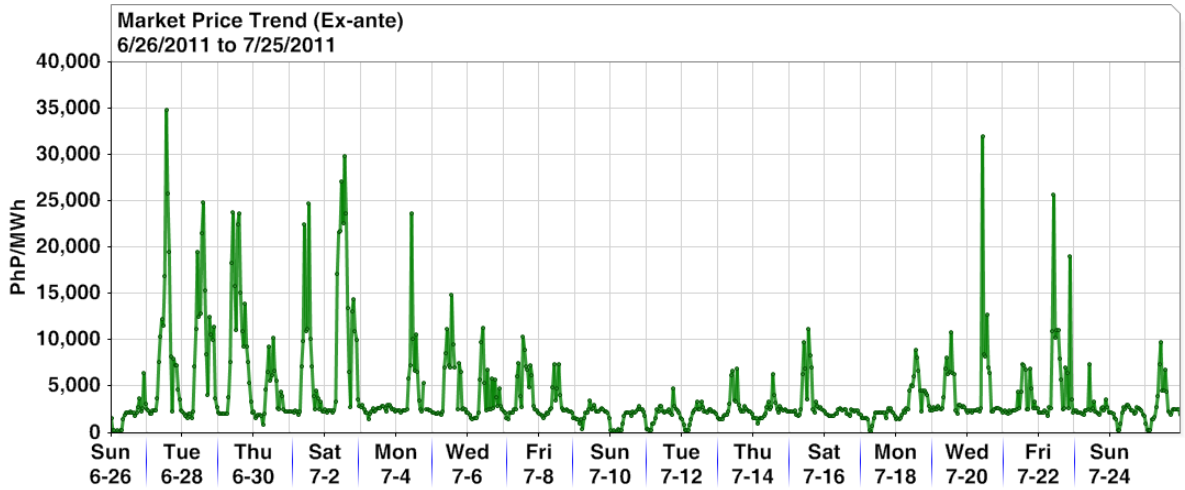
Note: The derived values by resource type were non-coincident. The total values were derived based on aggregate hourly outage.

Market Price Outcome

The monthly average price[4] in July increased by 15.3 percent to PhP4,485/MWh from PhP3,890 in June. Higher prices reaching a maximum of PhP34,841/MWh were seen in the early and latter parts of the billing month where tight supply and demand condition prevailed. The plant outages as discussed in the previous section and the continued capacity gap contributed, among others, to the tight supply and demand condition.

Looking at regional prices, the calculations showed similar outcomes for Luzon and Visayas. The average price in Luzon increased by 15 percent from PhP3,895/MWh to PhP4,480/MWh, while the average price in Visayas increased by 16.8 percent from PhP3,864/MWh to PhP4,513/MWh *(Table 6)*. Regional prices reached a high of PhP34,841/MWh in Luzon and PhP59,083/MWh on July 22 (2200H) in Visayas. Several factors led to the high regional prices, which will be discussed later in the report.

Figure 4. Market Price Trend, July 2011



[4] The market prices were represented by the following: (i) ex-ante load weighted average price (LWAP) for trading intervals without pricing error during ex-ante, (ii) ex-post LWAP for trading intervals with pricing error during ex-ante but without pricing error during ex-post, (iii) LWAP based on the market re-run result for trading intervals with pricing error both during ex-ante and ex-post, (iv) administered price for loads for trading intervals under market intervention, and (v) estimated load reference price (ELRP) for trading intervals where the ERC-approved Price Substitution Mechanism (PSM) was applied.

Table 6. ***Market Price Summary, June and July 2011***

	June 2011 (In PhP/MWh)			July 2011 (In PhP/MWh)			% M-on-M Change (June 2011 - July 2011)		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
Luz-Viz	25,866	0	3,890	34,841	0	4,485	34.7		15.3
Luzon	25,866	0	3,895	34,841	0	4,480	34.7		15.0
Visayas	25,866	0	3,864	59,083	0	4,513	128.4		16.8

The frequency of market prices falling within the price levels of PhP5,000/MWh and below decreased from 81.9 percent of the time in June to 79.1 percent in July. Prices falling within PhP5,000/MWh to PhP10,000/MWh also decreased from 13.4 percent to 12.3 percent. On the other hand, the frequency of prices above PhP10,000/MWh increased from 4.7 percent to 8.7 percent. *(Figure 5 and Table 7)*.

Figure 5. ***Market Price Distribution, June and July 2011***

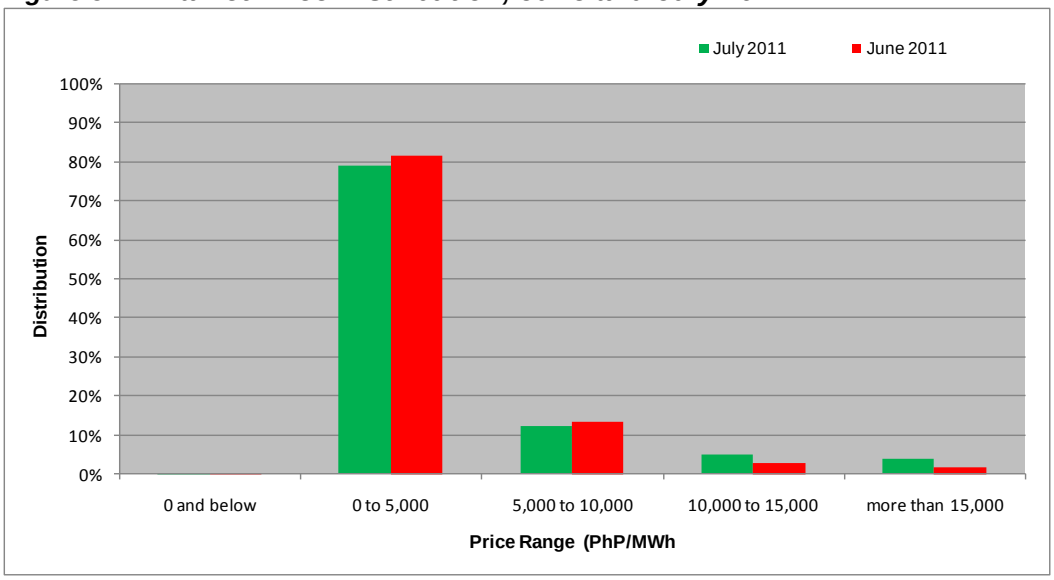


Table 7. ***Market Price Distribution, June and July 2011***

Price Range (PhP/MWh)	% Distribution	
	June. 2011	July. 2011
0 and below	0.3	0.1
0 to 5,000	81.6	79.0
5,000 to 10,000	13.4	12.3
10,000 to 15,000	3.0	4.9
more than 15,000	1.7	3.8

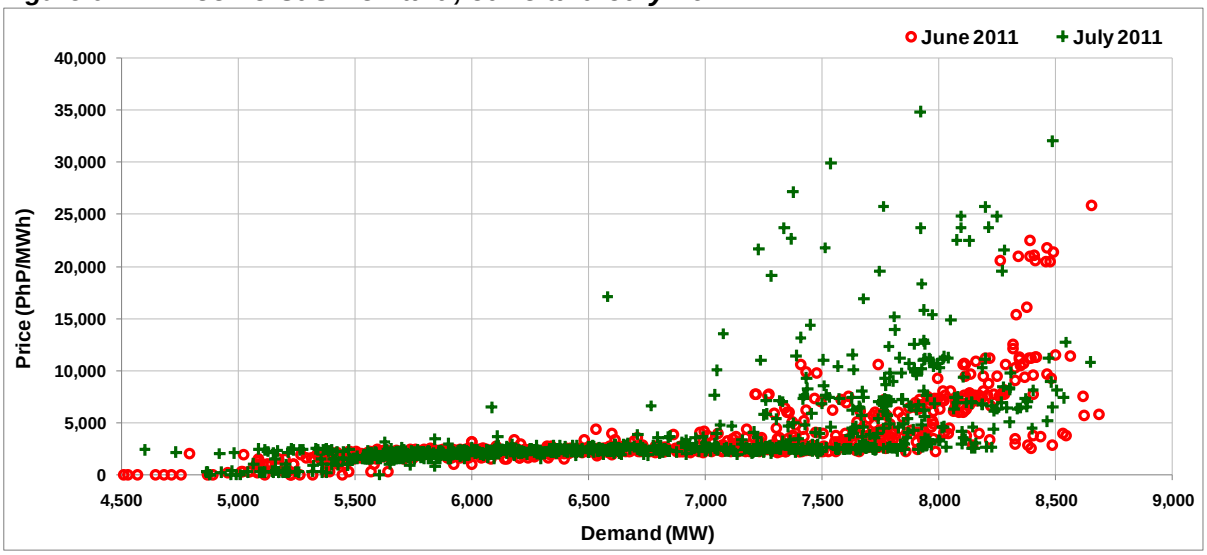
Unlike the previous month's results, the average price in Luzon was 0.7 percent lower than the average price in Visayas *(Table 8)*.

Table 8. ***Regional Price Summary, June and July 2011***

	Luzon (In PhP/MWh)			Visayas (In PhP/MWh)			% Difference		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
July 2011	34,841	0	4,480	59,083	0	4,513	69.6		0.7
June 2011	25,866	0	3,895	25,866	0	3,864	0.0		(0.8)

Figure 6 shows the correlation of the hourly prices and demand in July 2011 and the previous billing month of June. In general, both periods showed significant positive relationship between price and demand. Compared with the previous month, however, the correlation was less in July. It is noted that with respect to prices above PhP10,000/MWh in July, the correlation significantly diminished. This indicates that the high prices in July are driven mainly by limited supply brought about by plant outages and continued capacity gap.

Figure 6. Price versus Demand, June and July 2011



High Price Analysis

June 27, 1400H

In this trading interval, system-wide pricing error was issued during ex-ante due to artificial load dropping (Value of Loss Load) at the MERALCO interchange substations in Araneta, Duhat and Zapote. The ex-post market prices, which cleared at PhP35,000/MWh (oil-based plant Limay as marginal generator) was used in the settlement of spot transactions. It is noted that the coal plant QPPL remained on deactivated shutdown, which contributed to lower supply condition experienced in this trading interval.

July 20, 1100H

Similarly, in this trading interval, system-wide pricing error was issued during ex-ante due to artificial load dropping (Value of Loss Load) at the MERALCO interchange substation in Zapote. Also, a localized pricing error was issued in Visayas during ex-post due to a base case constraint violation at Maasin transformer. In the settlement, spot transaction in Luzon was settled based on the ex-post market result while the spot transaction in Visayas was settled based on the market re-run price outcome. Both ex-post and re-run results cleared at PhP30,000/MWh with coal plant KSPC as marginal generator. A small margin between supply and demand prevailed in this trading interval due, among others, to (i) relatively high demand and (ii) limited capacity offer from coal plant Sual brought about by coal constraints.

July 22, 2200H

Ex-ante market price in this trading interval cleared at the bid cap of PhP62,000/MWh with oil-based plant Bauang as marginal generator. Tight supply and demand condition prevailed in this trading interval due, among others, to the plant outages *(including the annual preventive maintenance of coal plant Sual Unit 2)* and the absence of offers from several oil-based and hydro plants. The impact of this high clearing price, however, was felt in Visayas only *(the ex-ante LWAP in Visayas was calculated at PhP59,083/MWh in this trading interval)*. A localized pricing error *(i.e. N-1 contingency violation at the MERALCO substation in Duhat)* was issued in Luzon during ex-ante, thus, the ex-post market prices was used in the settlement of spot transactions in Luzon *(the ex-post prices cleared at a much lower price of PhP11,754/MWh)*.

Pricing Errors and Market Intervention

The regional application of PEN, PSM and MI is summarized in Table 9. The market results showed pricing errors occurring in Luzon at about 45 percent of the time or 323 trading intervals during the ex-ante process, which was primarily due to the violation of the contingency (N-1) requirement at MERALCO interchange substations in Zapote, Duhat and Araneta. Meanwhile, system-wide pricing errors were issued in 11 trading intervals due to undergeneration conditions and artificial load dropping (Value of Loss Load) at the MERALCO interchange substations (Zapote, Duhat and Araneta).

The ex-post market results, on the other hand, indicated system pricing errors in 5 trading intervals due to undergeneration condition. Luzon had seven trading intervals with PEN due to undergeneration conditions, while Visayas had three trading intervals with PEN due to basecase constraint violations at Maasin transformer.

During ex-ante, the PSM was applied for the whole system (Luzon and Visayas) in 19 trading intervals. Luzon had one trading interval with PSM application. These were brought about by constraint at Calauan – Makban A 230kV Line as a result of the N-1 contingency applied at the Araneta – Sucat 230 kV Lines. During ex-post, the PSM was applied for the whole system in one trading interval.

The Luzon System Operator (LSO) initiated market intervention in Luzon on June 26 (1900H-2200H) due to multiple tripping of lines at Tayabas 500kV and 230kV substation and tripping of QPPL, Pagbilao 1, Tiwi Complex and HVDC. Meanwhile, the Visayas System Operator (VSO) initiated market intervention in Visayas on July 1 (2300H-2400H) and July 2 (0100H-0300H) due to the tripping of the Colon-Cebu and Colon-Quiot 138kV lines. The Market Operator (MO) initiated system-wide market intervention on July 4 (2000H) and July 5 (1700H) due to MMS workflow stoppage.

Table 9. PEN, PSM and MI Summary, June and July 2011

	Luz-Viz		Luzon		Visayas		Total	
	Freq.	% of Time	Freq.	% of Time	Freq.	% of Time	Freq.	% of Time
PEN (RTD)	11	1.5	323	44.9	2	0.3	334	46.4
PEN (RTX)	5	0.7	7	1.0	3	0.4	15	2.1
PSM (RTD)	19	2.6	1	0.1			20	2.8
PSM (RTX)					1	0.1	1	0.1
MI	2	0.3	4	0.6	5	0.7	11	1.5

HVDC Scheduling and Price Separations

The occurrence of price separation between Luzon and Visayas regions further decreased in July (18 and 16 trading intervals during ex-ante and ex-post, respectively), which was attributed to the market-based scheduling of power flow in the Leyte-Luzon HVDC. *(Table 10)*

Table 10. Summary of HVDC Limits Imposed by NGCP-SO and Results of HVDC Schedules (Ex-ante and Ex-post), July 2011

Results of HVDC Scheduling	HVDC Limit during Ex-ante (Visayas/Luzon) (No. of Trading Intervals)				HVDC Limit during Ex-post (Visayas/Luzon) (No. of Trading Intervals)				
	0/0	150/100	150/440	Total	0/0	150/100	150/440	440/440	Total
Visayas to Luzon		**20**	**648**	**668**		**13**	**639**	**1**	**653**
Limit Not Maximized		*14*	*648*	*662*		*10*	*639*	*1*	*650*
Limit Maximized 1\		*6*		*6*		*3*			*3*
Luzon to Visayas		**1**	**37**	**38**		**6**	**47**		**53**
Limit Not Maximized		*1*	*37*	*38*		*6*	*46*		*52*
Limit Maximized 1\							*1*		*1*
No Flow 1\	**12**			**12**	**12**				**12**
TOTAL	**12**	**21**	**685**	**718**	**12**	**19**	**686**	**1**	**718**

Notes: 1\ with price separation

Table 11. Summary of HVDC Limits Imposed by NGCP-SO and Results of HVDC Schedules (Ex-ante and Ex-post), June 2011

Results of HVDC Scheduling	HVDC Limit during Ex-ante (Visayas/Luzon) (No. of Trading Intervals)					HVDC Limit during Ex-post (Visayas/Luzon) (No. of Trading Intervals)					
	100/100	150/100	150/143	150/440	Total	100/100	150/100	150/143	150/440	440/440	Total
Visayas to Luzon		**56**	**3**	**620**	**679**		**56**	**2**	**620**		**678**
Limit Not Maximized		*14*	*3*	*620*	*637*		*18*	*2*	*620*		*640*
Limit Maximized 1\		*42*			*42*		*38*				*38*
Luzon to Visayas	**3**	**18**	**1**	**43**	**65**	**3**	**17**	**2**	**43**	**1**	**66**
Limit Not Maximized	*1*	*16*	*1*	*40*	*58*	*1*	*17*	*2*	*40*	*1*	*61*
Limit Maximized 1\	*2*	*2*		*3*	*7*	*2*			*3*		*5*
TOTAL	**3**	**74**	**4**	**663**	**744**	**3**	**73**	**4**	**663**	**1**	**744**

Notes: 1\ with price separation

Price Setting Plants[5]

As shown in Figure 7, 20 plants from Luzon have been considered as price setters across all price levels in July. The top five frequent price setters during the month include the coal plants Sual (at 42%), Masinloc (at 37%), Pagbilao (at 33%) and Calaca (at 10%), and oil-based plant Bauang (at 6%). Masinloc, Sual and Pagbilao were also the most frequent price setters in June.

From Visayas, 16 plants have been considered as price setters across all price levels. The coal plants KSPC (at 32%), CEDC (19%) and TPC (Sangi) (at 17%), and geothermal plant Leyte A (at 28%) remained the four most frequent price setters in Visayas. The oil-based plant Panay III (at 9%) complete the top five price setters in Visayas. *(Figure 8)*

[5] A generator trading node is considered as a price setter when its last accepted offer price is between 95% to 100% of its nodal price. A generating plant is considered as price setter if at least one of its trading nodes was price setter in a given trading hour. The percentages stated in the price setting discussion represent the percent of time that a given plant was considered as price setter during the billing month.

Figure 7. Price Setting Frequency Index (Luzon Plants), June and July 2011

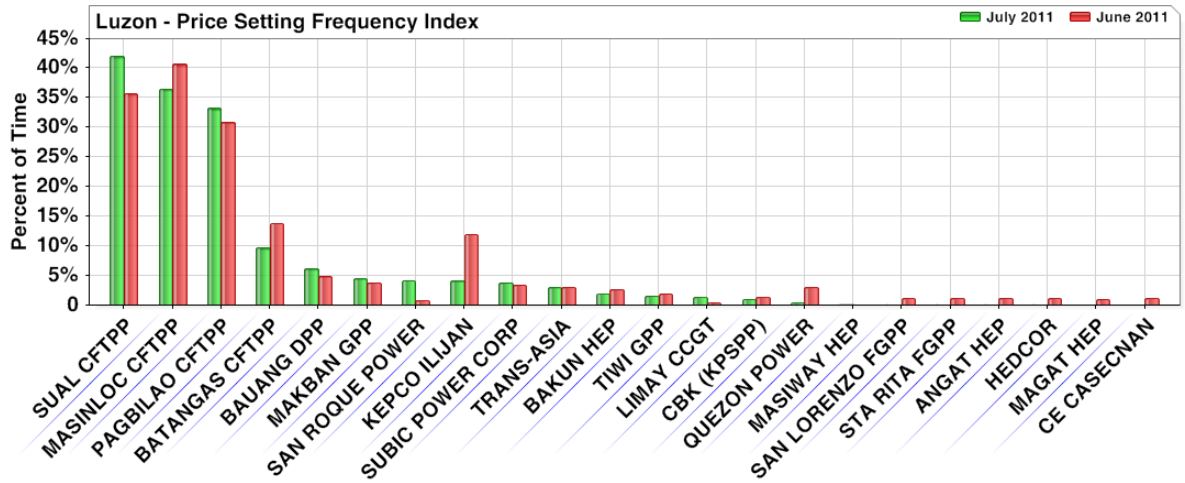
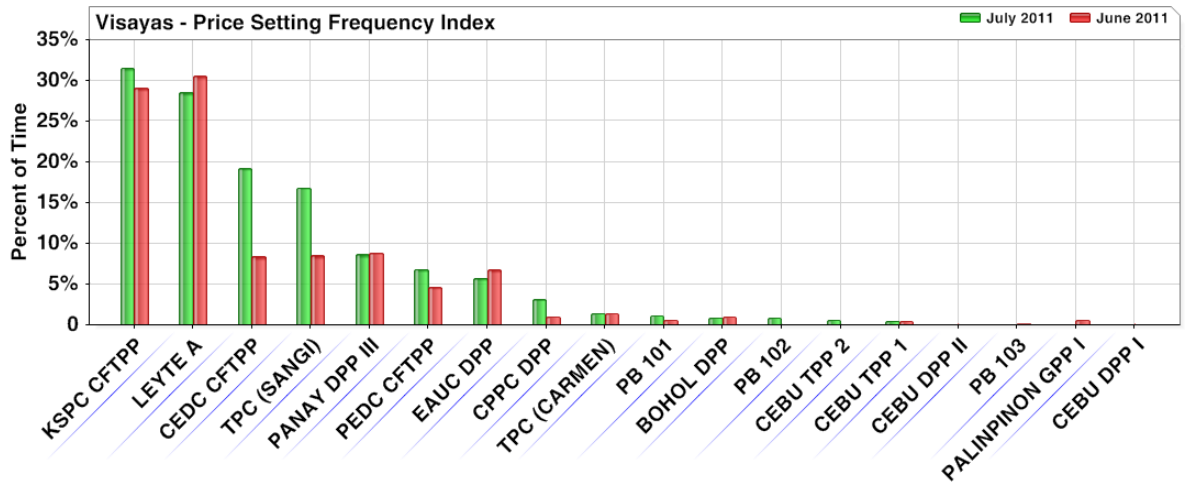
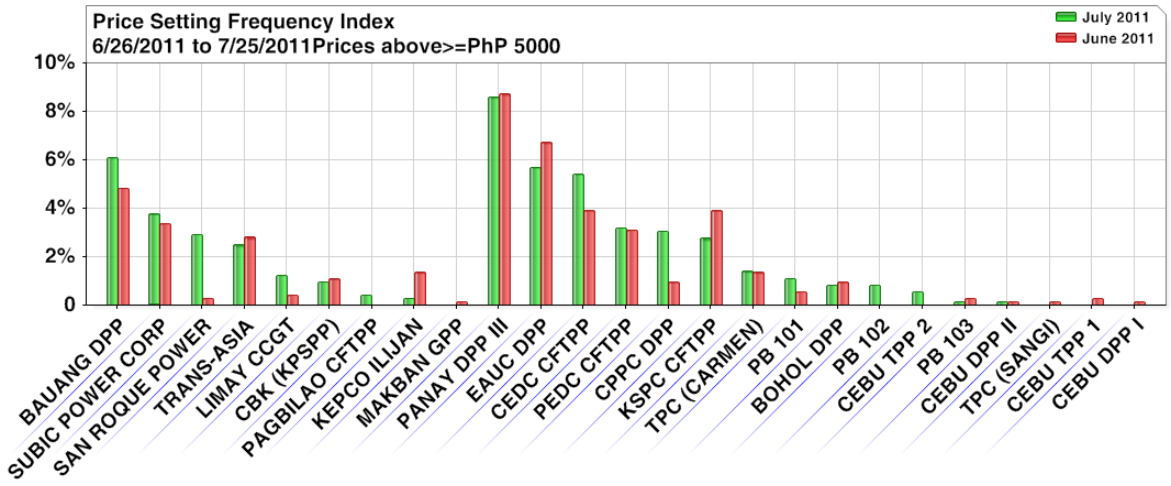


Figure 8. Price Setting Frequency Index (Visayas Plants), June and July 2011



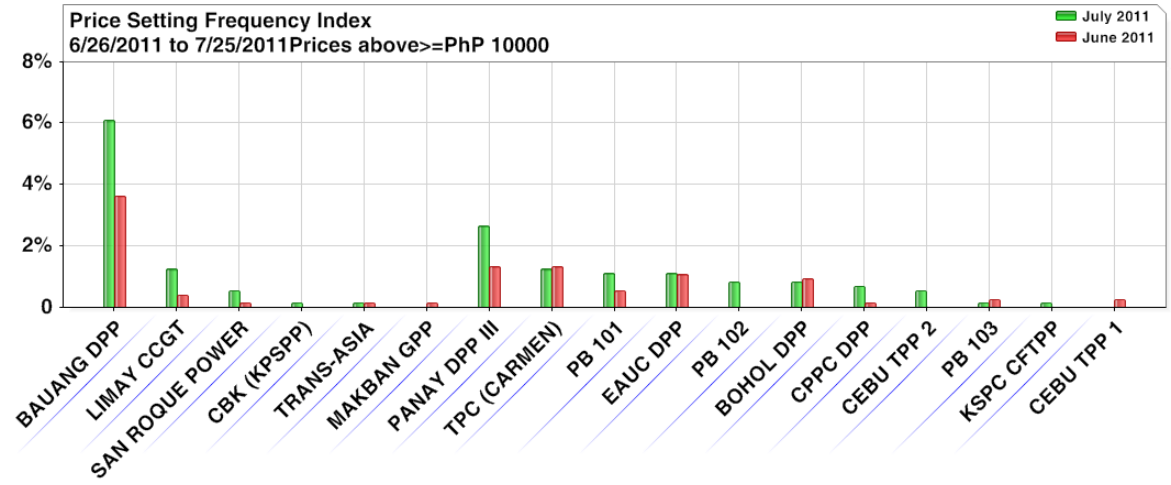
Looking at the PhP5,000/MWh and above price range, the number of price setters were reduced to eight (8) power plants from Luzon and 13 plants from Visayas *(Figure 9)*. The oil-based plants Bauang (at 6.1%) and Subic-Enron (at 3.7%), and hydro plant San Roque (at 2.9 %) topped the price setting plants from Luzon. Meanwhile, the oil-based plants Panay III (at 8.6%) and EAUC (at 5.6%), and coal plants CEDC (at 5.4%) and PEDC (3.1%) were the top price setting plants from Visayas.

Figure 9. Price Setting Frequency Index (PhP5,000 and Above), June and July 2011



The oil-based plant Bauang from Luzon and Panay III from Visayas topped the price setters at PhP10,000/MWh and above at 6.1% and 2.6% of the time, respectively *(Figure 10)*.

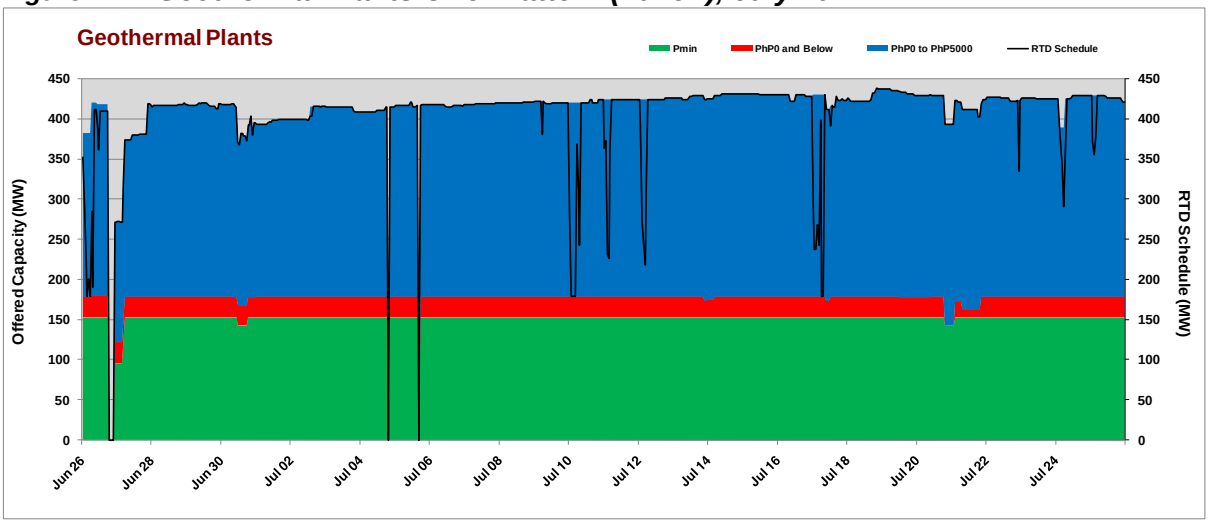
Figure 10. Price Setting Frequency Index (PhP10,000 and Above), June and July 2011



Generator Offer Pattern

The offer prices of the geothermal plants in Luzon generally remained below PhP5,000/MW. *(Figure 11)*.

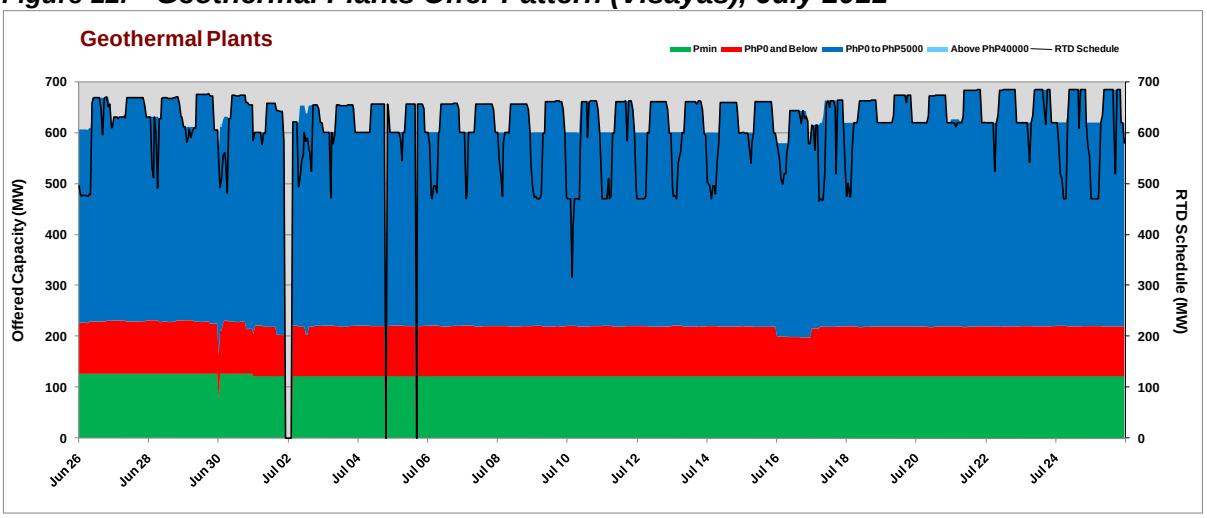
Figure 11. Geothermal Plants Offer Pattern (Luzon), July 2011



Note: "Null" values were used during the trading intervals under market intervention

The offer prices of geothermal plants in Visayas remained below PhP5,000/MW, but the peak and offpeak variation in capacity offer was still evident during the period *(Figure 12)*.

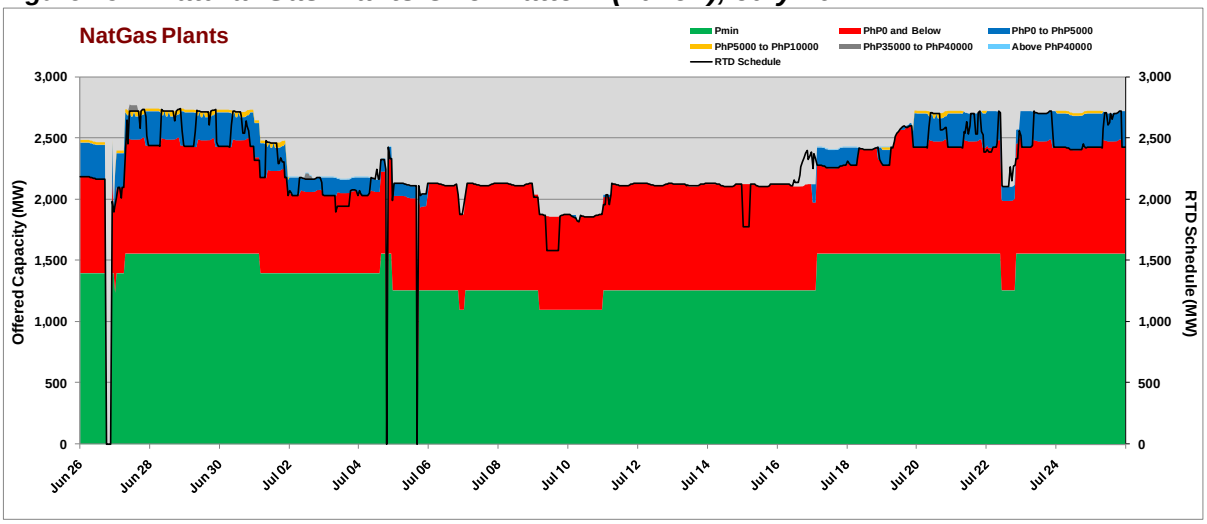
Figure 12. Geothermal Plants Offer Pattern (Visayas), July 2011



Note: "Null" values were used during the trading intervals under market intervention

Figure 13 shows the decrease in the capacity offer of the natural gas plants in the second and third week of the July billing month due to plant outages.

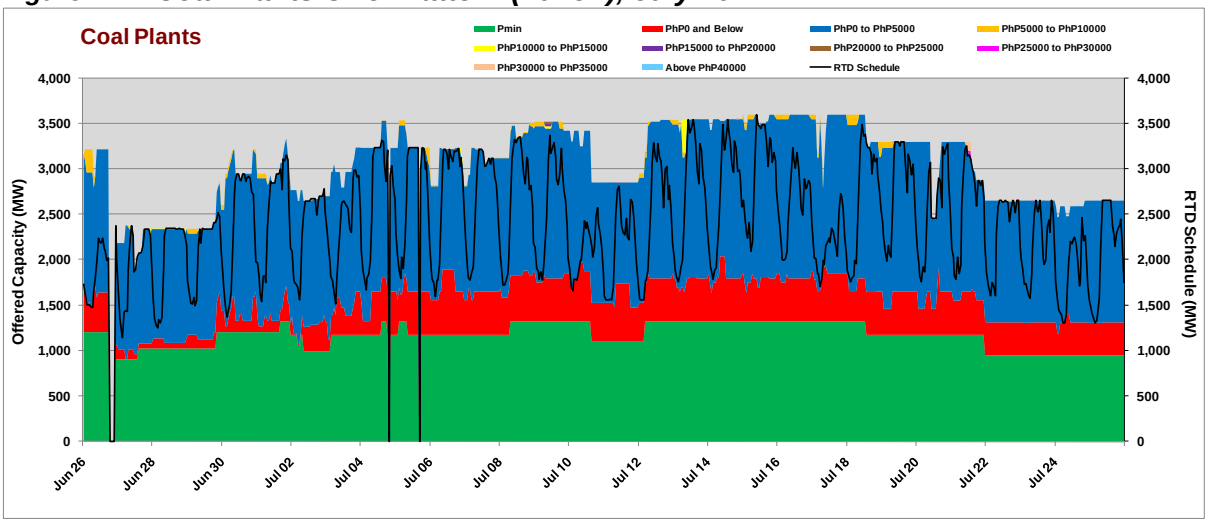
Figure 13. Natural Gas Plants Offer Pattern (Luzon), July 2011



Note: "Null" values were used during the trading intervals under market intervention

Similarly, Figure 14 shows the decrease in the capacity offers from coal plants in Luzon, particularly in the early and latter parts of the billing month of July due to forced and planned outages.

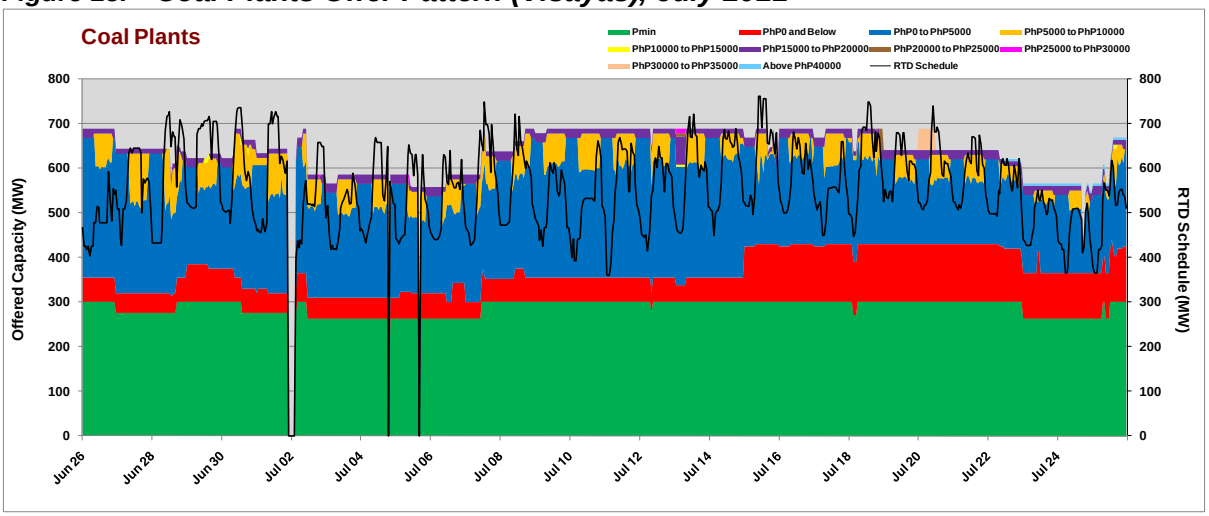
Figure 14. Coal Plants Offer Pattern (Luzon), July 2011



Note: "Null" values were used during the trading intervals under market intervention

About 8% of the offered capacity of coal plants in Visayas (average of 53 MW) were priced above PhP5,000/MW, reaching as high as PhP60,000/MW *(Figure 15)*.

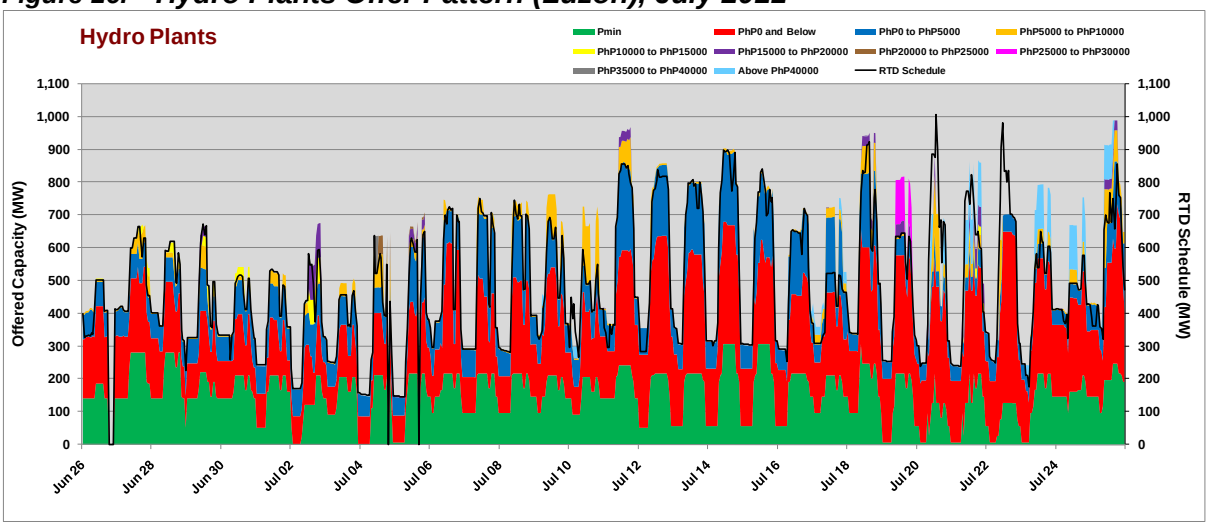
Figure 15. Coal Plants Offer Pattern (Visayas), July 2011



Note: "Null" values were used during the trading intervals under market intervention

The aggregate hourly offer pattern of hydro plants in Luzon remained highly volatile in terms of capacity and price *(Figure 16)*. The capacity offers ranged from 145 MW to 989 MW while the offer prices ranged from negative PhP1.0/MW to PhP62,000/MW.

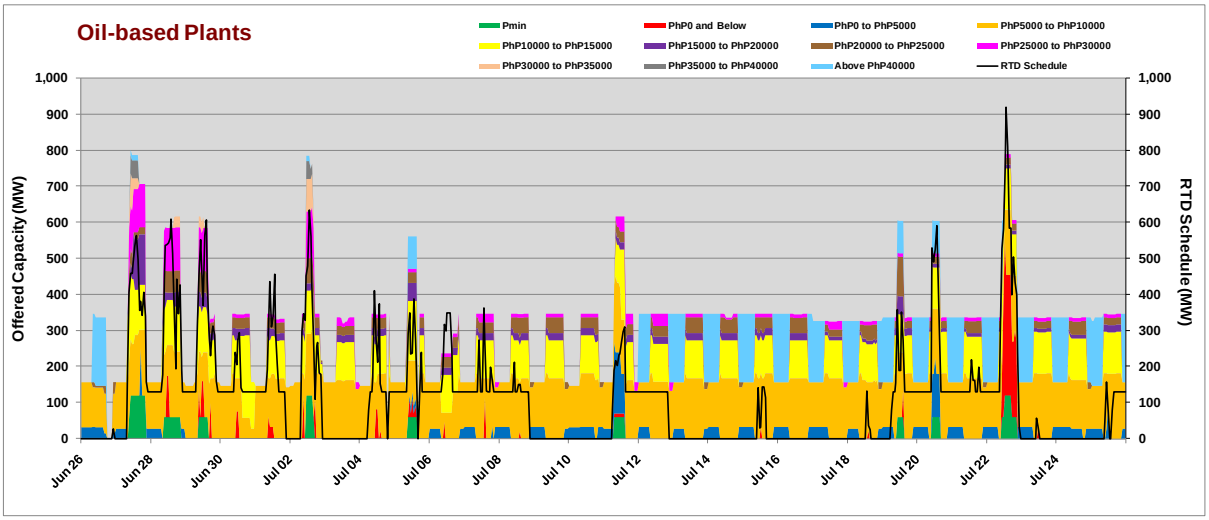
Figure 16. Hydro Plants Offer Pattern (Luzon), July 2011



Note: "Null" values were used during the trading intervals under market intervention

Likewise, Luzon oil-based plants showed variations in its trading behavior as its offer capacity ranged from 143 MW to 802 MW while the offer prices ranged between negative PhP3.00/MW and PhP62,000/MW *(Figure 17).* It should be noted, however, that hydro and oil-based power plants have different operational and technical characteristics.

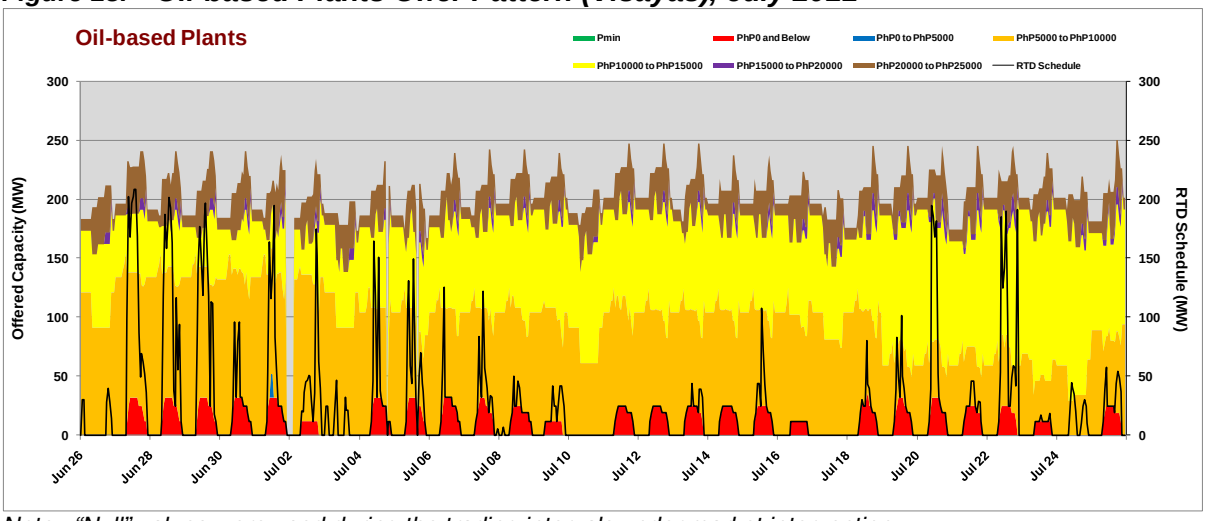
Figure 17. Oil-based Plants Offer Pattern (Luzon), July 2011



Note: "Null" values were used during the trading intervals under market intervention

The capacity and price offers from oil-based plants in Visayas ranged from 168 MW to 251 MW and PhP0.00/MW to PhP20,543/MW, respectively *(Figure 18)*.

Figure 18. Oil-based Plants Offer Pattern (Visayas), July 2011



Note: "Null" values were used during the trading intervals under market intervention

Capacity Factor

In July, calculation showed the decrease in the capacity factors of the coal and natural gas plants based on registered capacity, which was attributed to plant outages. Meanwhile, oil-based plants showed a higher capacity factor due to its higher dispatch during the period. *(Figure 19 and table 12).*

Figure 19. Capacity Factor (Luzon Plants), July 2011

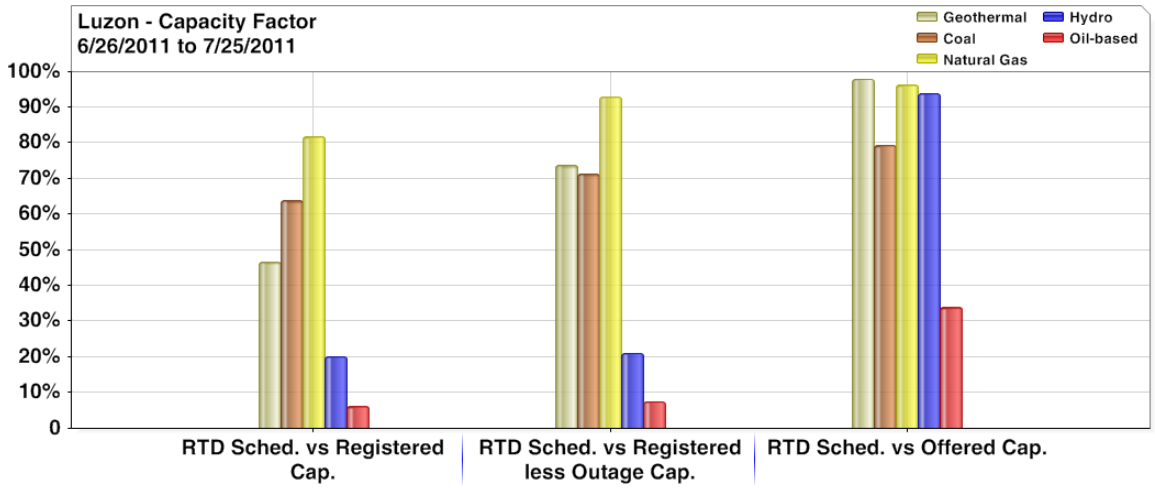


Table 12. Summary of Capacity Factor by Plant Type in Luzon, June and July 2011

Plant Type	RTD Sched. vs Registered Cap.			RTD Sched. vs Registered less Outage Cap.			RTD Sched. vs Offered Cap.		
	June 2011	July 2011	%Change	June 2011	July 2011	%Change	June 2011	July 2011	%Change
Coal	66%	64%	-3%	72%	71%	-1%	77%	79%	2%
Natural Gas	88%	82%	-7%	91%	93%	2%	92%	96%	4%
Geothermal	45%	47%	3%	78%	74%	-6%	98%	98%	0%
Hydro	13%	20%	56%	15%	21%	38%	94%	94%	0%
Oil-based	3%	6%	101%	4%	8%	86%	20%	34%	68%

Table 13. Capacity Factor Data by Plant Type in Luzon, July 2011

Plant Type	Total RTD Sched. (MW-Hr)	Total Registered Cap. (MW-Hr)	Total Registered less Outage Cap. (MW-Hr)	Total Offered Cap. (MW-Hr)	Capacity Factors		
					Registered Cap.	Registered less Outage Cap.	Offered Cap.
	(A)	(B)	(C)	(D)	(A / B)	(A / C)	(A / D)
Coal	1,735,826	2,718,198	2,429,632	2,191,041	64%	71%	79%
Natural Gas	1,616,443	1,979,949	1,740,886	1,680,733	82%	93%	96%
Geothermal	292,315	628,106	395,971	298,425	47%	74%	98%
Hydro	345,063	1,724,881	1,646,447	367,732	20%	21%	94%
Oil-based	78,511	1,297,338	1,046,790	232,298	6%	8%	34%

Similarly in Luzon, the result showed an increase in the capacity factor of oil-based plants and a decrease in the capacity factor of coal plants in Visayas. *(Figure 20 and Table 14)*

Figure 20. Capacity Factor (Visayas Plants), July 2011

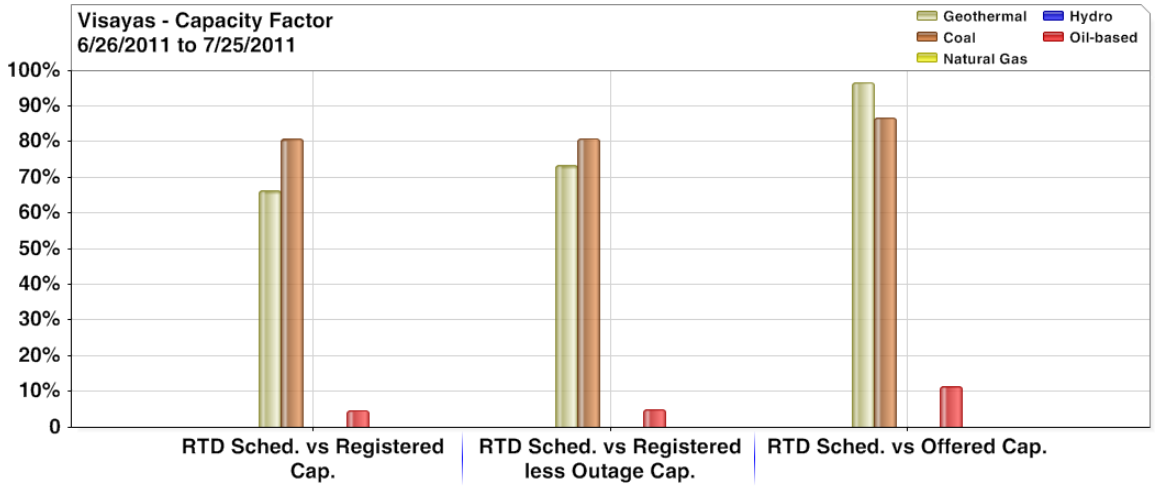


Table 14. Summary of Capacity Factor by Plant Type in Visayas, June and July 2011

Plant Type	RTD Sched. vs Registered Cap.			RTD Sched. vs Registered less Outage Cap.			RTD Sched. vs Offered Cap.		
	June 2011	July 2011	%Change	June 2011	July 2011	%Change	June 2011	July 2011	%Change
Coal	81%	81%	0%	86%	81%	-6%	91%	87%	-5%
Geothermal	67%	66%	-1%	69%	73%	6%	96%	97%	1%
Oil-based	4%	5%	19%	4%	5%	19%	10%	12%	17%

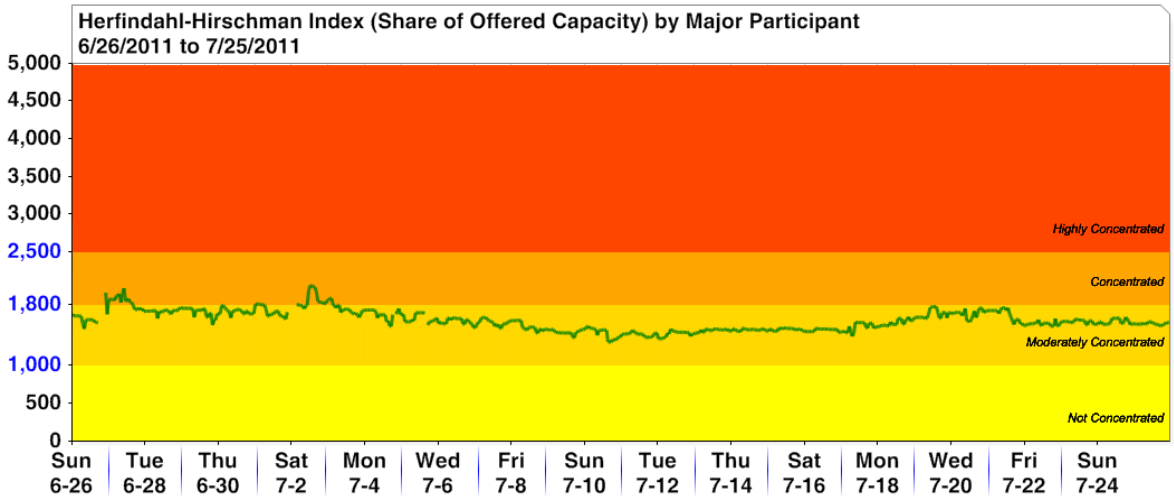
Table 15. Capacity Factor Data by Plant Type in Visayas, July 2011

Plant Type	Total RTD Sched. (MW-Hr)	Total Registered Cap. (MW-Hr)	Total Registered less Outage Cap. (MW-Hr)	Total Offered Cap. (MW-Hr)	Capacity Factors		
					Registered Cap.	Registered less Outage Cap.	Offered Cap.
	(A)	(B)	(C)	(D)	(A / B)	(A / C)	(A / D)
Coal	397,103	491,827	490,139	458,213	81%	81%	87%
Geothermal	440,341	664,373	599,919	455,934	66%	73%	97%
Oil-based	16,917	357,356	348,721	146,757	5%	5%	12%

Market Concentration

The Herfindahl-Hirschman Index (HHI) – a measure of market concentration - reads out consistent results as in previous months. Major participants' grouping still indicated a moderately concentrated to concentrated market condition *(Figure 21)*.

Figure 21. Hourly HHI based on Offered Capacity by Major Participant Grouping, July 2011

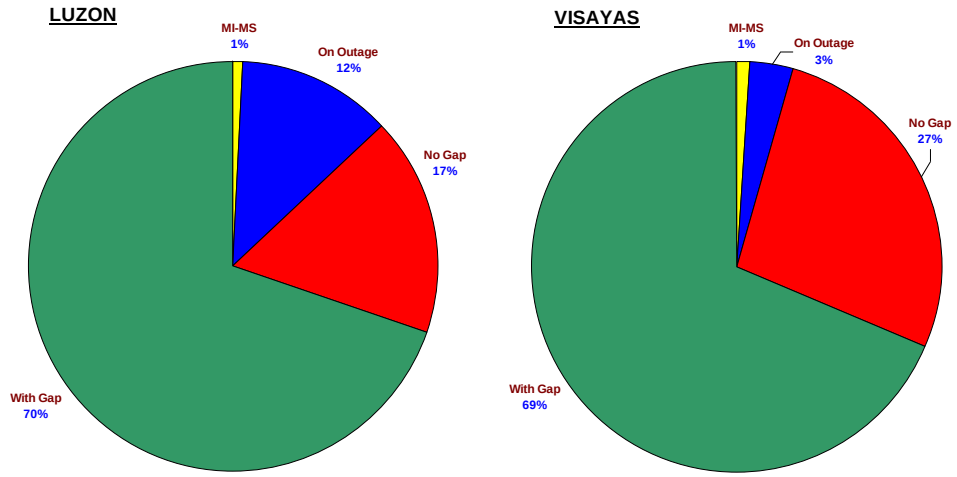


Compliance Monitoring

Compliance to Must Offer Rule

Continued non-compliance with the must-offer rule by generator trading participants was observed throughout the covered period. Figure 22 shows a high percentage of capacity gap[6] at around 70% and 69% of the total generator resource-hours[7] in Luzon and Visayas, respectively.

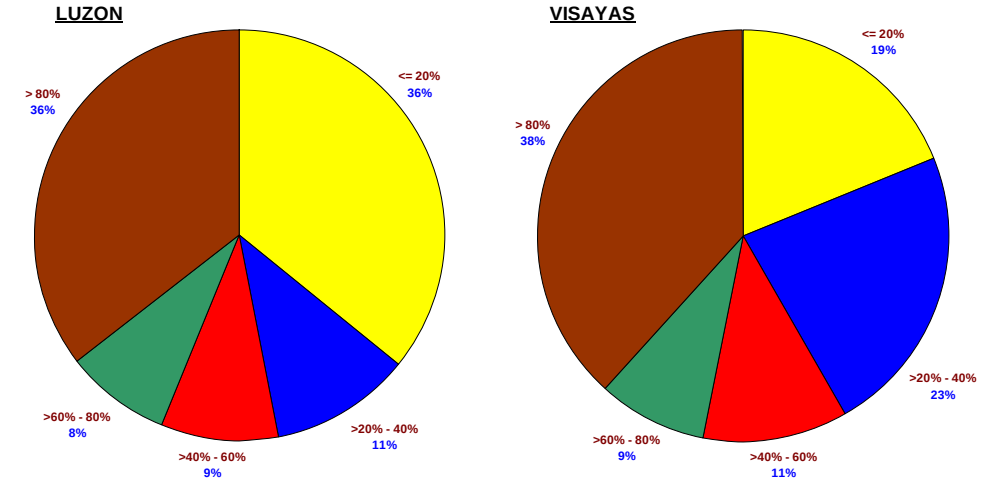
Figure 22. Summary of Compliance Monitoring to Must Offer Rule, July 2011



[6] Capacity gap - registered capacity less outage capacity less offered capacity, calculated for each generator resource node per trading hour.
[7] Total generator resource-hours - calculated as the number of registered generator resource nodes multiplied by the total trading hours in the billing month.

Figure 23 shows the proportion of the capacity gap to the registered capacity[8] net of outage capacity[9] and the corresponding frequency distribution of the generator resource-hours with capacity gap. It shows that the proportion of the capacity gap above 80% constitute about 36% and 38% of the relevant generator resource-hours in Luzon and Visayas, respectively.

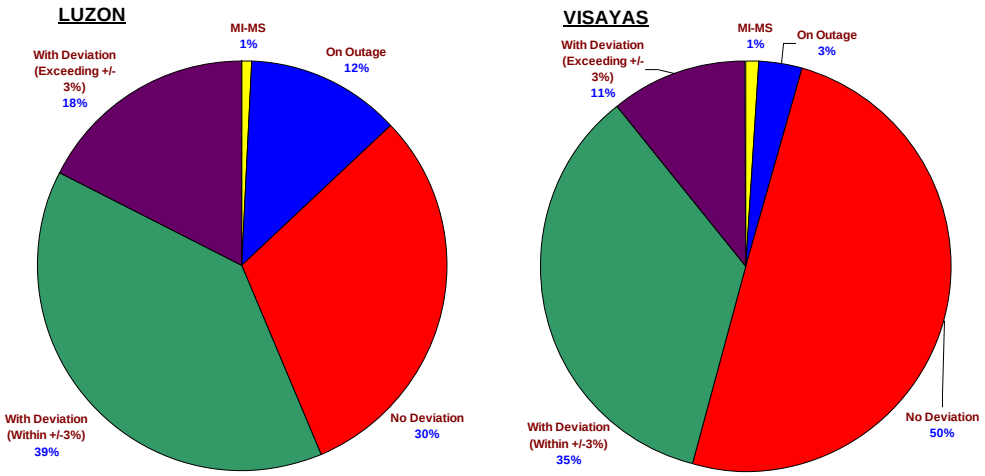
Figure 23. Distribution of Observed Capacity Gap, July 2011



Compliance to RTD Schedule

Figure 24 shows that around 18% and 11% of the total generator resource-hours in Luzon and Visayas, respectively, have deviations between the RTD schedule[10] and actual dispatch[11] exceeding the +/-3% tolerance limit[12] in the billing month of July 2011.

Figure 24. Summary of Compliance Monitoring to RTD Schedule, July 2011



[8] Registered capacity - capacity of each generator resource node registered with the market.
[9] Outage capacity - validated outage capacity of each generator resource node per trading hour.
[10] RTD schedule - target loading level of each generator resource node at the end of the trading hour.
[11] Actual dispatch - actual loading of each generator resource node at the end of the trading hour (based on minute 59 snapshot data.
[12] +/-3% tolerance limit - initial dispatch tolerance limits adopted per PEM Board Resolution No. 2005-15.

The summary of dispatch deviations exceeding the +/-3% in terms of percent deviation and frequency distribution is shown in Figure 25. Majority of the dispatch deviations were within +/-20% at about 66% and 72% of the relevant generator resource-hours in Luzon and Visayas, respectively. Likewise noted was the frequency of dispatch deviations exceeding 80% at 20% and 18% in Luzon and Visayas, respectively.

Figure 25. Distribution of Observed Deviation, July 2011