Market Highlights[1] (July 25–August 7)

- The average DLAP price in the integrated forward market was $104.01. The maximum and minimum DLAP prices were $905.34 and $22.37, respectively. The maximum and minimum PNode prices in the integrated forward market were $4,492.46 and -$707.50 respectively.

- The top two interties congested in the integrated forward market were NOB_ITC and MALIN500. Congestion rents in these two weeks totaled $91,040,701.03.

- The average day-ahead ancillary service prices were between $0.00 and $737.89.

- Approximately 97.74 percent of the RUC requirements were met from RA units.

- The average real-time FMM DLAP price was $72.52, with a maximum price of $1,058.80 and a minimum price of $15.72. The maximum and minimum PNode prices in the FMM were $1,070.14 and -$267.23, respectively.

- Out of the total 1,344 FMM intervals, 66 intervals saw DLAP prices above $250, and 0 intervals saw DLAP prices below -$150.

- Out of the total 1,344 FMM intervals, 137 intervals saw ELAP prices above $250 and 0 intervals saw ELAP prices below -$150.

- The average real-time FMM ELAP price was $50.02, with a maximum price of $1,049.36 and a minimum price of $6.44.

- The average real-time RTD DLAP price was $65.53, with a maximum price of $1,041.40 and a minimum price of -$246.46. The maximum and minimum PNode prices in the RTD were $1,093.50 and -$856.16, respectively.

- Out of the total 4,032 RTD intervals, 143 intervals saw DLAP prices above $250 and 2 interval saw DLAP prices below -$150.

- Out of the total 4,032 RTD intervals, 259 intervals saw ELAP prices above $250 and 7 intervals saw ELAP prices below -$150. The average real-time RTD ELAP price was $50.38, with a maximum price of $1,048.45 and a minimum price of -$221.67.

- Root cause for daily high price events are noted in Tables 1 and Table 2.

Table 1 FMM Intervals

Trade Date	Root Cause
FMM Jul 25 HE 19	Load changes and changes in renewable forecast.
FMM Jul 26 HE 20	Congestion on 7820_TL 230S_OVERLOAD_NG and 6410_CP1_NG

[1] A description of the metrics presented in this report is available at http://www.caiso.com/Documents/WeeklyPerformanceReportMetricsKey.pdf

Table 1 FMM Intervals	
Trade Date	**Root Cause**
FMM Jul 30 HE 18; Aug 4 HE 18; Aug 5 HE 19, HE 20; Aug 7 HE 16, HE 17, HE 18, HE 19; Aug 7 HE 22	Congestion on 30060_MIDWAY _500_24156_VINCENT _500_BR_1 _1
FMM Jul 30 HE 19, HE 20; Aug 6 HE 20; Aug 7 HE 20	Load changes.
FMM Aug 1 HE 16, HE 20	Congestion on 30060_MIDWAY _500_24156_VINCENT _500_BR_1 _1 and changes in renewable forecast.
FMM Aug 2 HE 15; Aug 4 HE 19, HE 20, HE 21; Aug 6 HE 19, HE 22, HE 23; Aug 7 HE 21	Congestion on 30060_MIDWAY _500_24156_VINCENT _500_BR_1 _1 and load changes.
FMM Aug 3 HE 20	Congestion on 30060_MIDWAY _500_24156_VINCENT _500_BR_1 _1, congestion on RM_TM12_NG, and changes in renewable forecast.
FMM Aug 4 HE 17	Congestion on 24156_VINCENT _500_24155_VINCENT _230_XF_3 and congestion on 24092_MIRALOMA_500_24093_MIRALOM _230_XF_1 _P.
FMM Aug 5 HE 21	Congestion on 30060_MIDWAY _500_24156_VINCENT _500_BR_1 _1 and reduction of net imports.
FMM Aug 7 HE 7	Congestion on 7820_TL 230S_OVERLOAD_NG and congestion on 30060_MIDWAY _500_24156_VINCENT _500_BR_1 _1.
FMM Aug 7 HE 15	Congestion on 24092_MIRALOMA_500_24093_MIRALOM _230_XF_4 _P and 30060_MIDWAY _500_24156_VINCENT _500_BR_1 _1.

Table 1 RTD Intervals	
Trade Date	**Root Cause**
RTD Jul 25 HE 19	Load changes and renewable deviation.
RTD Jul 26 HE 8	Congestion on 7820_TL 230S_OVERLOAD_NG and 6410_CP1_NG.
RTD Jul 27 HE 18, HE 19, HE 24; Jul 30 HE 14, HE 15, HE 17, HE 23; Aug 1 HE 14, HE 15, HE 16, HE 17; Aug 2 HE 13; Aug 7 HE 17, HE 24	Congestion on 30060_MIDWAY _500_24156_VINCENT _500_BR_1 _1.
RTD Jul 30 HE 18, HE 19, HE 20; Aug 6 HE 19, HE 20	Load changes.
RTD Jul 29 HE 23; Jul 30 HE 24; Aug 7 HE 18, HE 19, HE 20, HE 21	Congestion on 30060_MIDWAY _500_24156_VINCENT _500_BR_1 _1 and load changes.
RTD Jul 31 HE 7, HE 13; Aug 1 HE 19	Congestion on 30060_MIDWAY _500_24156_VINCENT _500_BR_1 _1 and renewable deviation.
RTD Aug 1 HE 1	Congestion on 30060_MIDWAY _500_24156_VINCENT _500_BR_1 _1 and generator de-rate.
RTD Aug 2 HE 7	Congestion on 7820_TL 230S_OVERLOAD_NG and 30060_MIDWAY _500_24156_VINCENT _500_BR_1 _1.
RTD Aug 2 HE 8	Congestion on 7820_TL 230S_OVERLOAD_NG.
RTD Aug 2 HE 20	Congestion on RM_TM12_NG.
RTD Aug 3 HE 19, HE 20	Congestion on 30060_MIDWAY _500_24156_VINCENT _500_BR_1 _1, congestion on RM_TM12_NG, and load changes.

Table 1 RTD Intervals	
Trade Date	**Root Cause**
RTD Aug 3 HE 21	Congestion on 30060_MIDWAY _500_24156_VINCENT _500_BR_1 _1 and reduction of net imports.

Figure 1: Day-Ahead (IFM) LAP LMP and Cleared Bid-In Demand

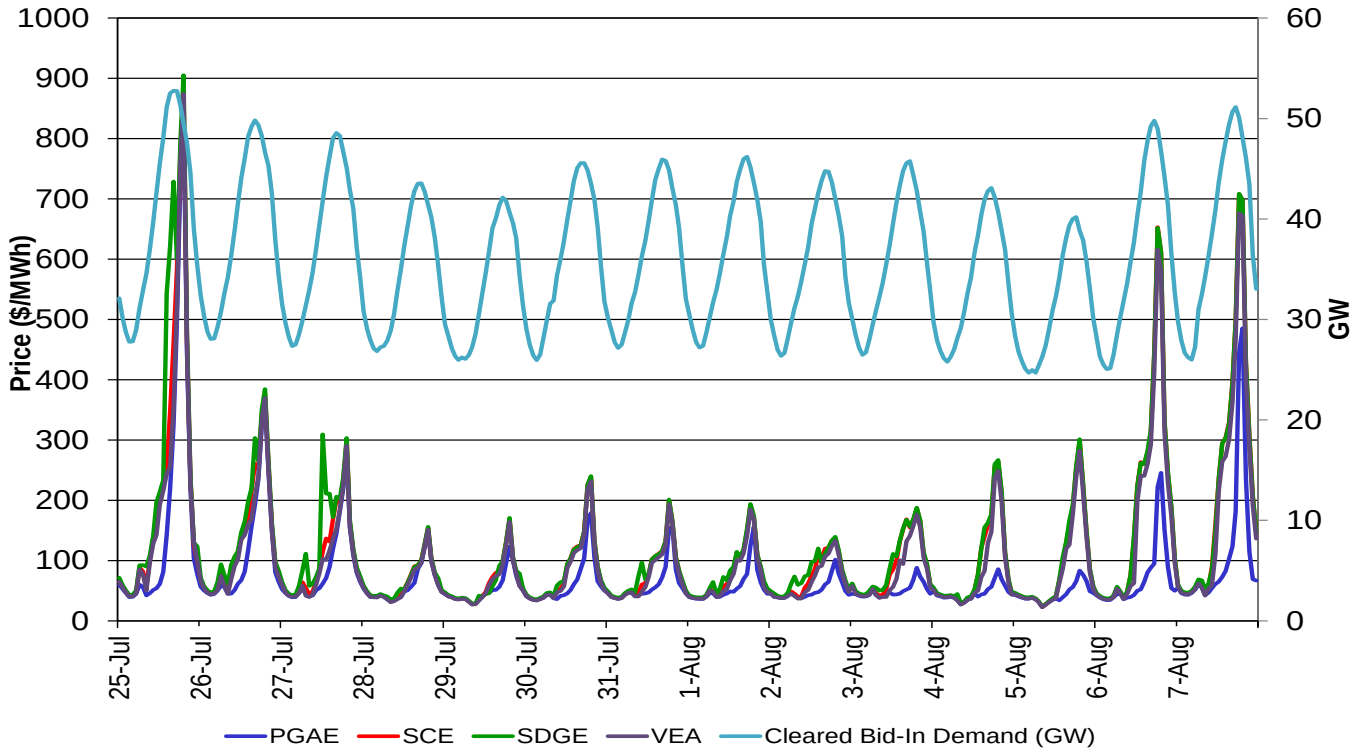

Figure 2: Day-Ahead Congestion Rents

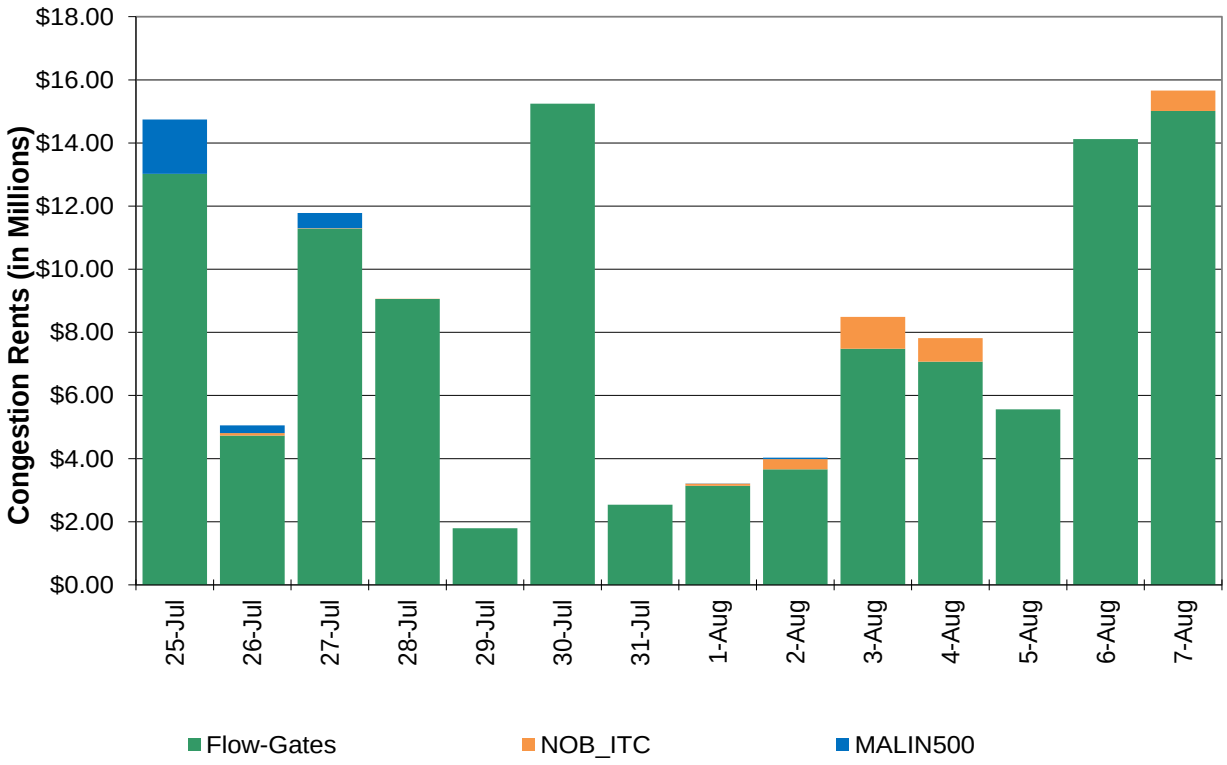

Figure 3: Day-Ahead Congestion Rents for Flow-Based Constraints

Transmission Constraint	Congestion Rent
30060_MIDWAY _500_24156_VINCENT _500_BR_1 _1	$ 44,830,543.06
24092_MIRALOMA_500_24093_MIRALOM _230_XF_1 _P	$ 6,204,423.95
24092_MIRALOMA_500_24093_MIRALOM _230_XF_4 _P	$ 5,177,922.09
6410_CP1_NG	$ 4,916,574.93
24036_EAGLROCK_230_24059_GOULD _230_BR_1 _1	$ 4,507,845.06
22500_MISSION _138_22496_MISSION _69.0_XF_1	$ 3,421,309.08
7820_TL23040_IV_SPS_NG	$ 2,029,718.05
24016_BARRE _230_24154_VILLA PK_230_BR_1 _1	$ 1,354,490.78
30515_WARNERVL_230_30800_WILSON _230_BR_1 _1	$ 1,232,788.95
32970_CLAYTN _115_33035_LKWD_JCT_115_BR_1 _1	$ 979,817.46
7820_TL 230S_OVERLOAD_NG	$ 913,782.79
24016_BARRE _230_25201_LEWIS _230_BR_1 _1	$ 890,694.40
22192_DOUBLTTP_138_22300_FRIARS _138_BR_1 _1	$ 870,641.94
30830_KEARNEY _230_30835_HERNDON _230_BR_1 _1	$ 679,650.31
32218_DRUM _115_32244_BRNSWKT2_115_BR_2 _1	$ 639,234.44
22208_EL CAJON_69.0_22408_LOSCOCHS_69.0_BR_1 _1	$ 586,198.24
30575_WND MSTR_230_38610_DELTAPMP_230_BR_1 _1	$ 583,579.48
22820_SWEETWTR_69.0_22476_MIGUELTP_69.0_BR_1 _1	$ 504,158.26

Figure 3: Day-Ahead Congestion Rents for Flow-Based Constraints (contin.)

Transmission Constraint	Congestion Rent
22136_CLAIRMNT_69.0_22140_CLARMTTP_69.0_BR_1 _1	$ 419,011.89
30060_MIDWAY _500_29402_WIRLWIND_500_BR_1 _2	$ 351,643.53
34548_KETTLEMN_70.0_34552_GATES _70.0_BR_1 _1	$ 335,806.54
22480_MIRAMAR _69.0_22756_SCRIPPS _69.0_BR_1 _1	$ 327,093.36
32326_ENCL TAP_60.0_32332_PEASE _60.0_BR_1 _1	$ 316,029.94
22256_ESCNDIDO_69.0_22724_SANMRCOS_69.0_BR_1 _1	$ 314,989.17
31482_PALERMO _115_31480_WYANDTTE_115_BR_1 _1	$ 248,637.58
32225_BRNSWKT1_115_32222_DTCH2TAP_115_BR_1 _1	$ 227,783.45
34112_EXCHEQUR_115_34116_LE GRAND_115_BR_1 _1	$ 212,617.84
OMS 4790142 Caribou Bank	$ 179,306.73
31204_UKIAH _115_38020_CITY UKH_115_BR_1 _1	$ 125,750.41
33203_MISSON _115_33204_POTRERO _115_BR_1 _1	$ 117,346.36
22831_SYCAMORE_138_22124_CHCARITA_138_BR_1 _1	$ 116,865.44
25001_GOODRICH_230_24076_LAGUBELL_230_BR_1 _1	$ 115,480.49
30261_BELDENTP_230_30300_TABLMTN _230_BR_1 _1	$ 83,439.47
33950_RVRBK TP_115_33934_TULLOCH _115_BR_1 _1	$ 78,533.44
31104_CARLOTTA_60.0_31105_RIODLLTP_60.0_BR_1 _1	$ 78,196.16
34469_GFFNJCT _70.0_34470_GIFFEN _70.0_BR_1 _1	$ 77,783.80
22372_KEARNY _69.0_22140_CLARMTTP_69.0_BR_1 _1	$ 75,845.86
34480_KEARNEY _70.0_34512_CARUTHRS_70.0_BR_1 _1	$ 64,942.65
36054_SNBRN JT_60.0_36055_IND.ACRE_60.0_BR_1 _1	$ 63,214.63
22604_OTAY _69.0_22616_OTAYLKTP_69.0_BR_1 _1	$ 60,237.58
30505_WEBER _230_30624_TESLA E _230_BR_1 _1	$ 52,026.32
33050_CC SUB _60.0_33000_CC SUB _115_XF_2	$ 47,952.57
31080_HUMBOLDT_60.0_31088_HMBLT JT_60.0_BR_1 _1	$ 41,458.88
34932_WASCO _70.0_34934_SEMITRPC_70.0_BR_1 _1	$ 33,189.59
34860_TAFT _70.0_34943_Q356TAP _70.0_BR_1 _1	$ 27,981.21
31086_EUREKA _60.0_31090_HMBLT BY_60.0_BR_1 _1	$ 26,812.45
31336_HPLND JT_60.0_31370_CLVRDLJT_60.0_BR_1 _1	$ 25,438.32
31604_COTTONWD_60.0_31611_RAWSON _60.0_BR_2 _1	$ 18,154.03
33506_STANISLS_115_33503_FRGTNTP2_115_BR_1 _1	$ 12,999.21
31566_KESWICK _60.0_31582_STLLWATR_60.0_BR_1 _1	$ 12,453.66
31090_HMBLT BY_60.0_31100_EEL RIVR_60.0_BR_1 _1	$ 12,327.50
31108_SWNS FLT_60.0_31110_BRDGVLLE_60.0_BR_1 _1	$ 12,302.74
30525_C.COSTA _230_30575_WND MSTR_230_BR_1 _1	$ 11,828.89
31220_EGLE RCK_115_31228_HOMSTKTP_115_BR_1 _1	$ 7,580.94
32056_CORTINA _60.0_30451_CRTNA M_ 1.0_XF_1	$ 5,412.97
35648_LLAGAS _115_35650_GILROY F_115_BR_1 _1	$ 5,071.88
7750_D-VISTA2_OOS_CP5_NG	$ 4,550.22
OMS_6160236_ELNIDO-LAFRESA 3_NG	$ 4,198.01
31000_HUMBOLDT_115_31015_BRDGVLLE_115_BR_1 _1	$ 4,002.19
33506_STANISLS_115_33501_FRGTNTP1_115_BR_1 _1	$ 3,931.85
34116_LE GRAND_115_34134_WILSONAB_115_BR_1 _1	$ 2,398.80

Figure 3: Day-Ahead Congestion Rents for Flow-Based Constraints (contin.)

Transmission Constraint	Congestion Rent
32208_GLEAF TP_115_32214_RIO OSO _115_BR_1 _1	$ 2,395.61
31214_GEYERS56_115_31220_EGLE RCK_115_BR_1 _1	$ 1,794.75
31580_CASCADE _60.0_31582_STLLWATR_60.0_BR_1 _1	$ 1,333.13
31640_TRES VIS_60.0_31644_BIGGSJCT_60.0_BR_1 _1	$ 1,219.80
32301_GLEAF2TP_60.0_32328_YBA CTYJ_60.0_BR_1 _1	$ 907.07
31112_FRUITLND_60.0_31114_FRT SWRD_60.0_BR_1 _1	$ 703.70
31227_HGHLNDJ2_115_31950_CORTINA _115_BR_1 _1	$ 637.48
34471_SNJQJCT _70.0_34469_GFFNJCT _70.0_BR_1 _1	$ 595.58
34582_ARCO _70.0_34942_LST HLLS_70.0_BR_1 _1	$ 545.38
31464_COTWDPGE_115_30105_COTTNWD _230_XF_1	$ 487.47
31067_ARC_JT2X_60.0_31056_JANCK TP_60.0_BR_1 _1	$ 412.68
33936_MELNS JB_115_33951_VLYHMTP1_115_BR_1 _1	$ 399.87
22296_FENTONTP_69.0_22292_FENTON _69.0_BR_1 _1	$ 265.90
32374_DRUM _60.0_32376_BONNIE N_60.0_BR_1 _1	$ 226.14
31593_COWCREEK_60.0_31597_DESCHTP1_60.0_BR_1 _1	$ 224.29
32218_DRUM _115_32219_DR360370_115_BR_1 _1	$ 201.00
31306_WILLITS _60.0_31308_LYTNVLLE_60.0_BR_1 _1	$ 143.92
34552_GATES _70.0_39003_Q633SS _70.0_BR_1 _1	$ 88.90
33932_MELONES _115_33936_MELNS JB_115_BR_1 _1	$ 88.76
31110_BRDGVLLE_60.0_31112_FRUITLND_60.0_BR_1 _1	$ 73.89
Totals	**$ 84,698,747.12**

Figure 4: Day-Ahead (IFM) Average A/S Price

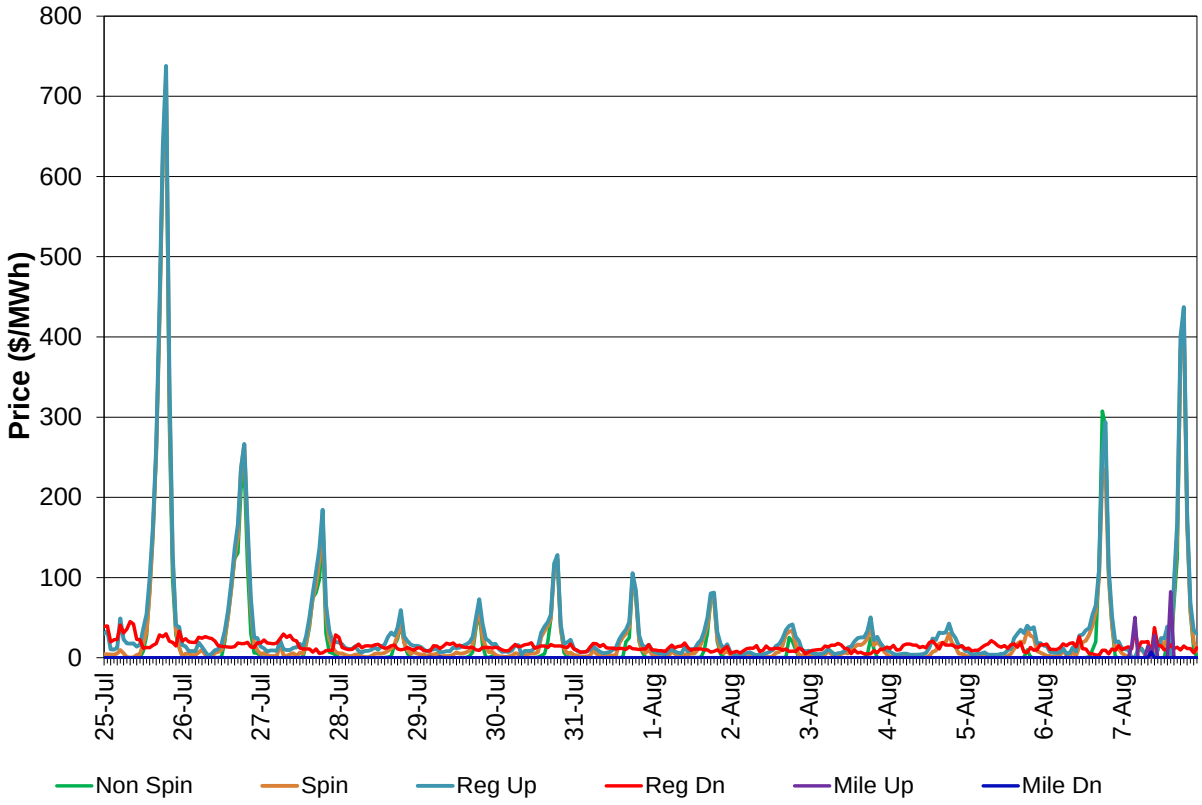

Figure 5: Day-Ahead Average RUC Price

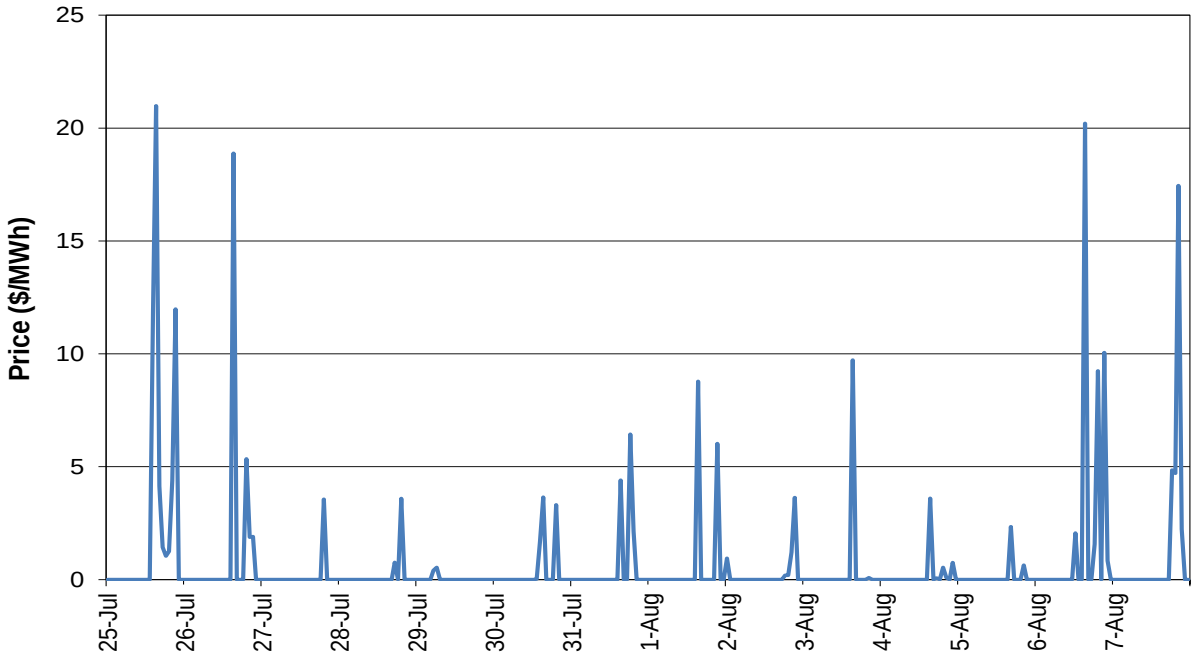

Figure 6: Real-Time FMM Average A/S Price

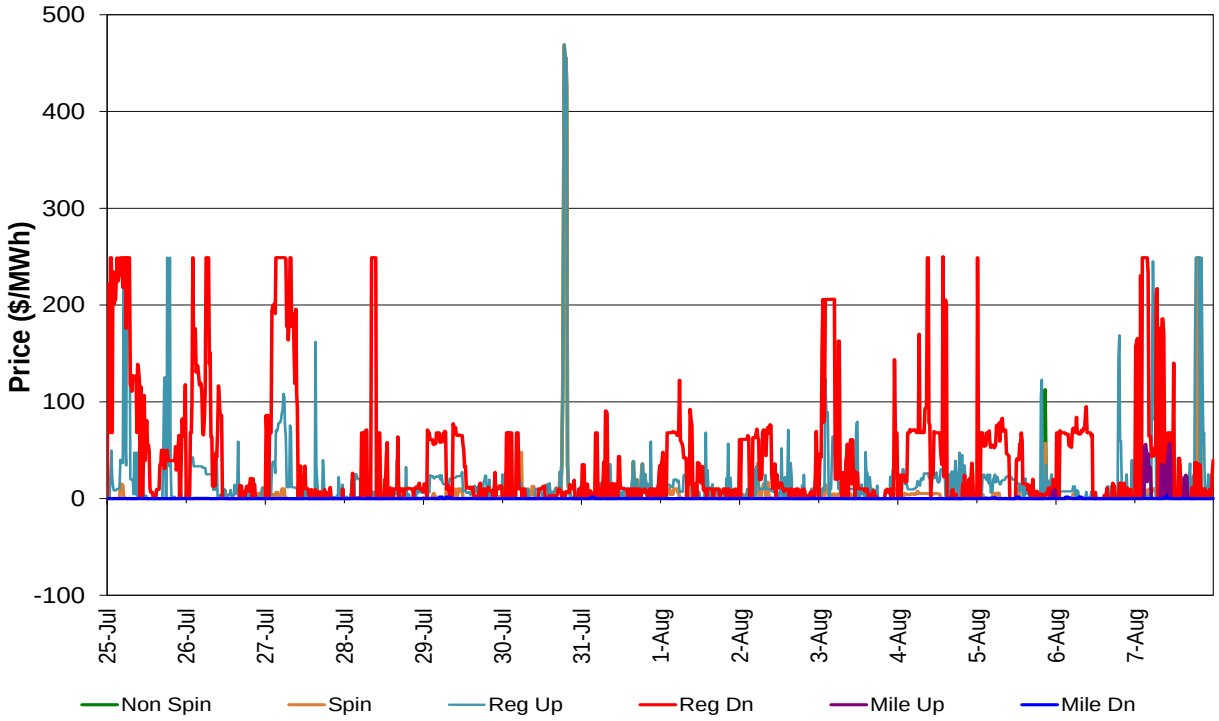

Figure 7: Real-Time FMM DLAP LMP

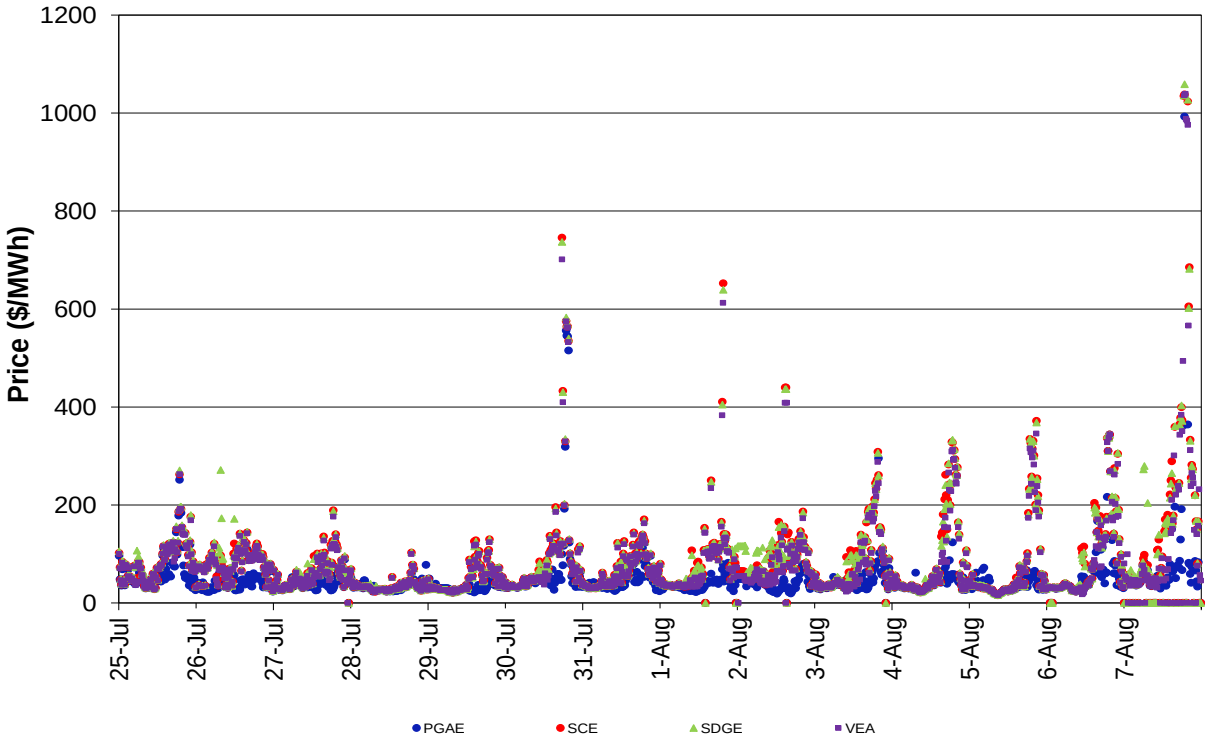

Figure 8: Real-Time RTD DLAP LMP

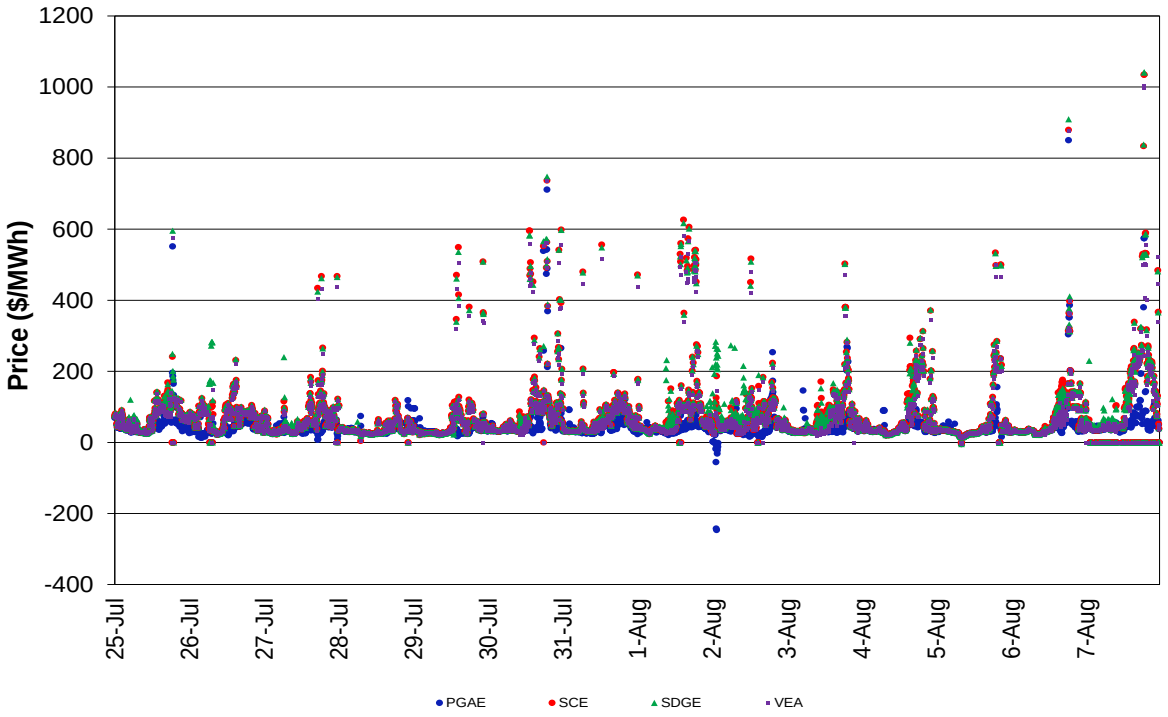

Figure 9: Real-Time FMM ELAP LMP

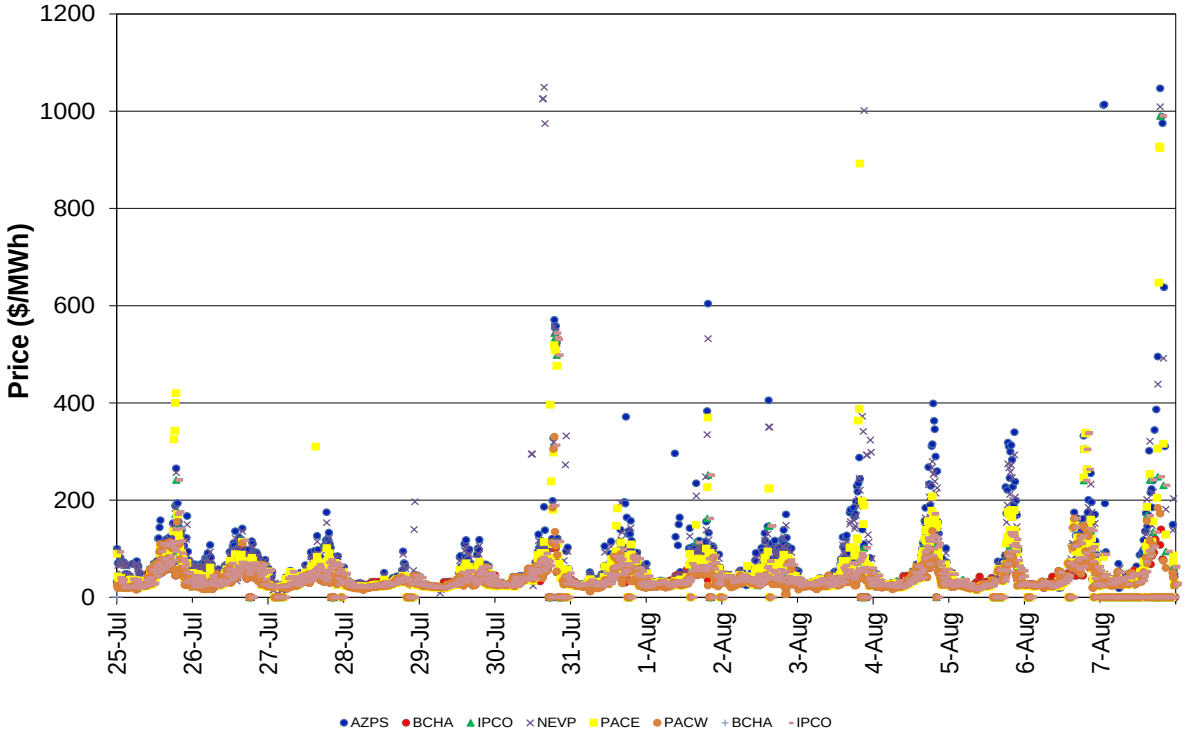

Figure 10: Real-Time RTD ELAP LMP