

# Observations from July '18 and Discussion

- Short-term adequacy report signaled to all market participants that ERCOT was short MW's vs the expected system peak demand
- The signals sent by the short-term adequacy report impact DAM bidding, bi-lateral transactions, and futures markets, with forecasted shortages resulting in elevated prices in these markets
- When peak real-time arrived, the additional capacity would either schedule on-line at the last possible minute and simply over generate to the schedule creating massive price distortions and unwarranted volatility
- ERCOT relies on accurate COP data to ensure system reliability – scheduling should not be abused
- Purpose of this analysis is to compare COP data that was going into the short-term adequacy report vs SCED data on a unit level to determine the cause of the discrepancy between the short-term adequacy report and RT
- Additional questions for discussion:
  - How is ERCOT not RUC'ing plants online earlier instead of allowing generators to “play chicken” with reliability with these last-minute updates?
  - Do ERCOT operators know plants are coming online even when their plans are not being reflected in their schedules properly?

# Methodology For Comparing COP/SCED Data

- COP reports were put on a 15 min basis and lined up with SCED reports
- Only Generation Resources were compared, Load Resources were removed from COP data
- Wind, solar, and hydro resources were removed from the data sets
- If COP data exists but no SCED data exists (or vice-versa), the missing data is set as 0 MW
- Only resources that contributed to RT ERCOT reports were considered
  - For COP data, this was statuses that would have contributed to GenRes in Short-Term Adequacy Report
  - For SCED data, this was statuses that would have contributed to Total System Capacity and was available for SCED
- HSL was compared between COP and SCED data

# Statuses That Contribute To Short-Term Adequacy Report/ Total System Capacity

Pre NPRR 843 (Applies to Jul-18)

Status	Contributes To STAR GenRes	Contributes to TSC
ONRUC	1	1
ONREG	1	1
ON	1	1
ONDSR	1	1
ONOS	1	1
ONOSREG	1	1
ONDSRREG	1	1
FRRSUP	1	1
ONTEST	1	1
ONEMR	1	1
ONOPTOUT	1	1
STARTUP	1	1
SHUTDOWN	1	1
OFFQS	0	1
OUT	0	0
OFFNS	0	0
OFF	0	0
EMR	0	0
NULL	0	0

Post NPRR 843

Status	Contributes To STAR GenRes	Contributes to TSC
ONRUC	1	1
ONREG	1	1
ON	1	1
ONDSR	1	1
ONOS	1	1
ONOSREG	1	1
ONDSRREG	1	1
FRRSUP	1	1
ONTEST	1	1
ONEMR	1	1
ONOPTOUT	1	1
STARTUP	1	1
SHUTDOWN	1	1
OFFQS	1	1
OUT	0	0
OFFNS	0	0
OFF	0	0
EMR	0	0
NULL	0	0

# SCED minus COP MW Averaged Over HE 15 to 18

Date	3pm DA COP	6am Day-of COP	Final COP	DA HB_N x16	DA HB_N HE 15-18		Date	3pm DA COP	6am Day-of COP	Final COP	DA HB_N x16	DA HB_N HE 15-18
7/1/2018	(2,876)	(2,272)	(1,679)	38	63		7/17/2018	(2,797)	(2,712)	(2,222)	167	546
7/2/2018	(2,184)	(1,310)	(892)	55	116		7/18/2018	(3,756)	(2,082)	(2,501)	351	1,279
7/3/2018	(2,444)	(2,640)	(1,251)	51	106		7/19/2018	(3,200)	(2,678)	(1,712)	300	1,087
7/4/2018	407	174	(644)	32	43		7/20/2018	(2,340)	(1,938)	(1,814)	176	600
7/5/2018	(827)	(822)	(1,083)	35	50		7/21/2018	(3,260)	(1,486)	(1,630)	346	1,237
7/6/2018	(1,677)	(1,508)	(1,499)	38	55		7/22/2018	(3,922)	(997)	(1,727)	352	1,255
7/7/2018	163	(2,874)	(1,153)	35	52		7/23/2018	(2,387)	(2,046)	(2,028)	401	1,466
7/8/2018	346	587	(572)	33	45		7/24/2018	(3,111)	(3,560)	(1,981)	121	368
7/9/2018	455	1,308	(627)	35	46		7/25/2018	(4,399)	(2,703)	(1,836)	163	518
7/10/2018	(3,209)	(2,622)	(1,703)	38	57		7/26/2018	(3,461)	(4,302)	(1,847)	128	388
7/11/2018	(1,739)	(1,989)	(2,207)	35	50		7/27/2018	(2,468)	(2,124)	(1,646)	59	128
7/12/2018	(2,149)	(2,801)	(1,331)	35	51		7/28/2018	(505)	(3,646)	(2,550)	51	98
7/13/2018	(1,808)	(3,458)	(1,453)	38	60		7/29/2018	(5,952)	(5,040)	(2,578)	51	97
7/14/2018	(3,499)	(4,680)	(1,692)	38	60		7/30/2018	466	(1,353)	(2,199)	42	77
7/15/2018	(1,752)	(1,448)	(837)	42	78		7/31/2018	552	(1,826)	(1,285)	34	53

- The 3pm DA COP represents the latest COP update having occurred before 3pm the day before RT for each unit, op. day, and op. hour
- The 6am day-of COP represents the latest COP update having occurred before 6am the day of RT for each unit, op. day, and op. hour
- The Final COP represents the final COP update in the data set for each unit, op. day, and op. hour
- Data is averaged over HE 15-18 for presentation

# Daily SCED minus 3PM DA COP MW averaged over HE 15 to 18 for QSE's with largest contribution to deficit

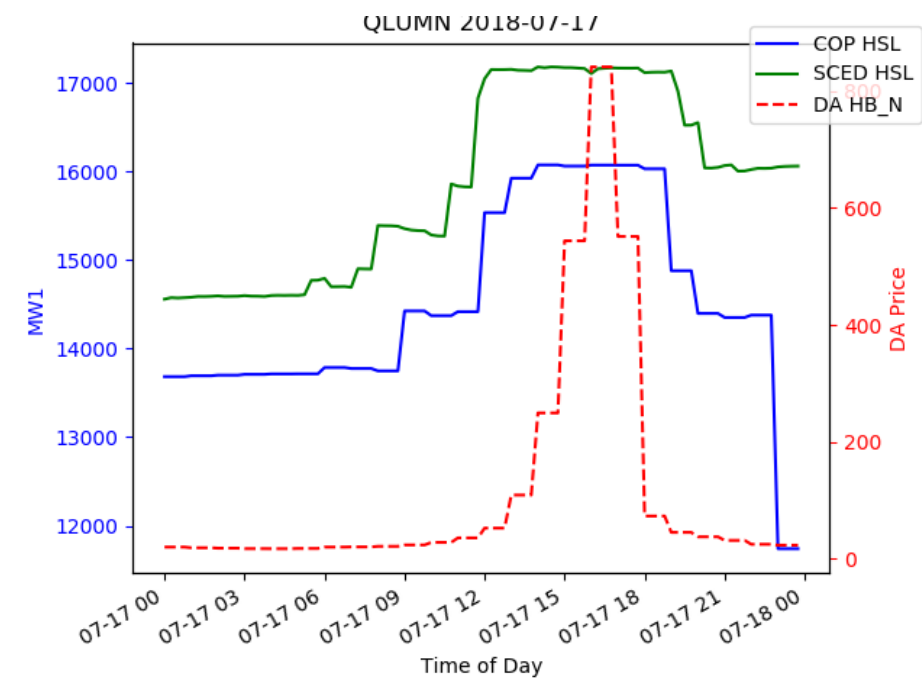
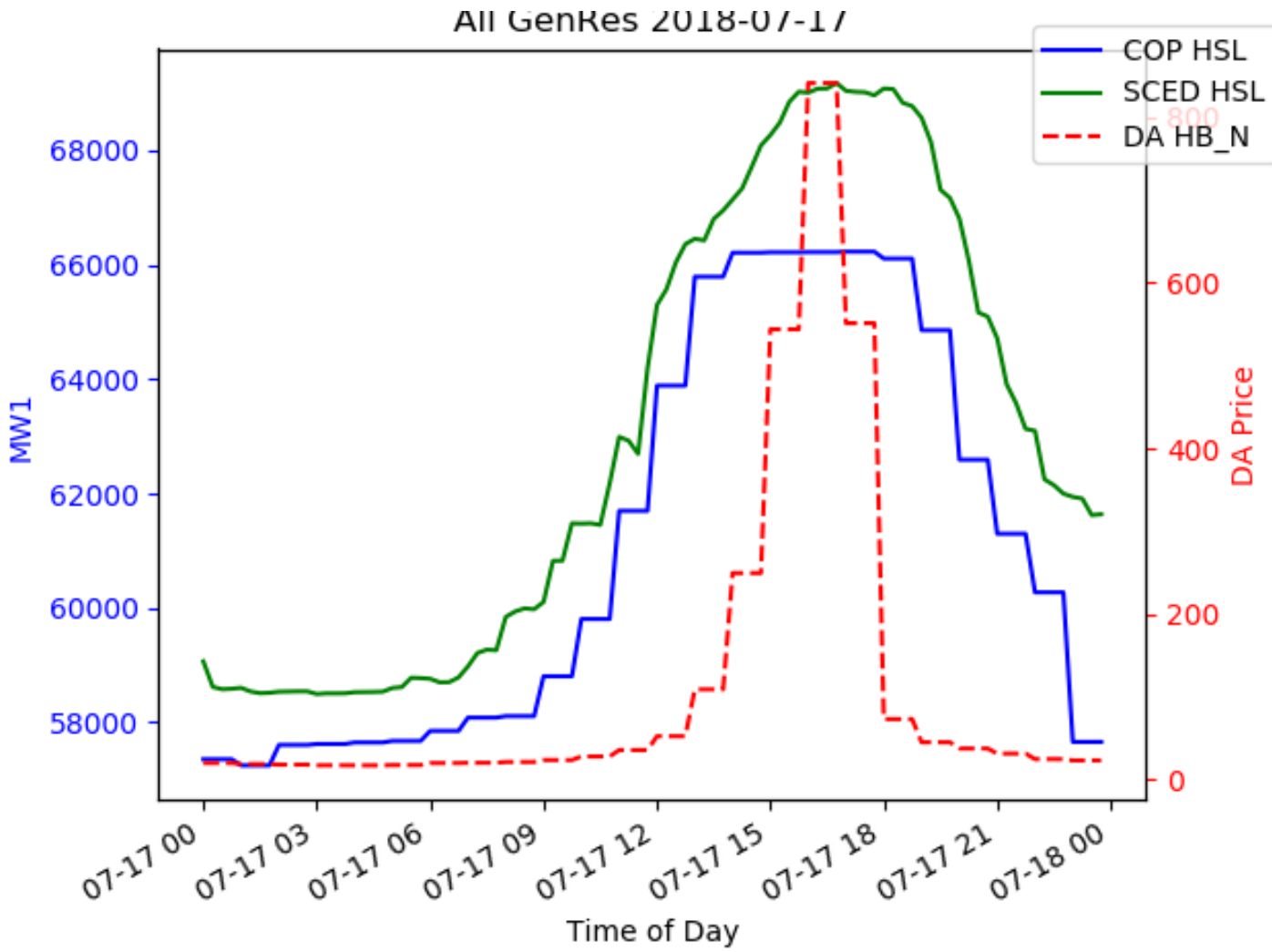
Row Labels	7/1/2018	7/2/2018	7/3/2018	7/4/2018	7/5/2018	7/6/2018	7/7/2018	7/8/2018	7/9/2018	7/10/2018	7/11/2018	7/12/2018	7/13/2018	7/14/2018	7/15/2018	7/16/2018
QLUMN	(1,202)	(1,309)	(1,353)	(617)	(929)	(1,585)	(430)	(907)	(1,056)	(827)	(1,793)	(1,121)	(1,338)	(1,878)	(1,320)	(1,397)
QCALP	(59)	(239)	(42)	(251)	(20)	(667)	(51)	48	(300)	(217)	(72)	(205)	(890)	(257)	(249)	(481)
QSHEL6	(161)	(172)	(172)	(172)	(172)	(153)	(172)	(172)	(172)	(172)	(172)	(168)	(168)	(161)	(131)	(168)
QNRGTX	(1,264)	(644)	(1,611)	(3)	(1,155)	485	2,014	44	739	(1,294)	82	(130)	(156)	1,148	(111)	(31)
QEDE39	0	0	0	0	0	0	0	0	0	(703)	0	0	0	0	0	0
QTWER6	(708)	0	0	0	20	7	(337)	(711)	0	0	0	0	0	(704)	0	0
QTENSK	510	27	34	1	20	(23)	(14)	9	29	14	(5)	(152)	(70)	(208)	(138)	4
QGOLDN	14	10	48	60	19	12	12	12	33	10	10	11	14	(177)	12	(166)
QLCRA	(27)	(23)	(81)	(9)	(16)	(21)	(97)	31	(4)	(3)	(3)	(0)	(14)	(92)	(19)	(40)
QTWER9	228	35	15	49	20	(72)	10	56	(289)	13	(10)	(67)	15	(76)	16	11
QSE	7/17/2018	7/18/2018	7/19/2018	7/20/2018	7/21/2018	7/22/2018	7/23/2018	7/24/2018	7/25/2018	7/26/2018	7/27/2018	7/28/2018	7/29/2018	7/30/2018	7/31/2018	Grand Total
QLUMN	(1,127)	(1,504)	(1,576)	(844)	(1,550)	(883)	(1,233)	(1,600)	(1,838)	(1,527)	(1,430)	(1,028)	(1,702)	(116)	(813)	(37,835)
QCALP	6	(19)	5	(38)	(30)	(965)	3	(33)	(88)	(210)	(323)	(364)	(1,140)	(90)	(231)	(7,468)
QSHEL6	(168)	(168)	(126)	(137)	(126)	(165)	(36)	(144)	(132)	(123)	(180)	(166)	(172)	(164)	(165)	(4,829)
QNRGTX	(865)	(147)	209	(41)	292	82	(280)	(1,187)	(2,047)	(541)	(156)	2,173	(1,055)	224	467	(4,761)
QEDE39	0	(697)	(695)	(695)	(697)	(694)	(147)	0	0	0	0	0	0	0	0	(4,326)
QTWER6	0	(2)	0	0	(3)	(3)	(3)	(5)	(3)	0	0	0	(703)	(7)	0	(3,162)
QTENSK	(145)	(170)	63	(187)	(184)	(236)	(154)	(167)	(226)	(362)	(143)	(397)	(185)	(133)	(15)	(2,606)
QGOLDN	(180)	(192)	(205)	(177)	(178)	(193)	(202)	0	(189)	(191)	(106)	(187)	(78)	57	153	(1,936)
QLCRA	(191)	(127)	(178)	(132)	(68)	(131)	(73)	(3)	(98)	(154)	(15)	(188)	(123)	(13)	(4)	(1,915)
QTWER9	21	(231)	(235)	(233)	(231)	(127)	(125)	(231)	(249)	17	27	32	32	34	39	(1,505)

# Daily SCED minus 6AM day-of COP MW averaged over HE 15 to 18 for QSE's with largest contribution to deficit

Row Labels	7/1/2018	7/2/2018	7/3/2018	7/4/2018	7/5/2018	7/6/2018	7/7/2018	7/8/2018	7/9/2018	7/10/2018	7/11/2018	7/12/2018	7/13/2018	7/14/2018	7/15/2018	7/16/2018
QLUMN	(1,189)	(1,291)	(1,336)	(615)	(912)	(1,544)	(1,228)	(890)	(866)	(812)	(1,778)	(1,440)	(1,216)	(1,900)	(839)	(1,369)
QAEN	(280)	(274)	(317)	35	(148)	(271)	(251)	55	28	(242)	(264)	(415)	(116)	(271)	(274)	(302)
QNRGTX	(444)	512	(1,617)	3	(1,159)	528	(172)	3	737	(413)	152	(130)	(1,306)	(3)	(114)	22
QCALP	(82)	(264)	(20)	(252)	(27)	(168)	(87)	4	(8)	(211)	(64)	(214)	(887)	(221)	(223)	(399)
QSHEL6	(161)	(172)	(172)	(172)	(172)	(153)	(172)	(172)	(172)	(172)	(172)	(168)	(168)	(161)	(131)	(168)
QTENSK	510	27	34	1	20	(24)	(14)	9	29	14	(5)	(152)	(70)	(208)	(138)	4
QTWER6	(708)	0	0	0	20	7	(337)	0	0	0	0	0	0	(704)	0	0
QLCRA	(27)	(322)	(81)	(9)	(16)	(21)	(97)	31	(4)	(3)	(3)	(0)	(14)	(92)	(19)	(40)
QGOLDN	12	10	48	60	19	12	12	12	33	10	10	11	14	(177)	12	(166)
QTWER9	141	35	15	49	20	(72)	10	56	(289)	13	(10)	(67)	15	(76)	16	11
QSE	7/17/2018	7/18/2018	7/19/2018	7/20/2018	7/21/2018	7/22/2018	7/23/2018	7/24/2018	7/25/2018	7/26/2018	7/27/2018	7/28/2018	7/29/2018	7/30/2018	7/31/2018	Grand Total
QLUMN	(1,097)	(862)	(1,097)	(824)	(835)	(171)	(700)	(1,588)	(1,818)	(1,515)	(1,477)	(1,004)	(1,734)	(97)	(1,666)	(35,710)
QAEN	(416)	(395)	(439)	(412)	69	(188)	(404)	(437)	(181)	(445)	(124)	(429)	(418)	(373)	(280)	(8,179)
QNRGTX	(750)	211	(31)	(149)	374	124	(239)	(1,142)	157	(1,016)	(156)	(469)	(270)	(545)	(569)	(7,871)
QCALP	25	(27)	(52)	16	(35)	10	(26)	(57)	(75)	(210)	(329)	(393)	(1,115)	(118)	(231)	(5,739)
QSHEL6	(137)	(126)	(126)	(137)	(126)	(123)	(1)	(144)	(132)	(123)	(180)	(166)	(172)	(164)	(165)	(4,679)
QTENSK	(145)	(99)	(202)	(330)	(184)	(201)	(154)	(167)	(226)	(362)	(143)	(397)	(184)	(132)	(15)	(2,907)
QTWER6	0	(2)	0	0	(3)	(3)	(3)	(5)	(3)	0	0	0	(703)	(7)	0	(2,451)
QLCRA	(191)	(127)	(178)	(153)	(47)	(131)	(73)	(5)	(98)	(154)	(15)	(188)	(123)	(13)	(4)	(2,216)
QGOLDN	(180)	(192)	(205)	(185)	(178)	(195)	(188)	0	(189)	(191)	(106)	(187)	(81)	57	153	(1,938)
QTWER9	21	(231)	(235)	(233)	(231)	(127)	(125)	(231)	(249)	17	27	32	32	(231)	39	(1,857)



Operating Date: 07/17  
 COP Run: 07/17 6AM  
 HB\_North DA x16 = \$167  
 HB\_North DA HE 15-18 = \$546



7/17/2018		For HE 15-18		
Res Name	QSE	HSL MW Diff	Min non-zero MW SCED offer \$	DAM Award MW
THW_CC1_7	QNRGTX	(244)	(250)	0
TRSES_UNIT6	QLUMN	(235)	41	0
AEEC_ELK_3	QGOLDN	(187)	(250)	0
FORMOSA_CC1_17	QFORMO	(75)	41	0
DCSES_CT10	QLUMN	(69)	2,005	0
DCSES_CT40	QLUMN	(69)	2,005	0
DCSES_CT20	QLUMN	(68)	2,023	0
DCSES_CT30	QLUMN	(68)	2,029	0
MGRES_CT5	QLUMN	(67)	2,116	0
CBEC_CC2_2	QTENSK	(67)	(78)	0



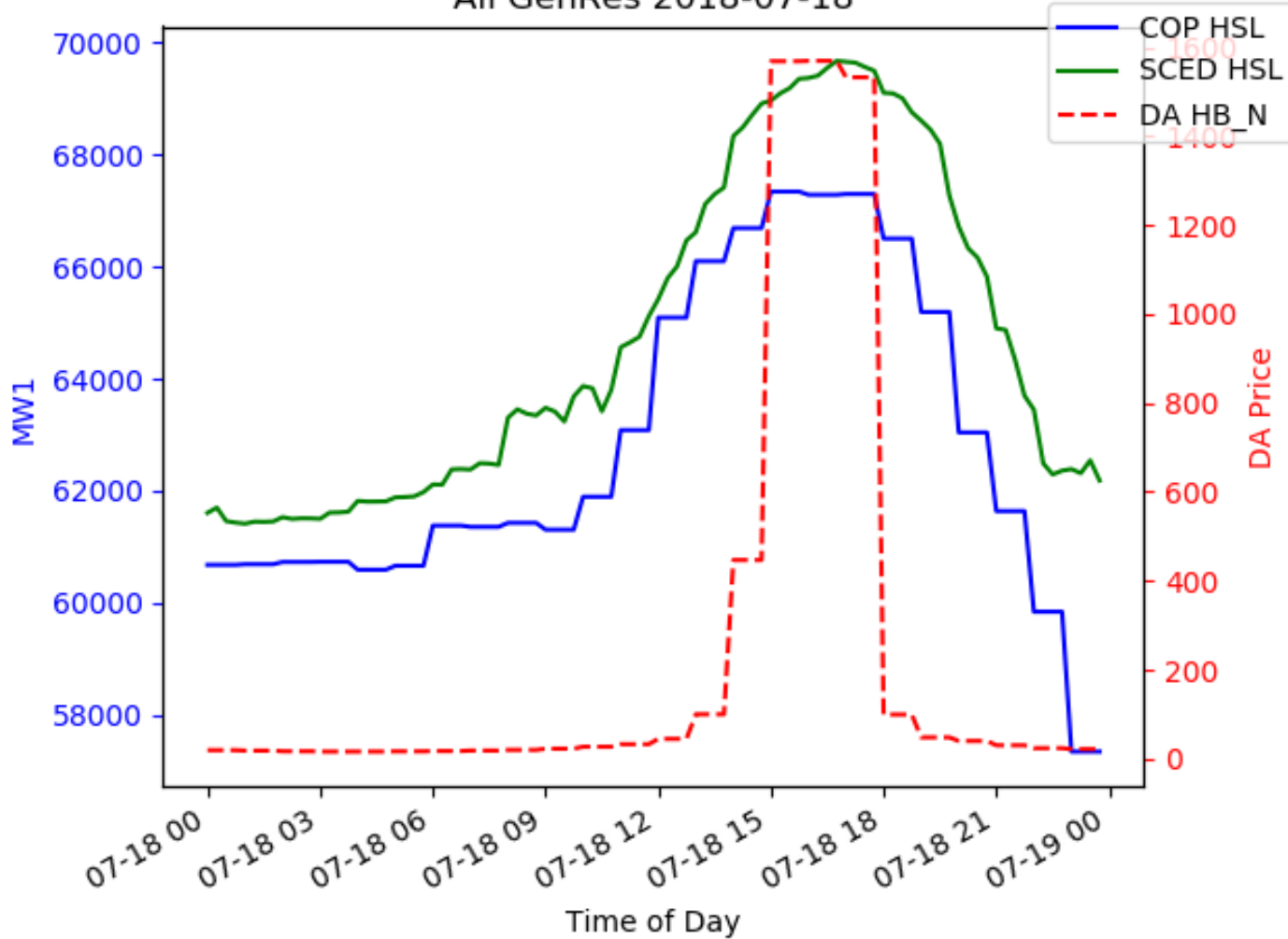
Operating Date: 07/18

COP Run: 07/18 6AM

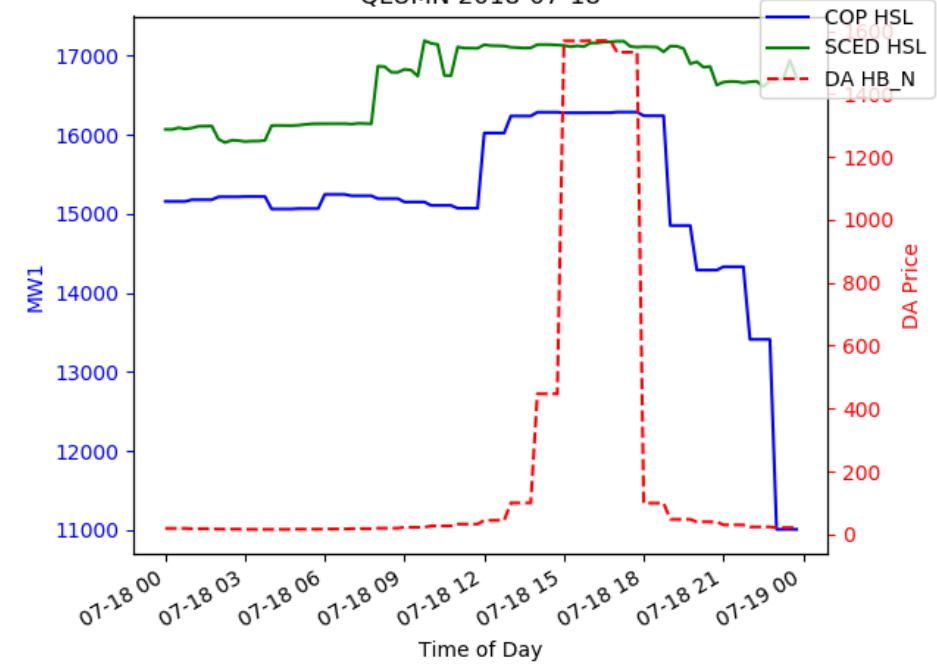
HB\_North DA x16 = \$351

HB\_North DA HE 15-18 = \$1279

All GenRes 2018-07-18

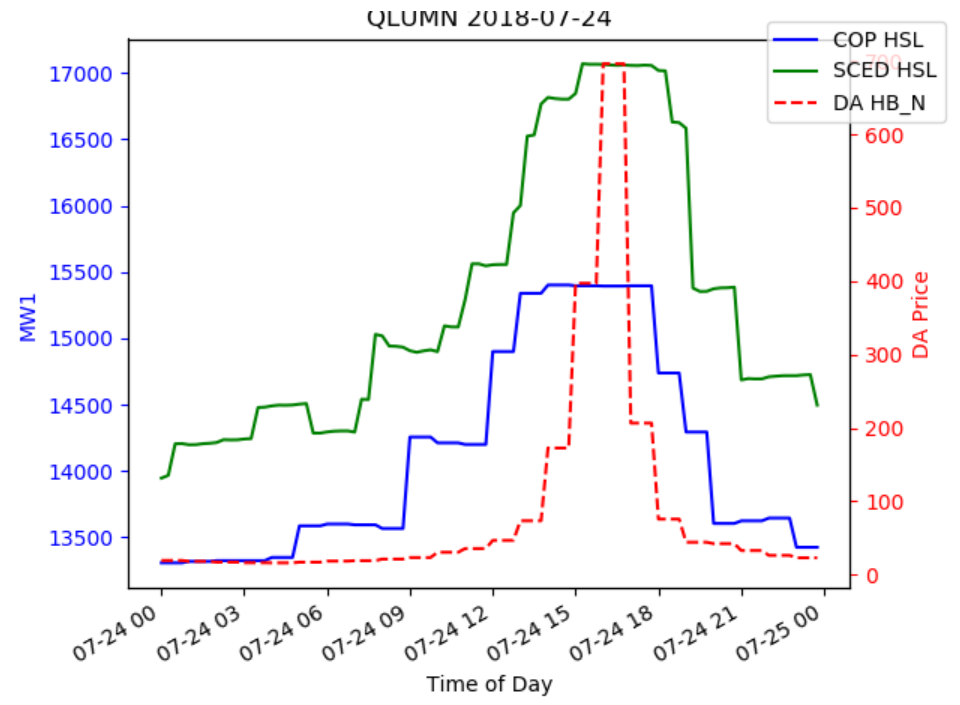
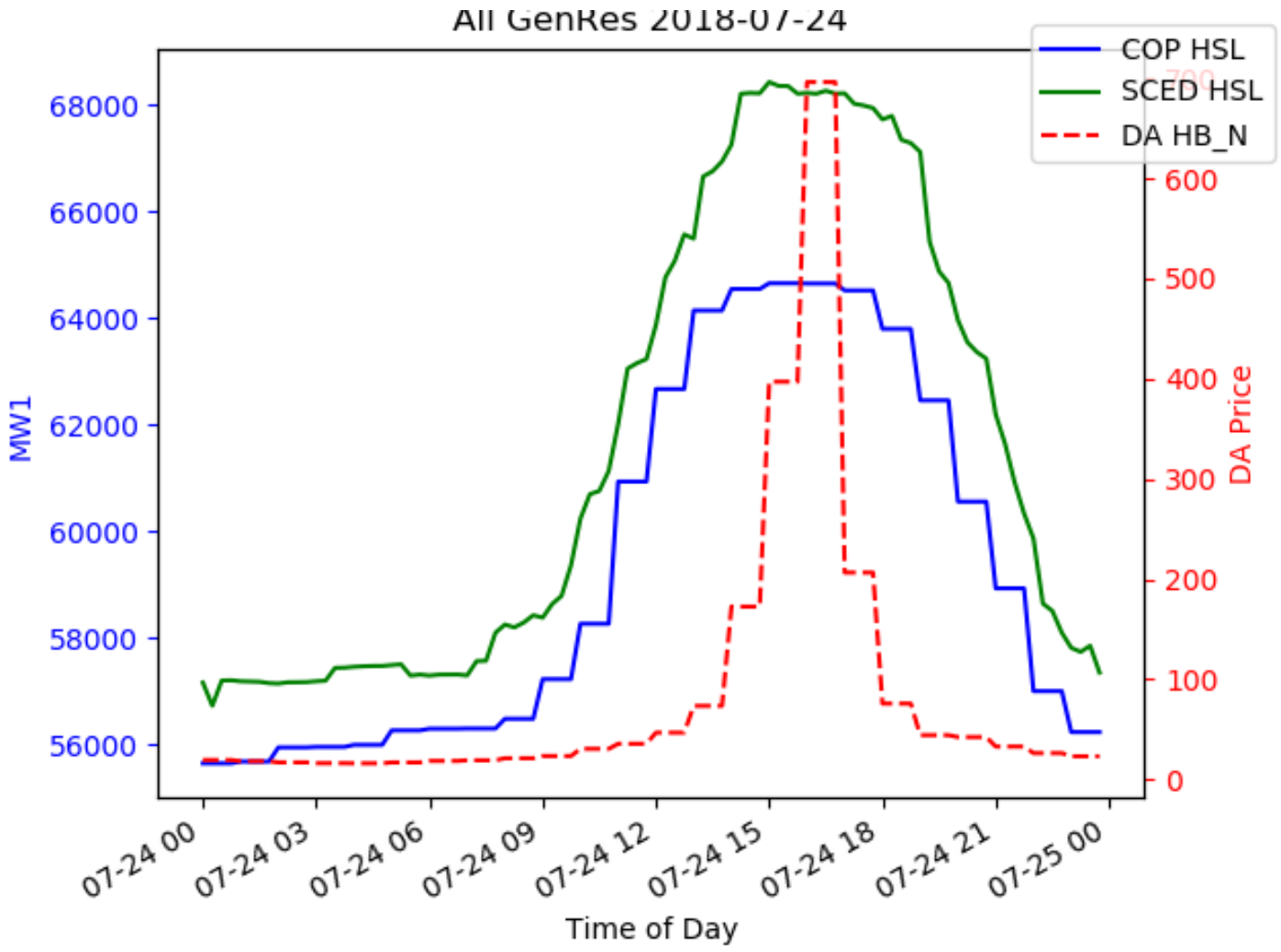


QLUMN 2018-07-18



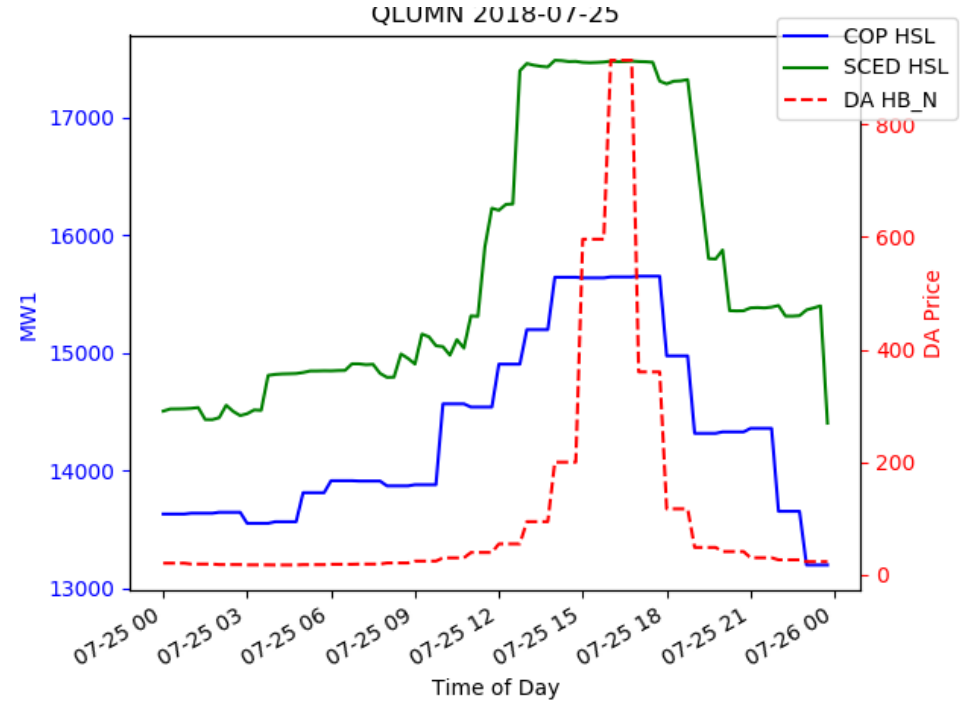
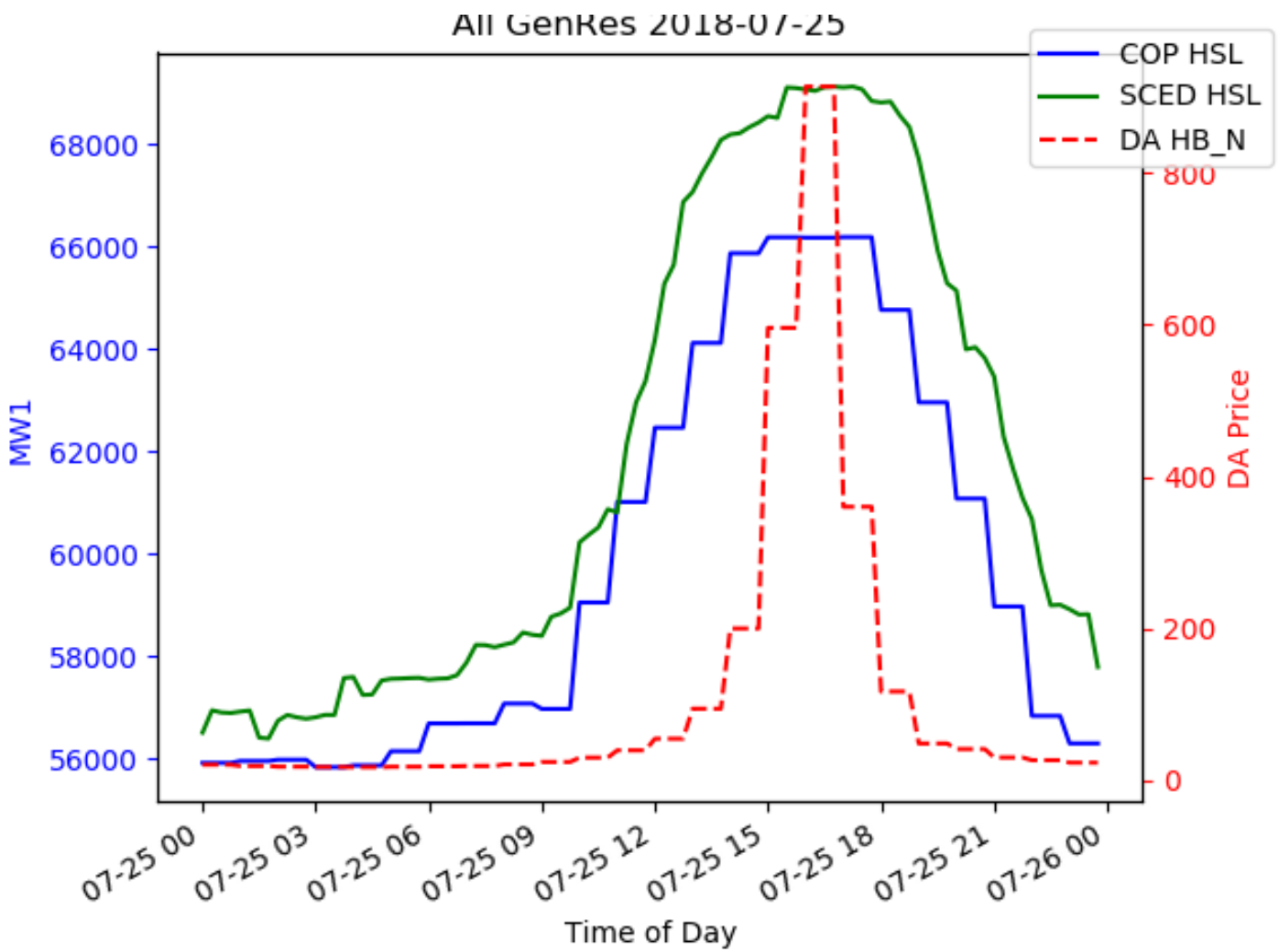
7/18/2018		For HE 15-18		
Res Name	QSE	HSL MW Diff	Min non-zero MW SCED offer \$	DAM Award MW
B_DAVIS_B_DAVIG1	QTWER9	(255)	(250)	0
AEEC_ELK_3	QGOLDN	(188)	(250)	0
VICTORIA_CC1_1	QTENS4	(180)	(250)	0
DCSES_CT10	QLUMN	(69)	2,286	0
DCSES_CT40	QLUMN	(68)	3,051	0
DCSES_CT20	QLUMN	(68)	2,314	0
DCSES_CT30	QLUMN	(68)	3,060	0
MGSES_CT5	QLUMN	(67)	3,109	0
MGSES_CT4	QLUMN	(67)	3,119	0
MGSES_CT6	QLUMN	(67)	3,264	0

Operating Date: 07/24  
 COP Run: 07/24 6AM  
 HB\_North DA x16 = \$121  
 HB\_North DA HE 15-18 = \$368



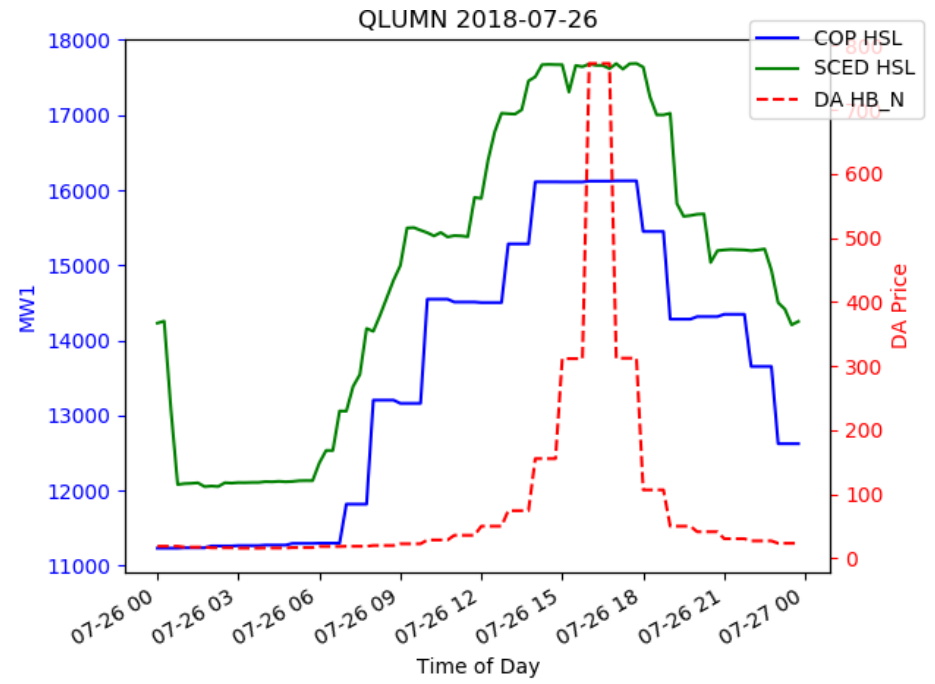
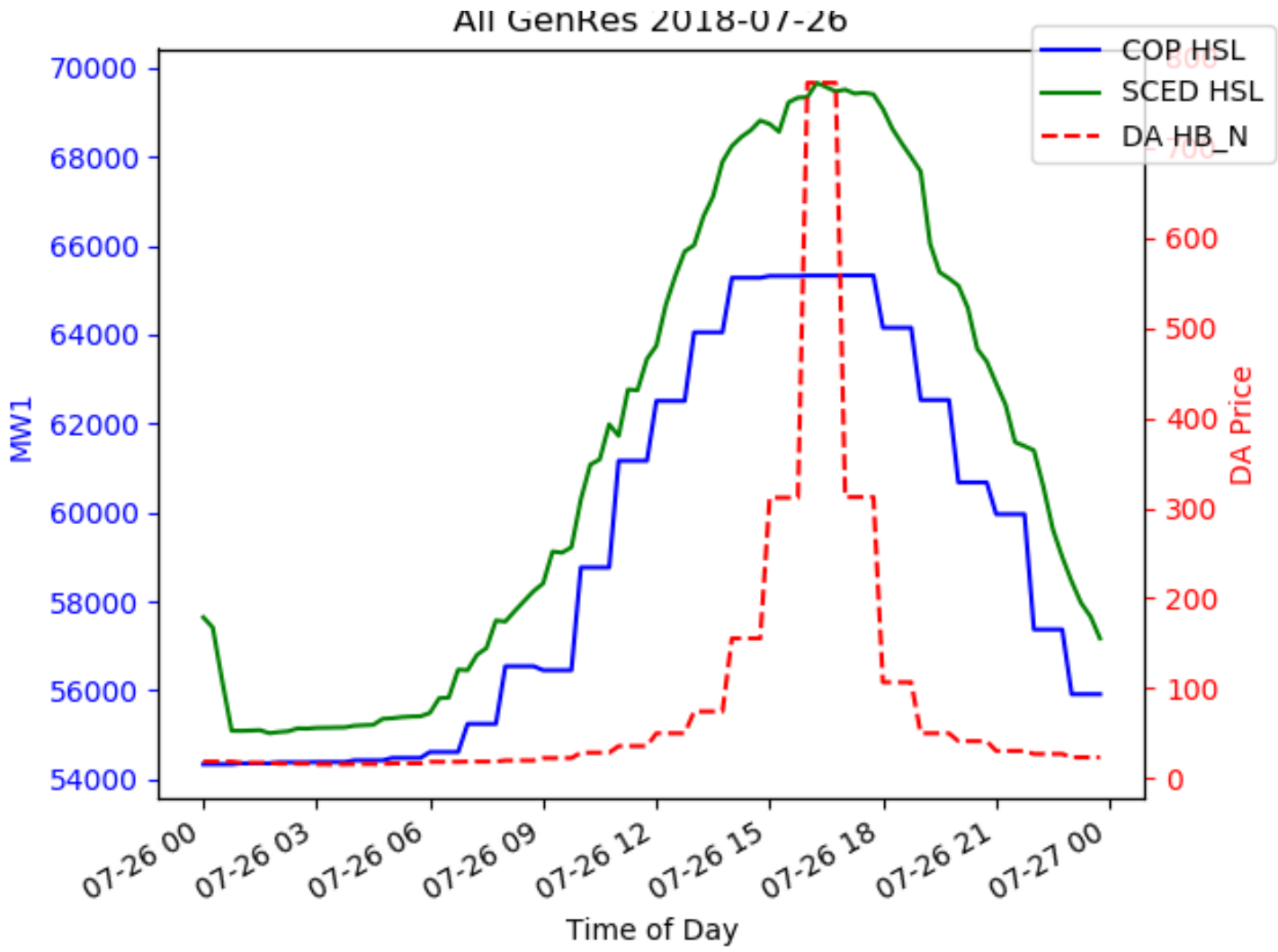
7/24/2018		For HE 15-18		
Res Name	QSE	HSL MW Diff	Min non-zero MW SCED offer \$	DAM Award MW
LHSES_UNIT2A	QLUMN	(523)	53	0
THW_CC2_8	QNRGTX	(327)	(250)	0
B_DAVIS_B_DAVIG1	QTWER9	(255)	(250)	0
THW_CC1_7	QNRGTX	(247)	(250)	0
GRSES_UNIT1	QLUMN	(234)	55	0
DCSES_CT10	QLUMN	(70)	1,724	0
DCSES_CT40	QLUMN	(70)	1,734	0
DCSES_CT20	QLUMN	(69)	1,744	0
DCSES_CT30	QLUMN	(69)	1,744	0
MGSES_CT5	QLUMN	(68)	1,719	0

Operating Date: 07/25  
 COP Run: 07/25 6AM  
 HB\_North DA x16 = \$163  
 HB\_North DA HE 15-18 = \$518



7/25/2018		For HE 15-18		
Res Name	QSE	HSL MW Diff	Min non-zero MW SCED offer \$	DAM Award MW
LHSES_UNIT2A	QLUMN	(523)	59	0
SCSES_UNIT2	QLUMN	(502)	64	0
B_DAVIS_B_DAVIG1	QTWER9	(263)	(250)	0
AEEC_ELK_3	QGOLDN	(189)	(250)	0
DCSES_CT10	QLUMN	(70)	1,952	0
DCSES_CT40	QLUMN	(69)	1,969	0
DCSES_CT20	QLUMN	(69)	1,025	0
MGSES_CT5	QLUMN	(68)	1,983	0
MGSES_CT4	QLUMN	(67)	1,995	0
MGSES_CT6	QLUMN	(67)	2,132	0

Operating Date: 07/26  
 COP Run: 07/26 6AM  
 HB\_North DA x16 = \$128  
 HB\_North DA HE 15-18 = \$388



7/26/2018		For HE 15-18		
Res Name	QSE	HSL MW Diff	Min non-zero MW SCED offer \$	DAM Award MW
LHSES_UNIT2A	QLUMN	(523)	59	0
THW_CC2_8	QNRGTX	(322)	(250)	0
CALAVERS_JTD2	QCPSE	(251)	(250)	0
THW_CC1_7	QNRGTX	(242)	(250)	0
AEEC_ELK_3	QGOLDN	(191)	(250)	0
TXCTY_CC1_8	QCALP	(190)	(188)	0
SCSES_UNIT1A	QLUMN	(150)	71	0
AMOCOOIL_CC2_9	QTENSK	(116)	(250)	0
DCSES_CT10	QLUMN	(70)	921	0
DCSES_CT40	QLUMN	(69)	1,777	0