

## Market Highlights<sup>1</sup> (February 20–March 5)

- The average DLAP price in the integrated forward market was \$60.20. The maximum and minimum DLAP prices were \$188.00 and \$6.56, respectively. The maximum and minimum PNode prices in the integrated forward market were \$565.03 and -\$150.36 respectively.
- The top two interties congested in the integrated forward market were IPPDCADLN\_ITC and PALOVRDE\_ITC. Congestion rents in these two weeks totaled \$36,749,279.46.
- The average day-ahead ancillary service prices were between \$0.00 and \$103.59.
- Approximately 95.98 percent of the RUC requirements were met from RA units.
- The average real-time FMM DLAP price was \$57.61, with a maximum price of \$528.14 and a minimum price of -\$13.03. The maximum and minimum PNode prices in the FMM were \$2,915.95 and -\$1,074.95, respectively.
- Out of the total 1,344 FMM intervals, 12 intervals saw DLAP prices above \$250, and 0 intervals saw DLAP prices below -\$150.
- Out of the total 1,344 FMM intervals, 43 intervals saw ELAP prices above \$250 And 5 intervals saw ELAP prices below -\$150.
- The average real-time FMM ELAP price was \$53.83, with a maximum price of \$1,043.70 and a minimum price of -\$159.93.
- The average real-time RTD DLAP price was \$57.96, with a maximum price of \$1,049.52 and a minimum price of -\$299.33. The maximum and minimum PNode prices in the RTD were \$3,159.83 and -\$1,926.12, respectively.
- Out of the total 4,032 RTD intervals, 123 intervals saw DLAP prices above \$250 and 1 interval saw DLAP prices below -\$150.
- Out of the total 4,032 RTD intervals, 83 intervals saw ELAP prices above \$250 and 52 intervals saw ELAP prices below -\$150. The average real-time RTD ELAP price was \$51.46, with a maximum price of \$1,067.55 and a minimum price of -\$318.27.
- Root causes for daily high price events are noted in Tables 1 and 2.

Table 1 FMM Intervals	
Trade Date	Root Cause
FMM Feb 20 HE 6	Load changes, changes in renewable forecast, and re-dispatch of resources.

<sup>1</sup> 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 Feb 20 HE 18; Feb 22 HE 6	Load changes and changes in renewable forecast.
FMM Feb 20 HE 23	Congestion on 7820_TL 230S_OVERLOAD_NG and congestion on 7820_TL23040_IV_SPS_NG.
FMM Feb 21 HE 17, HE 19, HE 20; Feb 22 HE 18	Congestion on 24092_MIRALOMA_500_24093_MIRALOM_230_XF_2_P.
FMM Feb 21 HE 18	Load changes.
FMM Feb 21 HE 23	Congestion on 7820_TL 230S_OVERLOAD_NG.
FMM Feb 22 HE 21	Congestion on 24092_MIRALOMA_500_24093_MIRALOM_230_XF_4_P.
FMM Feb 22 HE 24	Congestion on 7820_TL 230S_OVERLOAD_NG and re-dispatch of resources.

Table 2 RTD Intervals	
Trade Date	Root Cause
RTD Feb 20 HE 13, HE 14, HE 15, HE 21; Feb 21 HE 14, HE 15, HE 16; Feb 22 HE 21, HE 23; Feb 23 HE 1; Feb 26 HE 12; Mar 1 HE 9; Mar 2 HE 13, HE 14	Congestion on 7820_TL 230S_OVERLOAD_NG.
RTD Feb 21 HE 8; Mar 1 HE 16	Congestion on 7820_TL 230S_OVERLOAD_NG and congestion on 7820_TL23040_IV_SPS_NG.
RTD Feb 21 HE 9	Renewable deviation.
RTD Feb 21 HE 18, HE 22; Feb 22 HE 18	Congestion on 24092_MIRALOMA_500_24093_MIRALOM_230_XF_2_P and 7820_TL 230S_OVERLOAD_NG.
RTD Feb 21 HE 19, HE 20, HE 21	Congestion on 24092_MIRALOMA_500_24093_MIRALOM_230_XF_2_P.
RTD Feb 25 HE 8; Mar 1 HE 8, HE 17	Renewable deviation.
RTD Feb 26 HE 9	Renewable deviation, congestion on 24042_ELDORDO_500_24086_LUGO_500_BR_1_3, and congestion on 24804_DEVERS_230_24806_MIRAGE_230_BR_2_1.
RTD Feb 26 HE 13	Congestion on 22716_SANLUSRY_230_22232_ENCINA_230_BR_1_1 and congestion.
RTD Feb 26 HE 15, HE 16; Feb 28 HE 19	Load changes and renewable deviation.
RTD Feb 27 HE 15	Renewable deviation, congestion on 7820_TL23040_IV_SPS_NG, congestion on 7820_TL 230S_OVERLOAD_NG, and re-dispatch of resources.
RTD Feb 28 HE 22	Load changes and re-dispatch of resources.
RTD Mar 1 HE 14	Congestion on 30060_MIDWAY_500_24156_VINCENT_500_BR_2_3 and congestion on 7820_TL 230S_OVERLOAD_NG.



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

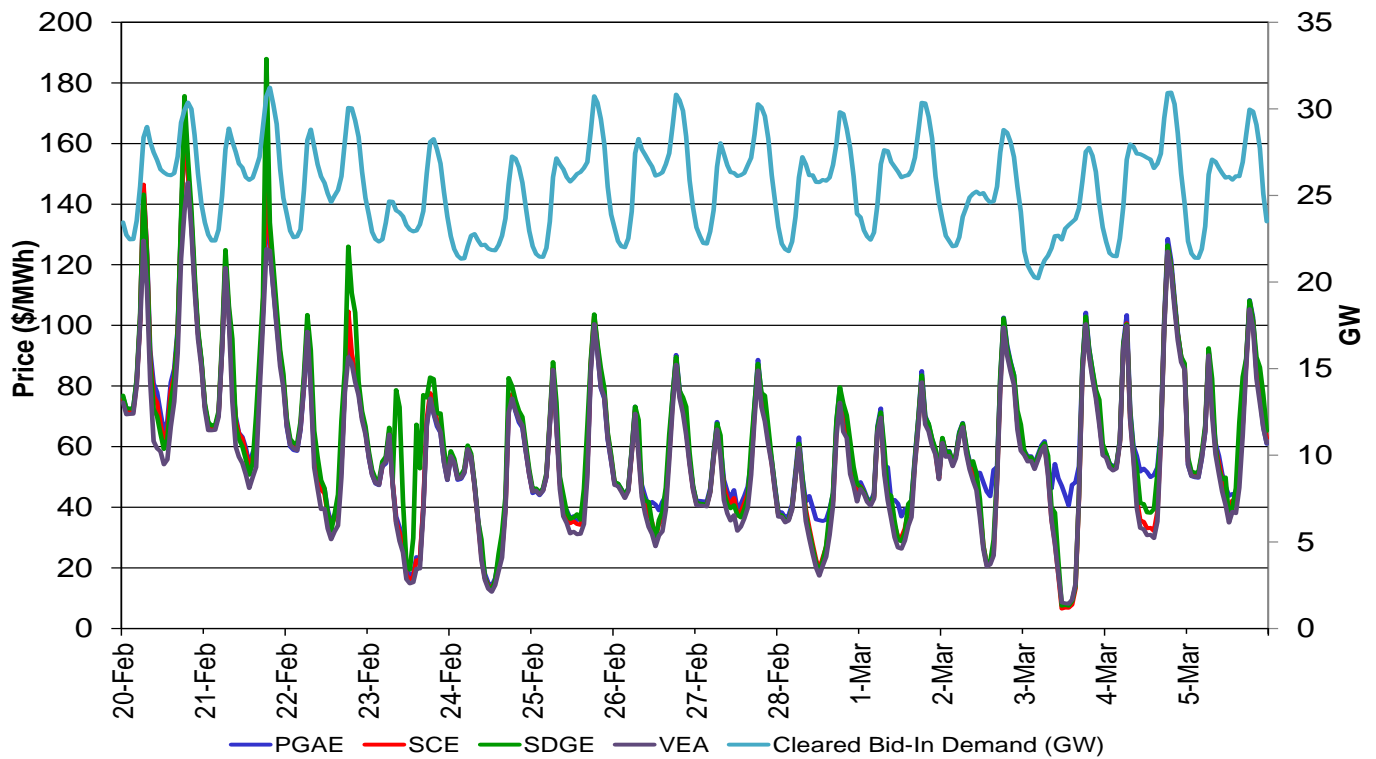
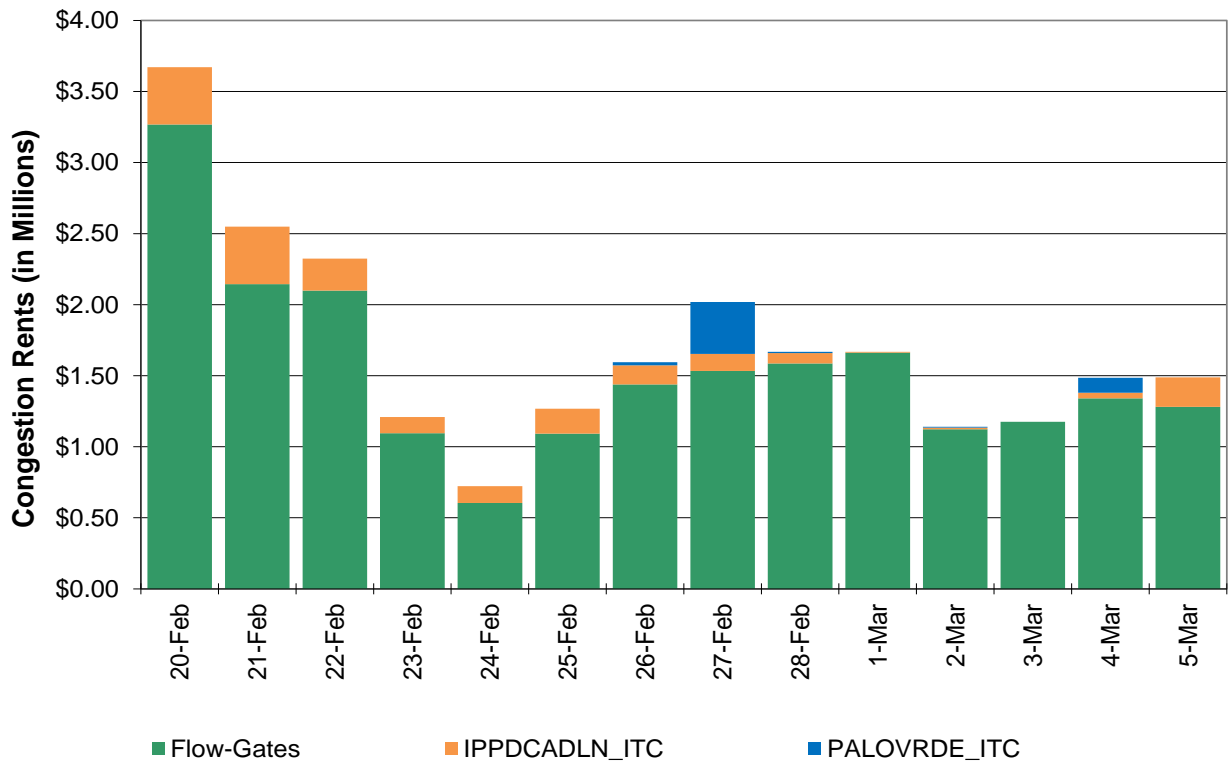


Figure 2: Day-Ahead Congestion Rents



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

<b>Transmission Constraint</b>	<b>Congestion Rent</b>
7750_D-ECASCO_OOS_CP6_NG	\$ 8,165,666.02
7750_D-ECASCO_OOS_N1SV500_NG	\$5,261,667
7820_TL 230S_OVERLOAD_NG	\$1,289,432
30060_MIDWAY_500_24156_VINCENT_500_BR_2_3	\$1,104,315
34418_KINGSBRG_115_34405_FRWT TAP_115_BR_1_1	\$1,015,088
30055_GATES1_500_30060_MIDWAY_500_BR_1_3	\$838,118
24086_LUGO_500_26105_VICTORVL_500_BR_1_1	\$628,166
24115_PASTORIA_230_24217_WARNETAP_230_BR_1_1	\$564,280
7820_TL23040_IV_SPS_NG	\$513,504
22820_SWEETWTR_69.0_22476_MIGUELTP_69.0_BR_1_1	\$335,978
24114_PARDEE_230_24147_SYLMAR S_230_BR_1_1	\$273,093
22192_DOUBLTTP_138_22300_FRIARS_138_BR_1_1	\$268,198
SDGE_CFEIMP_BG	\$173,028
30810_GREGG_230_30879_HENTAP1_230_BR_1_1	\$123,442
24036_EAGLROCK_230_24059_GOULD_230_BR_1_1	\$96,222
OMS 6777914_PAS-BAI_OOS_NG	\$85,192
37650_TESLA TP_115_33574_LLNL_115_BR_1_1	\$69,242
HUMBOLDT_IMP_NG	\$67,120
24804_DEVERS_230_24806_MIRAGE_230_BR_2_1	\$60,514
34704_SEMITRPC_115_34774_MIDWAY_115_BR_1_1	\$54,834
34548_KETTLEMN_70.0_34552_GATES_70.0_BR_1_1	\$44,615
34469_GFFNJCT_70.0_34470_GIFFEN_70.0_BR_1_1	\$43,826
34112_EXCHEQUR_115_34116_LE GRAND_115_BR_1_1	\$42,578
34121_SHARON T_115_34128_OAKH_JCT_115_BR_1_1	\$38,824
30280_POE_230_30330_RIO OSO_230_BR_1_1	\$35,396
24303_BIG CRK3_230_24235_RECTOR_230_BR_1_1	\$34,311
22480_MIRAMAR_69.0_22756_SCRIPPS_69.0_BR_1_1	\$33,903
32225_BRNSWKT1_115_32222_DTCH2TAP_115_BR_1_1	\$32,273
30765_LOSBANOS_230_30790_PANOCHE_230_BR_2_1	\$28,590
7510-PAS-BAI-PAR-OOS_NG	\$25,928
22256_ESCNDIDO_69.0_22724_SANMRCOS_69.0_BR_1_1	\$20,123
31000_HUMBOLDT_115_31015_BRDGVLE_115_BR_1_1	\$20,052
34474_HELM_70.0_34556_STRD JCT_70.0_BR_1_1	\$11,525
31461_JESSTAP_115_31464_COTWDPGE_115_BR_1_1	\$9,586
34116_LE GRAND_115_34134_WILSONAB_115_BR_1_1	\$7,657
35648_LLAGAS_115_35655_MORGN J2_115_BR_1_1	\$7,296
24087_MAGUNDEN_230_24153_VESTAL_230_BR_2_1	\$4,729
32214_RIO OSO_115_32244_BRNSWKT2_115_BR_2_1	\$4,114
31566_KESWICK_60.0_31582_STLLWATR_60.0_BR_1_1	\$3,720
OMS 6700415_HUMBOLDT_IMP_NG	\$2,842
34528_CORCORAN_70.0_34530_BSWLL TP_70.0_BR_1_1	\$2,678
22644_PENSQTOS_69.0_22856_TOREYPNS_69.0_BR_1_1	\$1,261
31080_HUMBOLDT_60.0_31092_MPLE CRK_60.0_BR_1_1	\$15
<b>Totals</b>	<b>\$ 21,442,940.51</b>



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

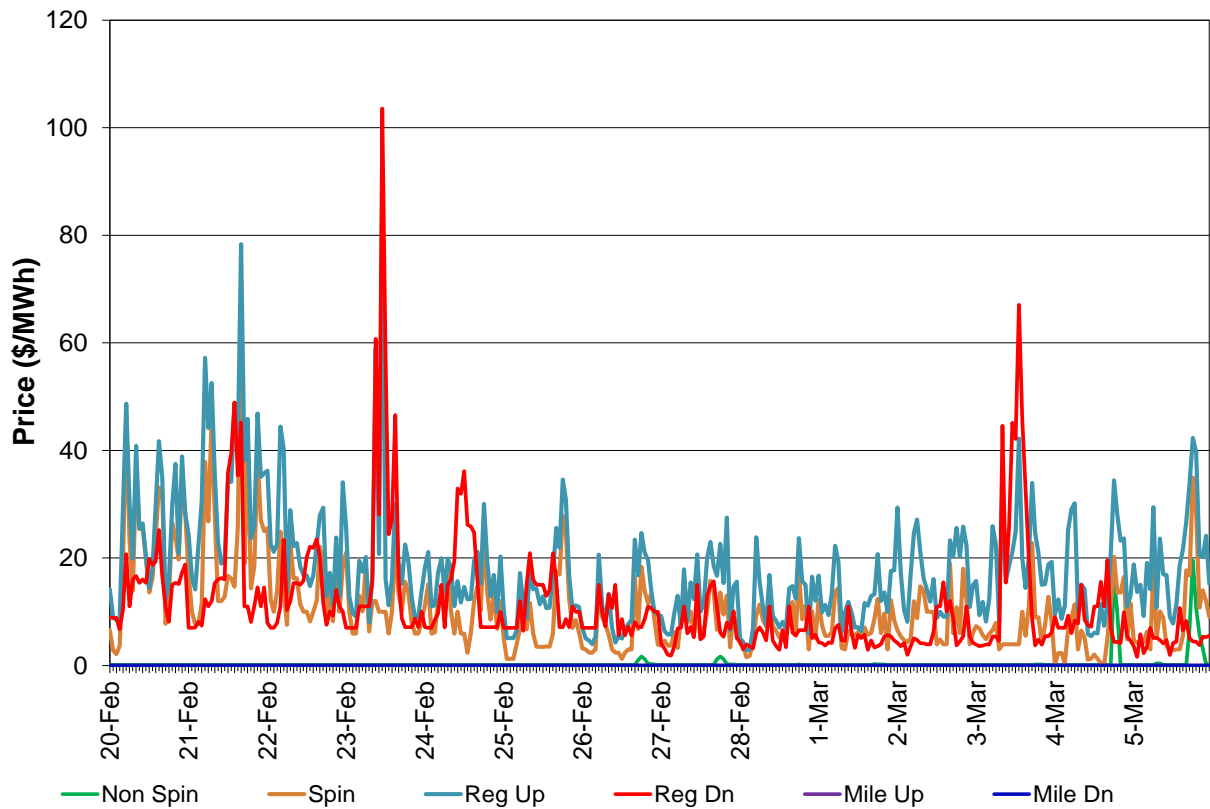


Figure 5: Day-Ahead Average RUC Price

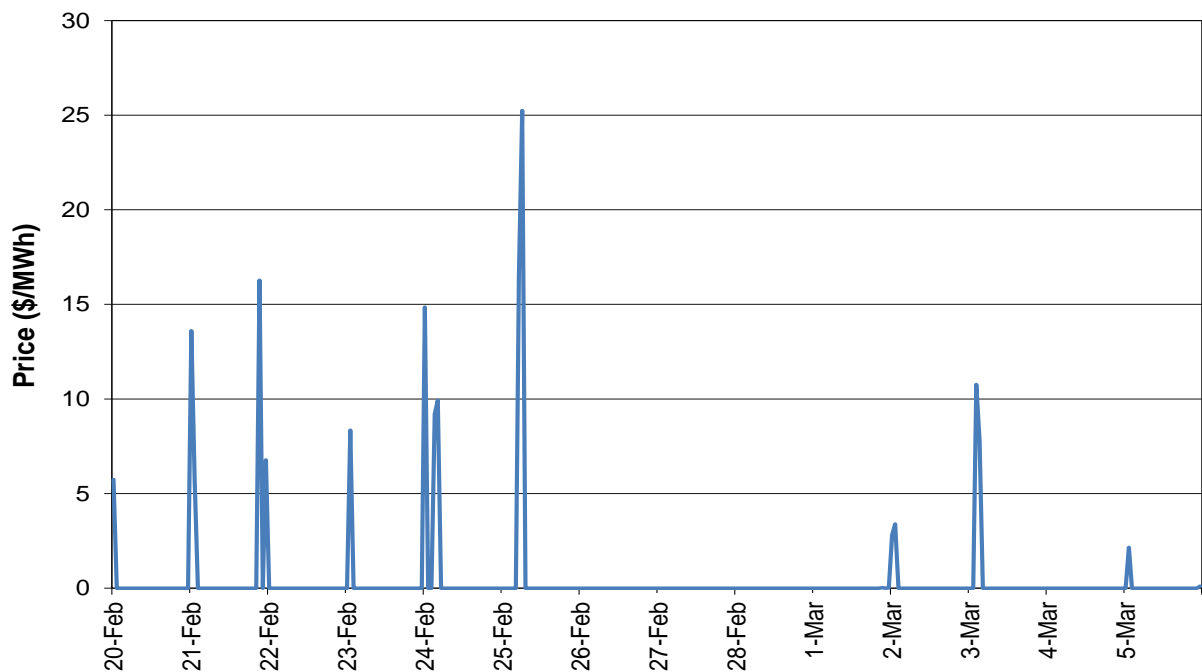




Figure 6: Real-Time FMM Average A/S Price

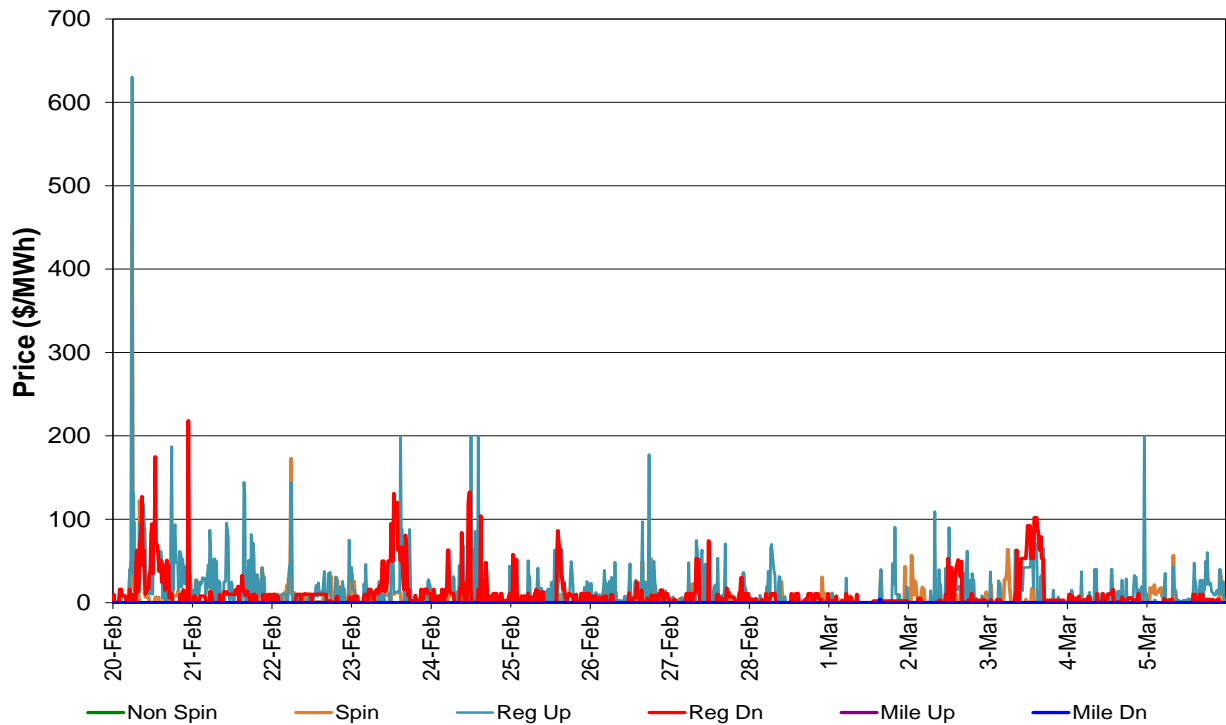
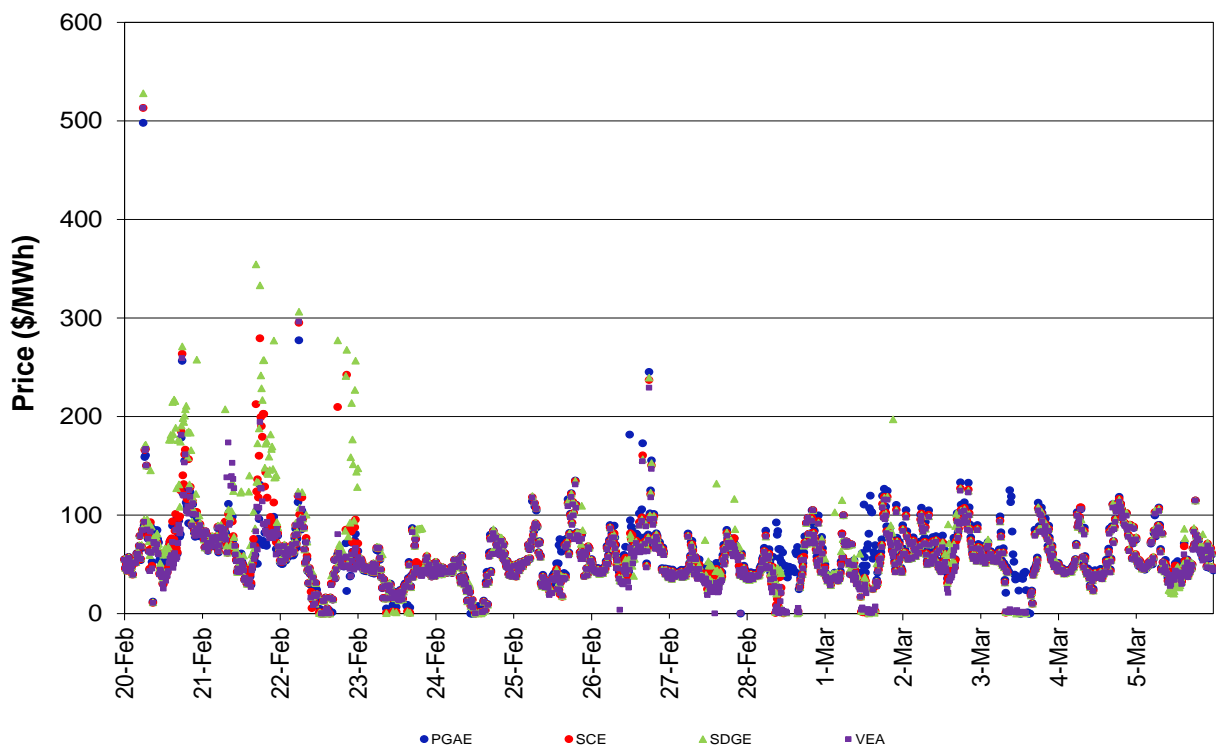
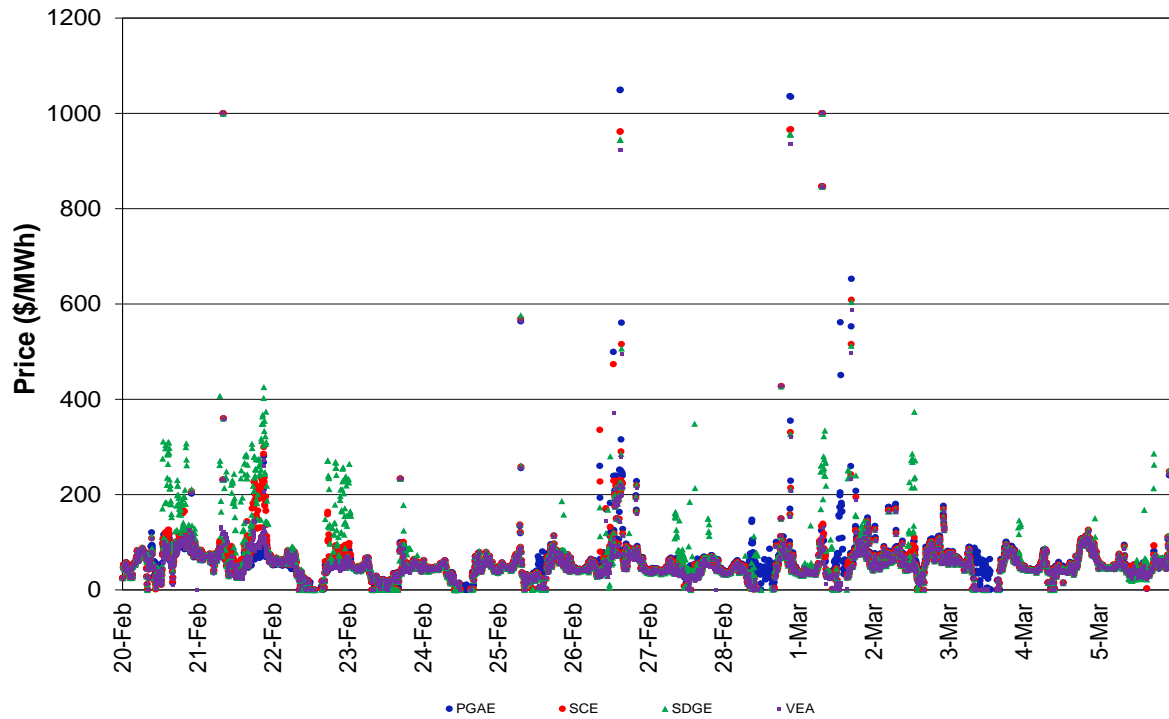


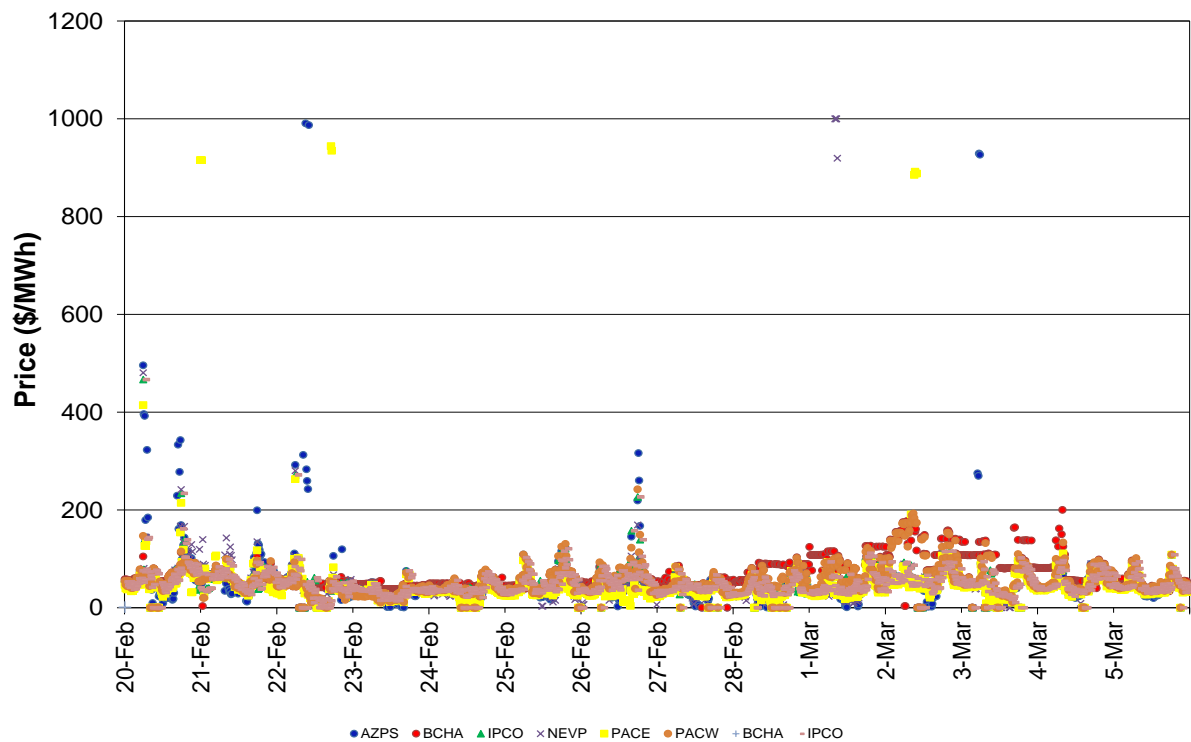
Figure 7: Real-Time FMM DLAP LMP



**Figure 8: Real-Time RTD DLAP LMP**



**Figure 9: Real-Time FMM ELAP LMP**



**Figure 10: Real-Time RTD ELAP LMP**

