# Market Highlights[1] (April 5–April 18)

- The average DLAP price in the integrated forward market was $26.04. The maximum and minimum DLAP prices were $78.57 and -$10.89, respectively. The maximum and minimum PNode prices in the integrated forward market were $1,053.29 and -$151.54 respectively.

- The top two interties congested in the integrated forward market were NOB_ITC and MALIN500. Congestion rents in these two weeks totaled $12,983,693.29.

- The average day-ahead ancillary service prices were between $0.00 and $105.22.

- Approximately 86.09 percent of the RUC requirements were met from RA units.

- The average real-time FMM DLAP price was $33.84, with a maximum price of $1,338.13 and a minimum price of -$162.81. The maximum and minimum PNode prices in the FMM were $1,925.70 and -$1,197.62, respectively.

- Out of the total 1,344 FMM intervals, 12 intervals saw DLAP prices above $250, and 1 intervals saw DLAP prices below -$150.

- Out of the total 1,344 FMM intervals, 59 intervals saw ELAP prices above $250 and 14 intervals saw ELAP prices below -$150. The average real-time FMM ELAP price was $24.85, with a maximum price of $1,223.36 and a minimum price of -$190.99.

- The average real-time RTD DLAP price was $35.08, with a maximum price of $1,231.44 and a minimum price of -$131.41. The maximum and minimum PNode prices in the RTD were $1,401.15 and -$1,630.70, respectively.

- Out of the total 4,032 RTD intervals, 78 intervals saw DLAP prices above $250 and 0 intervals saw DLAP prices below -$150.

- Out of the total 4,032 RTD intervals, 275 intervals saw ELAP prices above $250 and 77 intervals saw ELAP prices below -$150. The average real-time RTD ELAP price was $23.88, with a maximum price of $1,139.09 and a minimum price of -$353.71.

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

| Table 1 FMM Intervals | |
|---|---|
| **Trade Date** | **Root Cause** |
| FMM Apr 5 HE 20, 21 | Load changes and reduction of net import |
| FMM Apr 8 HE 6 | Load changes |
| FMM Apr 10 HE 20 | Load changes and change in renewable forecast |
| FMM Apr 12 HE 20, 21 | Congestion on 6410_CP5_NG, load changes and generator outage |

---

[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 Apr 17 HE 20, 21 | Congestion on 6410_CP5_NG and change in renewable forecast |
| FMM Apr 18 HE 21 | Congestion on 6410_CP5_NG and load changes |

| Table 2 RTD Intervals | |
|---|---|
| **Trade Date** | **Root Cause** |
| RTD Apr 5 HE 18; Apr 6 HE 14, 16, 17; Apr 7 HE 2 | Load changes and renewable deviation |
| RTD Apr 5 HE 20 | Re-dispatch of resources |
| RTD Apr 7 HE 6 | Congestion on 6410_CP5_NG |
| RTD Apr 7 HE 9, 18; Apr 9 HE 9 | Renewable deviation, re-dispatch of resources and load changes |
| RTD Apr 7 HE 24 | Renewable deviation |
| RTD Apr 9 HE 19; Apr 11 HE 20 | Load changes |
| RTD Apr 11 HE 6 | Congestion on 6410_CP5_NG |
| RTD Apr 11 HE 19 | Load changes and renewable deviation |
| RTD Apr 12 HE 5, 6, 7, 18, 20, 23, 24; Apr 13 HE 18, 23 | Congestion on 6410_CP5_NG, load changes and renewable deviation |
| RTD Apr 13 HE 19 | Congestion on 6410_CP5_NG, renewable deviation and re-dispatch of resources |
| RTD Apr 16 HE 6, 24 | Congestion on 6410_CP5_NG, load changes and re-dispatch of resources |
| RTD Apr 16 HE 17 | Load changes and renewable deviation |
| RTD Apr 17 HE 12 | Load changes |
| RTD Apr 17 HE 18, 19, 21 | Congestion on 6410_CP5_NG and renewable deviation |
| RTD Apr 18 HE 24 | Congestion on 6410_CP5_NG and load changes |

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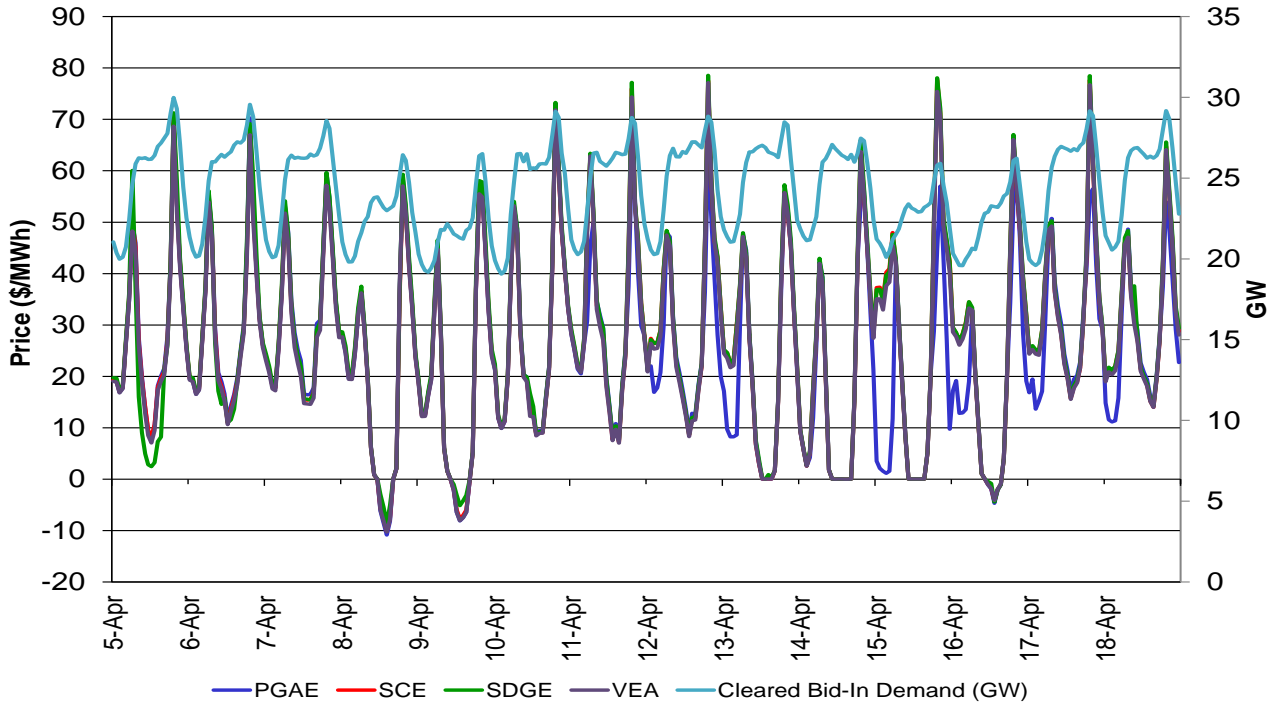


## Figure 2: Day-Ahead Congestion Rents
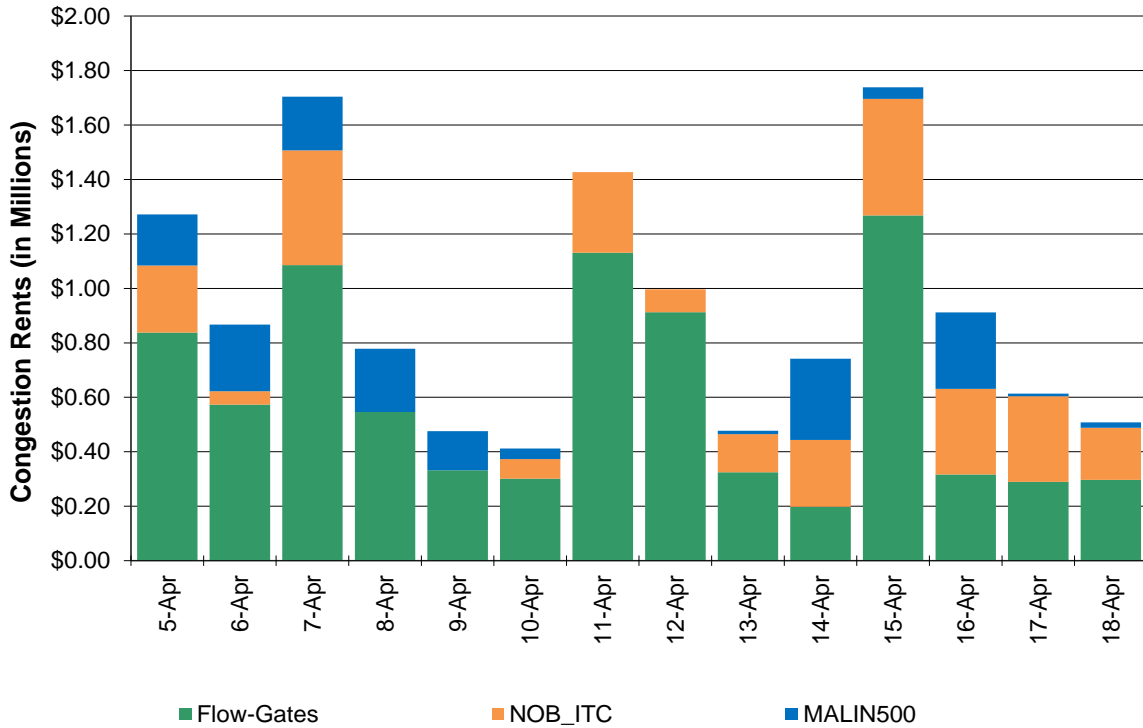
**Figure 3: Day-Ahead Congestion Rents for Flow-Based Constraints**

| Transmission Constraint | Congestion Rent |
|---|---|
| OMS_3831815_TMS_DLO | $ 2,146,364.46 |
| 6410_CP5_NG | $ 1,832,405.81 |
| 32212_E.NICOLS_115_32214_RIO OSO _115_BR_1 _1 | $ 829,532.11 |
| 22192_DOUBLTTP_138_22300_FRIARS _138_BR_1 _1 | $ 771,019.54 |
| 33936_MELNS JB_115_33951_VLYHMTP1_115_BR_1 _1 | $ 673,098.95 |
| 33020_MORAGA _115_32780_CLARMNT _115_BR_1 _1 | $ 600,226.75 |
| 32228_PLACER _115_32238_BELL PGE_115_BR_1 _1 | $ 386,951.62 |
| 34112_EXCHEQUR_115_34116_LE GRAND_115_BR_1 _1 | $ 163,328.77 |
| 7820_TL23040_IV_SPS_NG | $ 135,577.39 |
| 33541_AEC_TP1 _115_33540_TESLA _115_BR_1 _1 | $ 134,768.52 |
| 7820_TL 230S_OVERLOAD_NG | $ 134,453.14 |
| 34774_MIDWAY _115_34225_BELRDG J_115_BR_1 _1 | $ 111,793.10 |
| 34548_KETTLEMN_70.0_34552_GATES _70.0_BR_1 _1 | $ 63,262.44 |
| 31336_HPLND JT_60.0_31370_CLVRDLJT_60.0_BR_1 _1 | $ 36,782.85 |
| 34427_ATWELL _115_34701_SMYRNA 1_115_BR_1 _1 | $ 36,445.38 |
| 31486_CARIBOU _115_30255_CARBOU M_ 1.0_XF_11 | $ 34,628.75 |
| 32218_DRUM _115_32220_DTCH FL1_115_BR_1 _1 | $ 29,236.66 |
| 32374_DRUM _60.0_32376_BONNIE N_60.0_BR_1 _1 | $ 23,265.58 |
| 32232_HIGGINS _115_32238_BELL PGE_115_BR_1 _1 | $ 21,972.72 |
| 31224_INDIN VL_115_31215_LUCERNJ1_115_BR_1 _1 | $ 21,454.17 |
| HUMBOLDT_IMP_NG | $ 21,340.67 |
| 34807_ARVINJ2 _115_34758_LAMONT _115_BR_1 _1 | $ 17,505.72 |
| OMS 4673799 Devers_SBus | $ 16,886.40 |
| 31378_FULTON _60.0_31382_FTCHMTNP_60.0_BR_1 _1 | $ 15,525.40 |
| 31336_HPLND JT_60.0_31206_HPLND JT_115_XF_2 | $ 15,419.15 |
| 30335_ATLANTC _230_30337_GOLDHILL_230_BR_1 _1 | $ 13,902.55 |
| 31566_KESWICK _60.0_31582_STLLWATR_60.0_BR_1 _1 | $ 13,184.78 |
| 34116_LE GRAND_115_34134_WILSONAB_115_BR_1 _1 | $ 12,795.17 |
| 31334_CLER LKE_60.0_31338_KONOCTI6_60.0_BR_1 _1 | $ 10,279.65 |
| 34418_KINGSBRG_115_34405_FRWT TAP_115_BR_1 _1 | $ 8,796.92 |
| 34474_HELM _70.0_34556_STRD JCT_70.0_BR_1 _1 | $ 7,645.24 |
| 34149_CHENYT _115_34158_PANOCHE _115_BR_1 _1 | $ 6,879.59 |
| 34887_TAP SKRN_70.0_34882_SAN EMDO_70.0_BR_1 _1 | $ 6,868.41 |
| 32308_COLGATE _60.0_32313_NRRWS2TP_60.0_BR_2 _1 | $ 6,686.04 |
| 24153_VESTAL _230_24235_RECTOR _230_BR_1 _1 | $ 5,470.27 |
| 33516_RIPON J _115_33514_MANTECA _115_BR_1 _1 | $ 4,584.20 |
| 34700_SMYRNA 2_115_34742_SEMITRPJ_115_BR_1 _1 | $ 3,592.85 |
| 32056_CORTINA _60.0_30451_CRTNA M_ 1.0_XF_1 | $ 3,161.77 |
| 22480_MIRAMAR _69.0_22756_SCRIPPS _69.0_BR_1 _1 | $ 2,516.92 |
| 33932_MELONES _115_33936_MELNS JB_115_BR_1 _1 | $ 2,451.33 |
| 34859_PRMTFMTP_70.0_34873_Q484TP _70.0_BR_1 _1 | $ 1,708.09 |
| 34882_SAN EMDO_70.0_34904_OLD RIVR_70.0_BR_1 _1 | $ 1,537.30 |
| 32200_PEASE _115_32288_E.MRY J1_115_BR_1 _1 | $ 1,348.97 |

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

| Transmission Constraint | Congestion Rent | |
|---|---|---|
| 31092_MPLE CRK_60.0_31093_HYMPOMJT_60.0_BR_1 _1 | $ | 1,334.88 |
| 22884_WARNERS _69.0_22688_RINCON _69.0_BR_1_1 | $ | 640.92 |
| 31110_BRDGVLLE_60.0_31112_FRUITLND_60.0_BR_1_1 | $ | 450.22 |
| 32330_PEAS RG _60.0_32200_PEASE _115_XF_2 | $ | 286.51 |
| 31464_COTWDPGE_115_30105_COTTNWD _230_XF_1 | $ | 234.61 |
| BLYTHE_BG | $ | 178.85 |
| 31604_COTTONWD_60.0_31607_REDBLUFJ_60.0_BR_1 _1 | $ | 73.62 |
| 33951_VLYHMTP1_115_33516_RIPON J _115_BR_1_1 | $ | 63.54 |
| 7820_TL 230S_IV-SX-OUT_NG | $ | 14.37 |
| 32218_DRUM _115_32222_DTCH2TAP_115_BR_1_1 | $ | 4.15 |
| 30300_TABLMTN _230_38635_THMJCT1 _230_BR_1_1 | $ | 0.04 |
| **Total** | **$** | **8,389,937.81** |

**Figure 4: Day-Ahead (IFM) Average A/S Price**
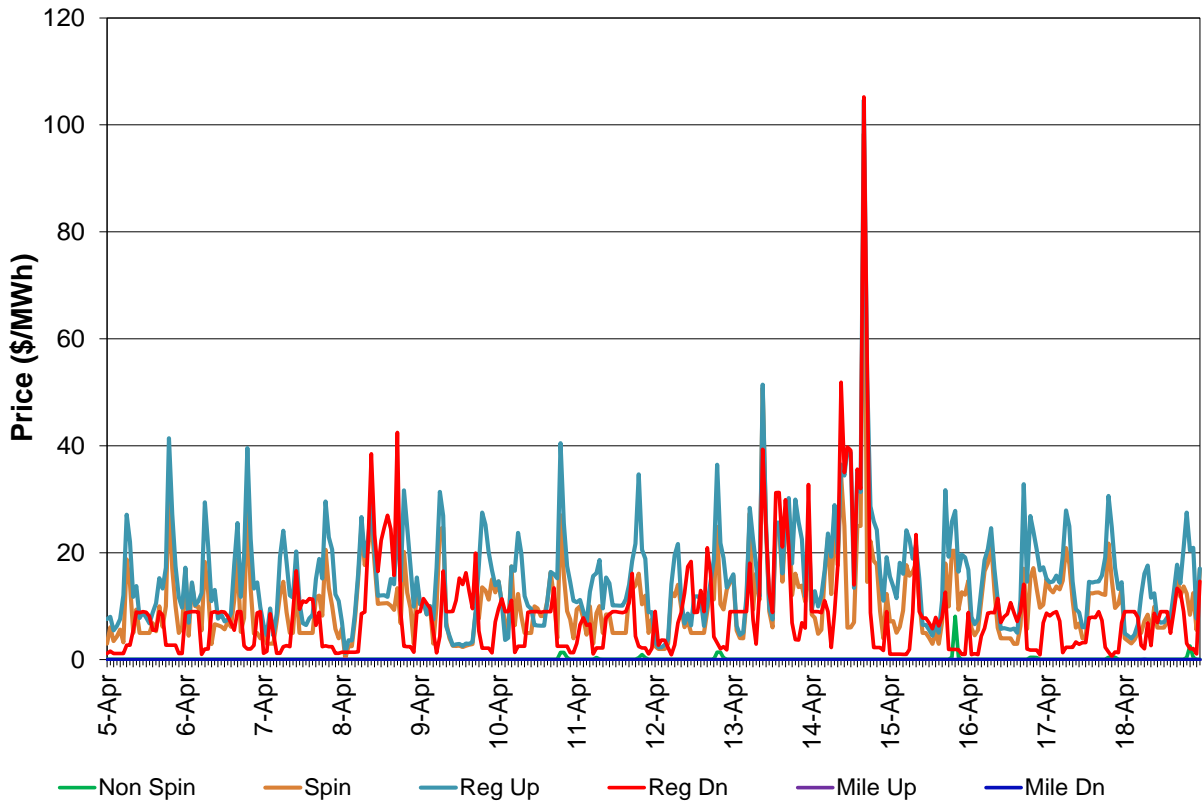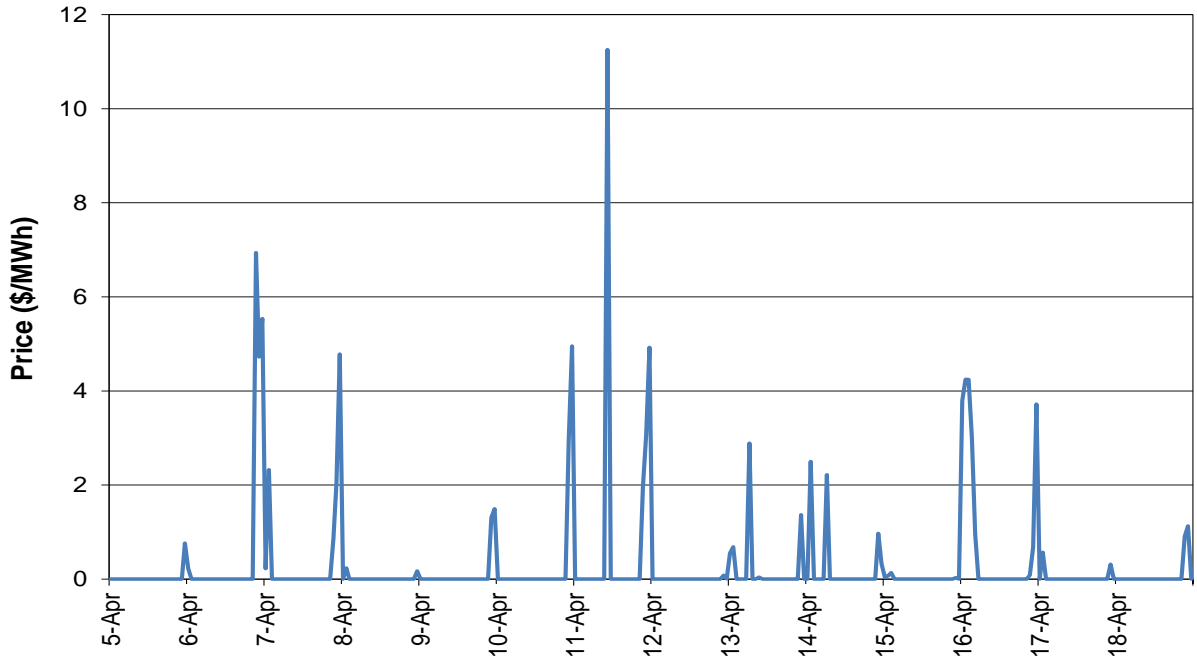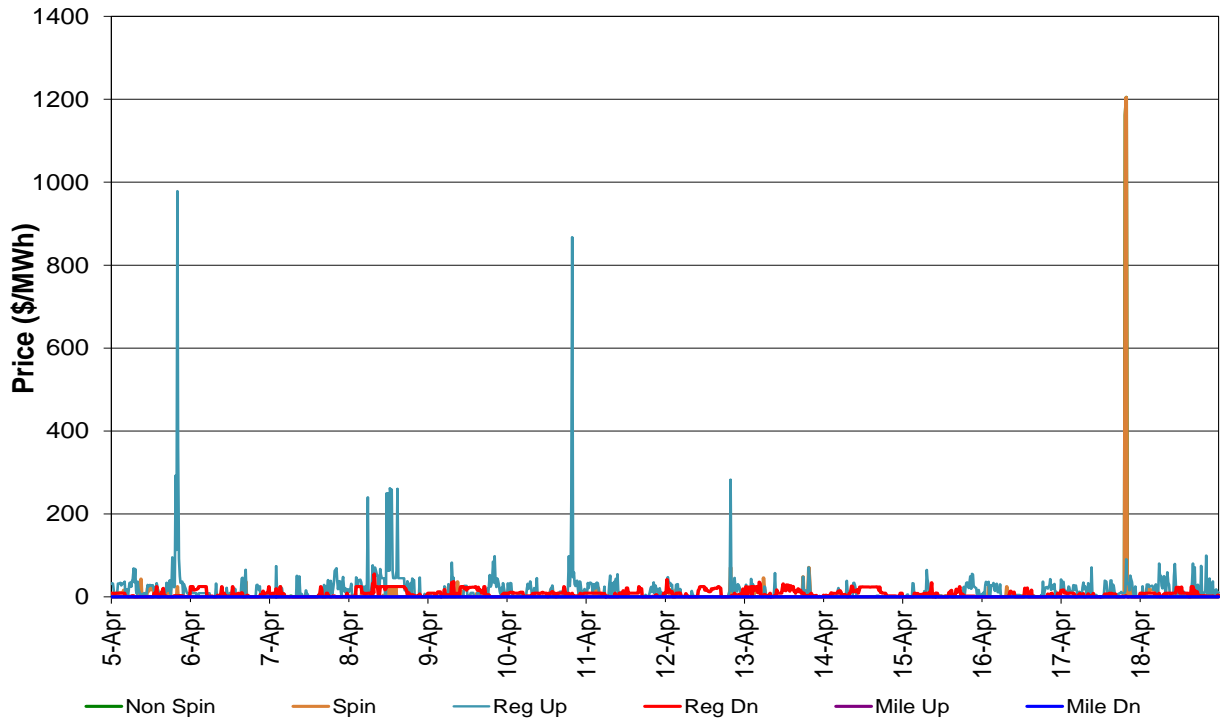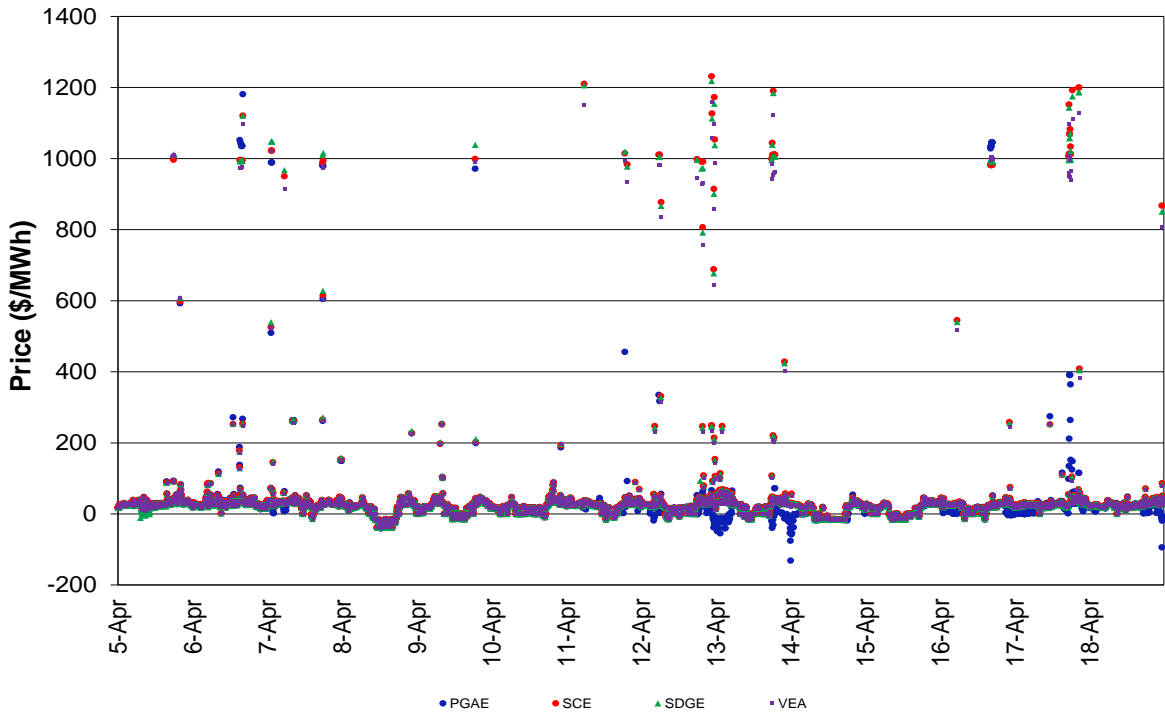
**Figure 5: Day-Ahead Average RUC Price**



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

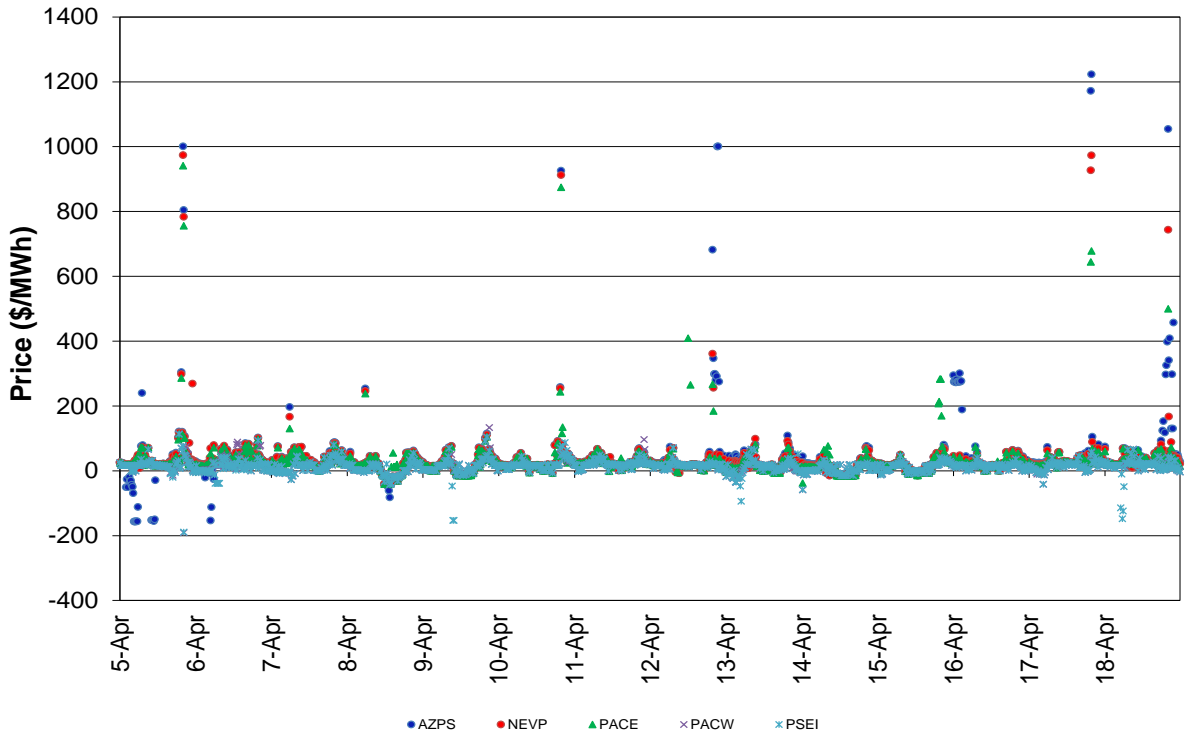**Figure 7: Real-Time FMM DLAP LMP**



Legend: PGAE, SCE, SDGE, VEA
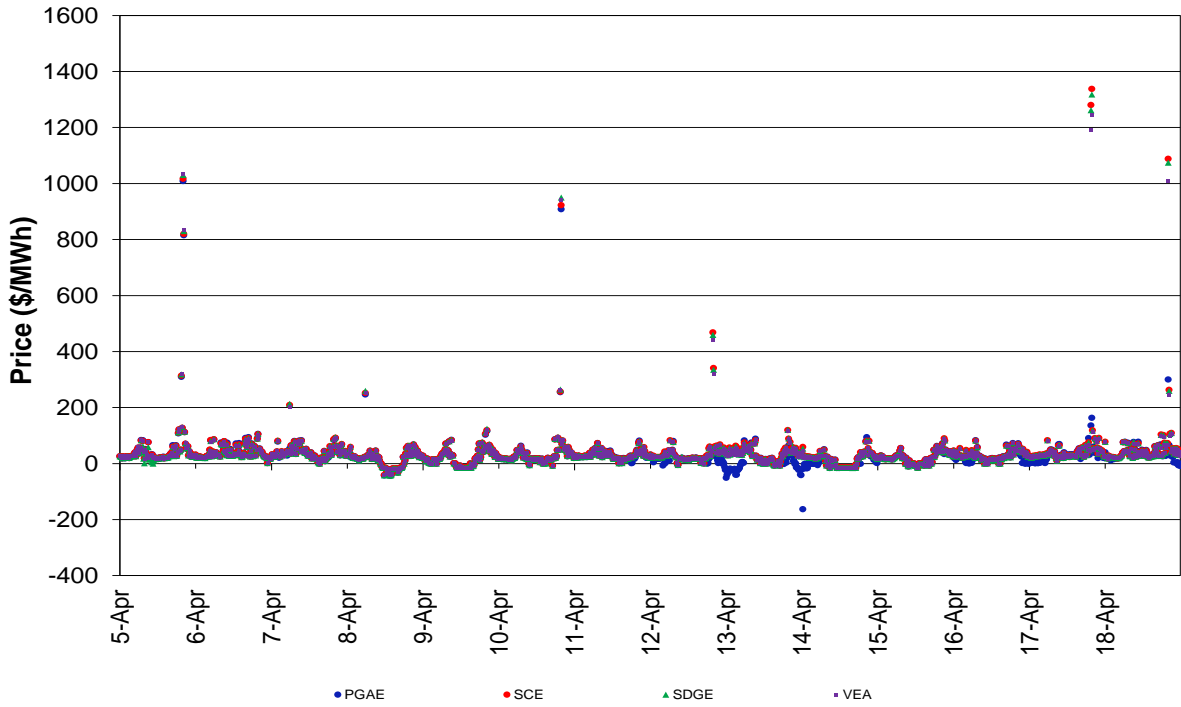
**Figure 8: Real-Time RTD DLAP LMP**



Legend: PGAE, SCE, SDGE, VEA

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



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