

MSCP Market Watch

Third Quarter (Jul-Sep) 2017

Issue 45

Table 1: Indicators of Market Performance

| | 2016 Q3 | 2017 Q2 | 2017 Q3 |
|--|------------|------------|------------|
| Price Indicators | | | |
| <i>Energy (\$/MWh)</i> | | | |
| - USEP | 69.26 | 83.10 | 75.79 |
| - WEP | 69.65 | 83.42 | 76.11 |
| - Allocated Vesting Price | 128.40 | 145.32 | 138.10 |
| - LNG Vesting Price | 134.28 | 148.04 | 140.42 |
| - Balance Vesting Price | 112.71 | 138.48 | 132.10 |
| <i>Ancillary Services (\$/MWh)</i> | | | |
| - Primary Reserve | 0.06 | 0.22 | 0.06 |
| - Secondary Reserve | 0.19 | 0.86 | 0.19 |
| - Contingency Reserve | 6.27 | 8.73 | 5.75 |
| - Regulation | 8.05 | 12.07 | 12.08 |
| <i>HSFO Spot (US\$/barrel)</i> | 40.42 | 52.46 | 54.05 |
| Demand Indicators | | | |
| <i>Forecast Demand (MW)</i> | | | |
| - Average | 5,776 | 5,762 | 5,877 |
| - Peak | 6,807 | 6,945 | 6,967 |
| <i>Metered Energy (MW)</i> | | | |
| - Average | 5,663 | 5,688 | 5,821 |
| - Peak | 6,764 | 6,903 | 6,958 |
| Supply Indicators | | | |
| <i>Average Supply (MW)</i> | 8,106 | 7,997 | 8,181 |
| <i>Supply Cushion (%)</i> | 28.72 | 27.95 | 28.15 |
| <i>Capacity Ratio (%)</i> | | | |
| - CCGT | 59.71 | 66.37 | 66.84 |
| - OCGT | 0.18 | 0.03 | 0.00 |
| - OT | 46.53 | 48.70 | 48.57 |
| - ST | 0.44 | 0.12 | 0.12 |
| <i>Total Outages (MWh Cumulative)</i> | | | |
| - Planned | 2,940,215 | 2,319,796 | 2,975,819 |
| - Forced | 50,143 | 30,067 | 46,252 |
| <i>Offers made at or below \$100/MWh (%)</i> | | | |
| | 75.67 | 76.93 | 77.81 |

Market Performance

The Uniform Singapore Energy Price (USEP) decreased 8.80 percent from \$83.10/MWh in Q2 2017 to \$75.79/MWh in Q3 2017. The Wholesale Electricity Price (WEP) also decreased 8.77 percent from \$83.42/MWh in Q2 2017 to \$76.11/MWh in Q3 2017.

All vesting prices decreased in Q3 2017. The LNG Vesting Price showed the largest change; it decreased 5.15 percent to \$140.42/MWh in Q3 2017.

Prices of all ancillary services, except for that of regulation, dropped this quarter. The largest price decrease was observed in secondary reserve – it decreased 77.85 percent to \$0.19/MWh. Regulation price remained relatively flat at \$12.08/MWh.

The High Sulphur Fuel Oil (HSFO) spot price increased 3.03 percent from US\$52.46/barrel in Q2 2017 to US\$54.05/barrel in Q3 2017.

Demand picked up 2.00 percent to 5,877 MW while supply went up in tandem by 2.30 percent to 8,181 MW. The supply cushion, which measures supply adequacy, increased 0.19 percentage points from 27.95 percent in Q2 2017 to 28.15 percent in Q3 2017.

In Q3 2017, the capacity ratios of all generation types decreased slightly except for CCGT, which rose 0.47 percentage points.

There was a rise of 28.28 percent in the planned outage volume to 2,975,819MWh in Q3 2017. Forced outage volume surged 53.83 percent to 46,252MWh this quarter.

Overall, the percentage of offers made at or below \$100/MWh increased 0.88 percentage points to 77.81 percent in Q3 2017.

The Market Surveillance and Compliance Panel (“MSCP”) issued a rule breach determination on 17 July 2017 against Energy Market Company Pte Ltd for its permitting access to confidential information on EMC’s Website by an unauthorized party on 19 April 2017.

Supply Indicators

Chart 1: Capacity Ratio of Generation Plants

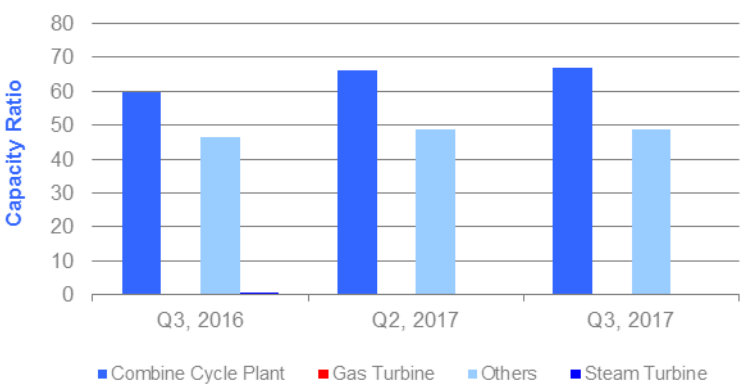


Chart 2: Relationship between USEP and Energy Supply Cushion - Q3 2017

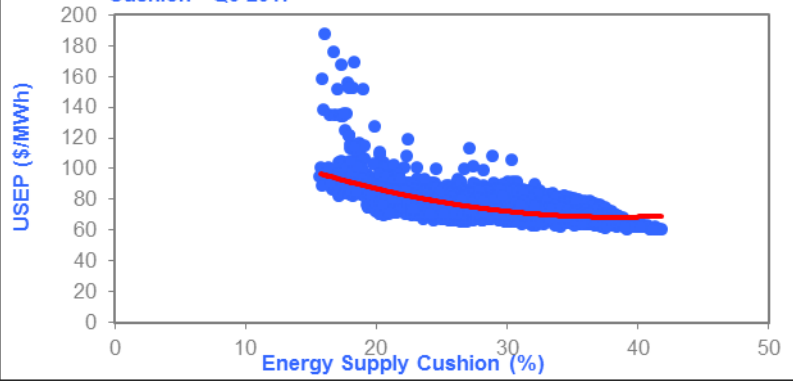
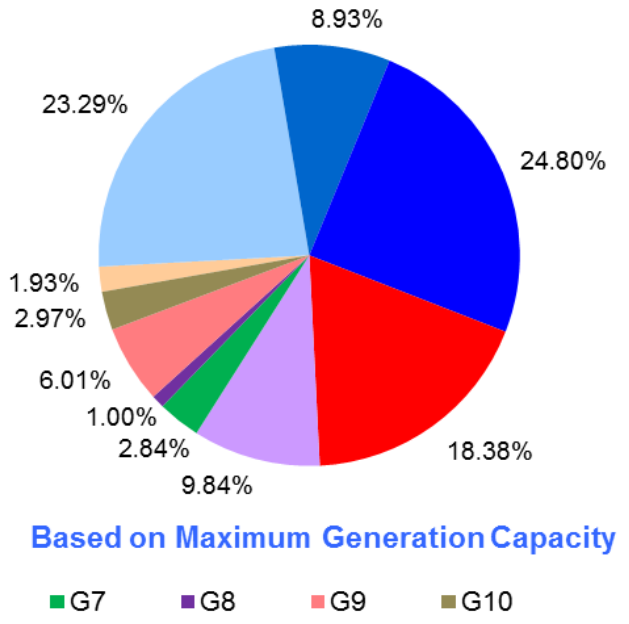
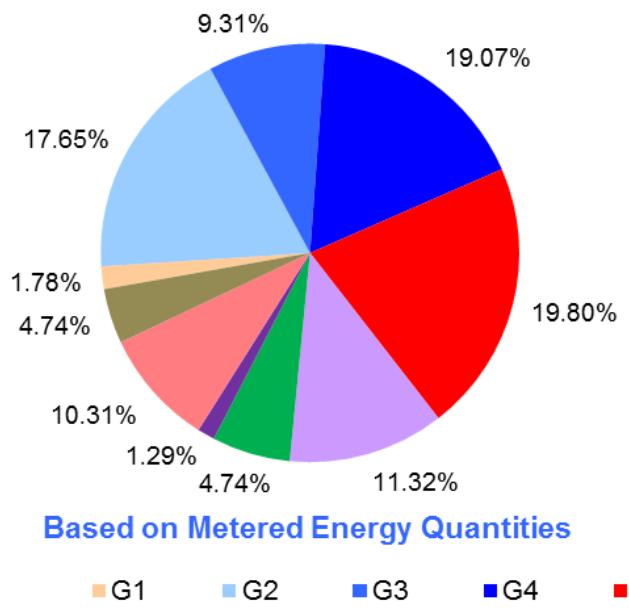


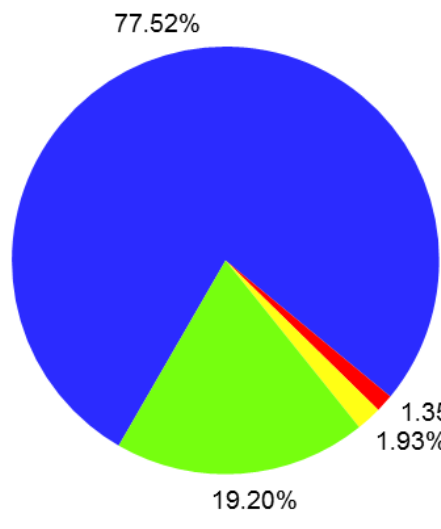
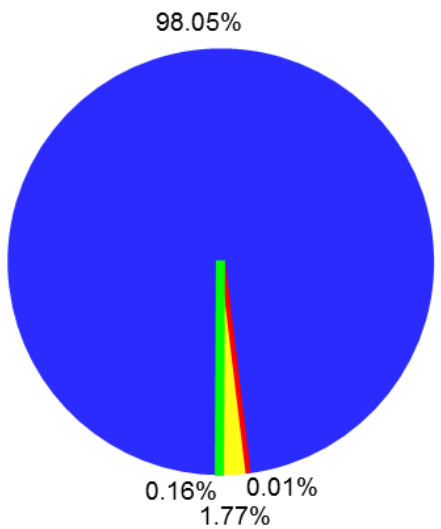
Chart 3: Comparison of Average Market Share by Generation Company Q3 2017



Based on Metered Energy Quantities

Based on Maximum Generation Capacity

Chart 4: Comparison of Average Market Share by Generation Type Q3 2017



Based on Metered Energy Quantities

Based on Maximum Generation Capacity

- Combine Cycle Plant
- Gas Turbine
- Others
- Steam Turbine

Demand Indicators

Chart 5: Monthly Load Forecast Variation

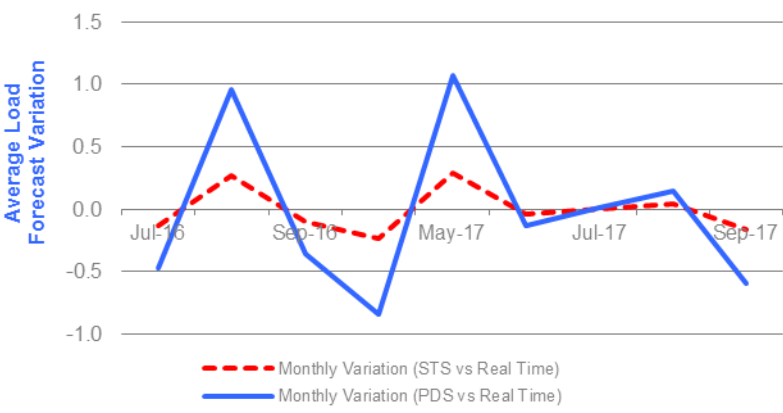
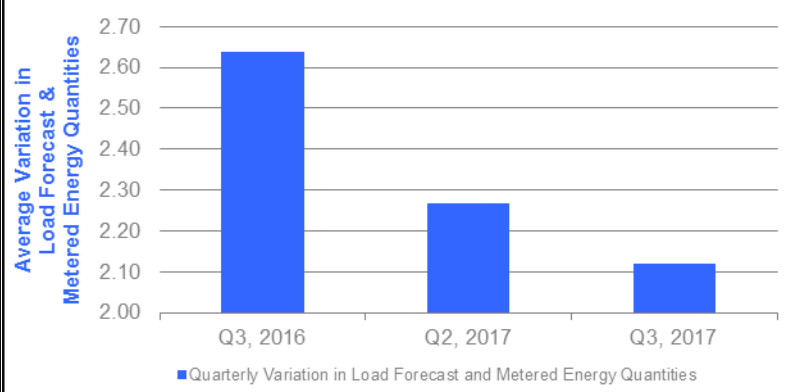


Chart 6: Variation in Real Time Load Forecast & Metered Energy Quantities



Energy Prices

Chart 7: WEP vs Vesting Contract Hedge Price (VCHP)

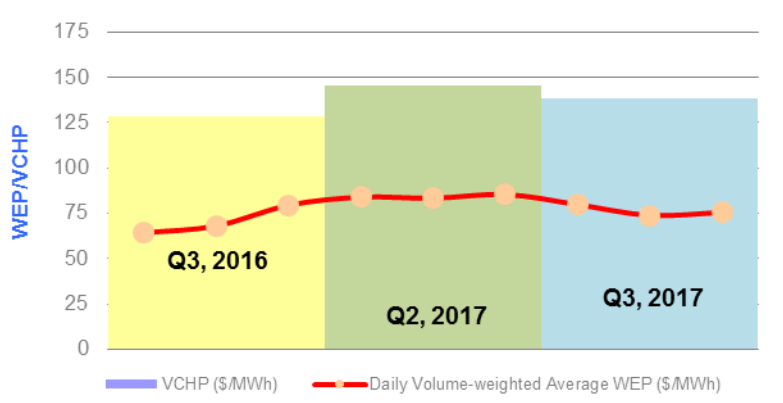


Chart 8: Comparison of Metered Energy Quantities

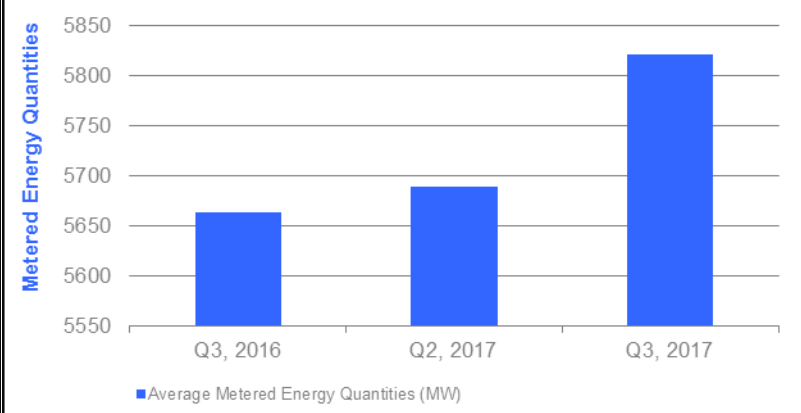


Chart 9: Percentage of Hours when WEP Falls into a Particular Price Range

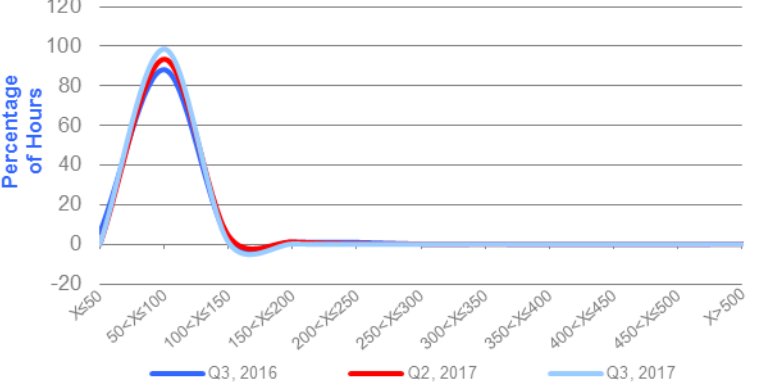


Chart 10: Percentage of Metered Energy Quantities when WEP Falls into a Particular Price Range

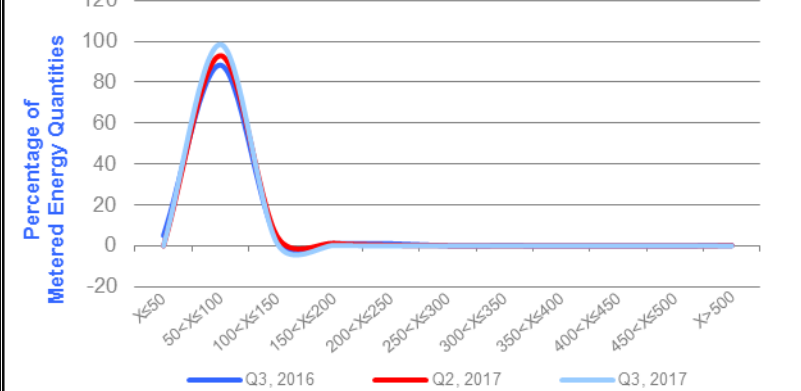


Chart 11: Correlation between WEP & Metered Energy Quantities

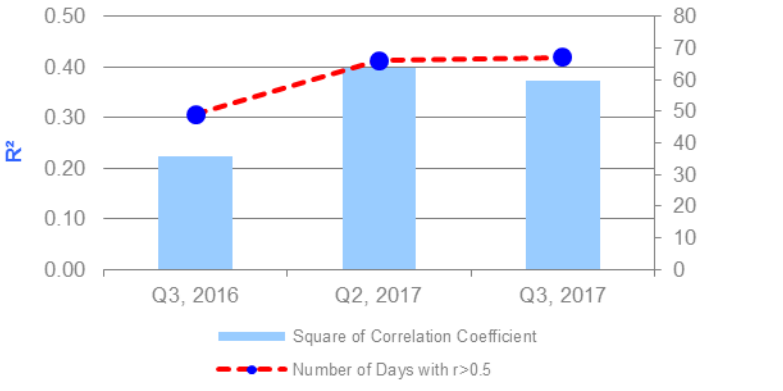


Chart 12: WEP vs Fuel Oil Price (HSFO)

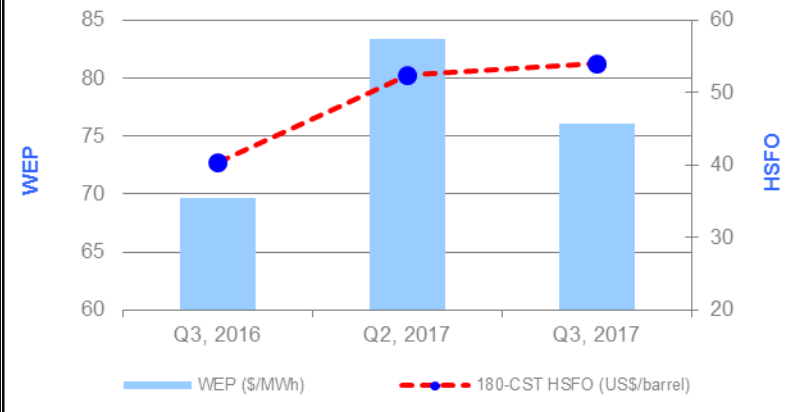


Chart 13: Reserve and Regulation Prices

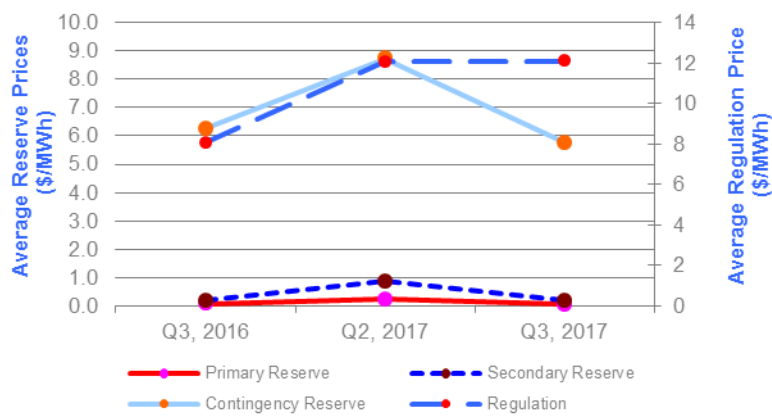


Table 2: Compliance Statistics for Q3 2017

| | |
|--|------------|
| No. of cases of potential rule breaches | 238 |
| Self-reports | 0 |
| Referrals/Complaints | 238 |
| MSCP initiatives | 0 |
| No. of determinations | 146 |
| Rule breach | 1 |
| No rule breach | 142 |
| No further action | 3 |
| Enforcement | |
| No. of cases with enforcement action | 1 |
| -Financial penalty | 0 |
| -Letter of non-compliance | 1 |
| Total amount of financial penalties | \$0 |
| Total amount of costs | \$1,500 |

A User Guide on terms used in this publication is available for download from the Energy Market Company website at www.emcsg.com.

The Market Surveillance and Compliance Panel is comprised of the following persons:

- T P B Menon, Chair
- Lee Keh Sai
- Philip Chua
- Professor Euston Quah
- Professor Walter Woon

It is supported by the Market Assessment Unit of Energy Market Company.