

Report on Operations to Stakeholder Advisory Committee

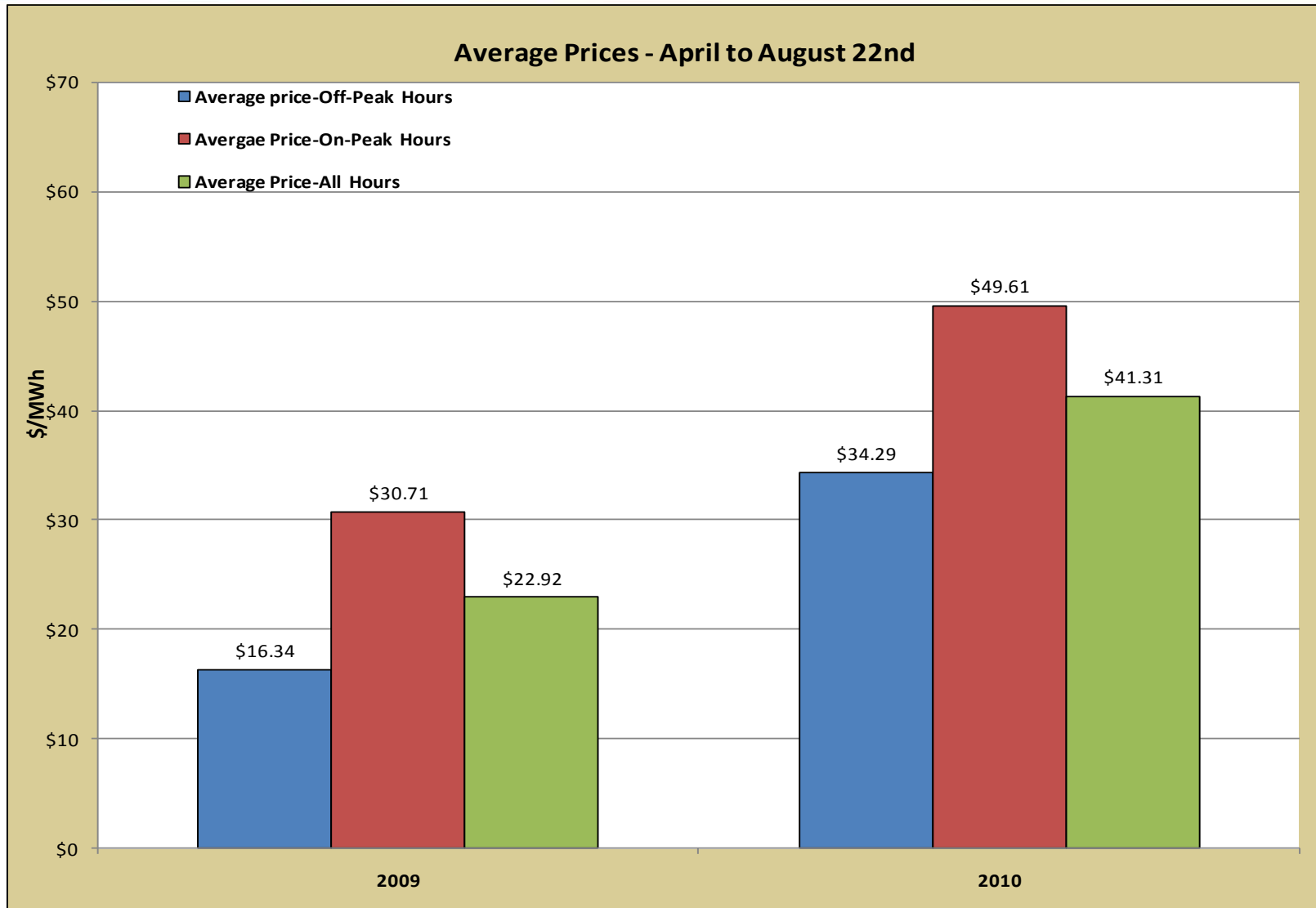
Ken Kozlik - IESO Chief Operating Officer
August 25, 2010

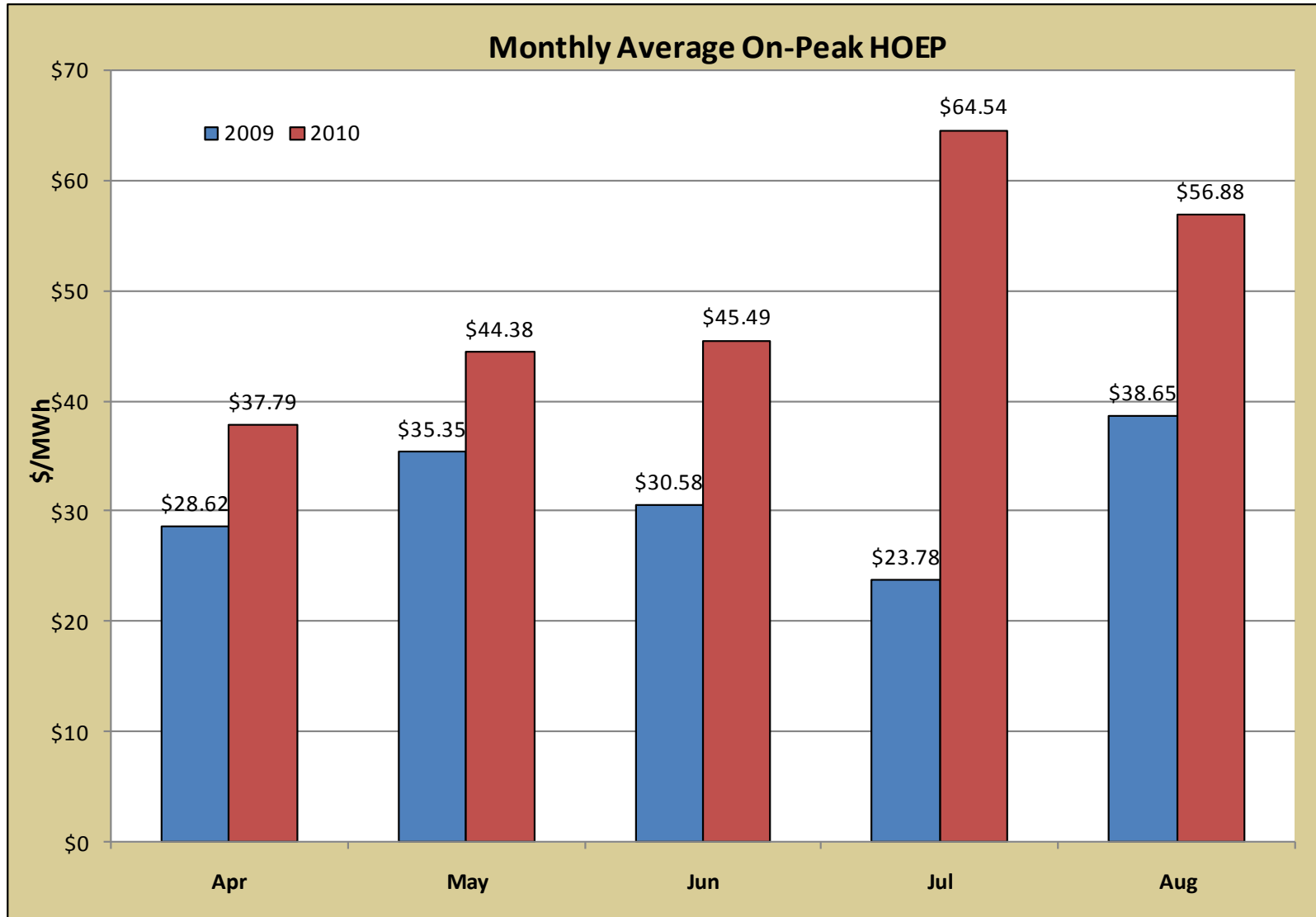


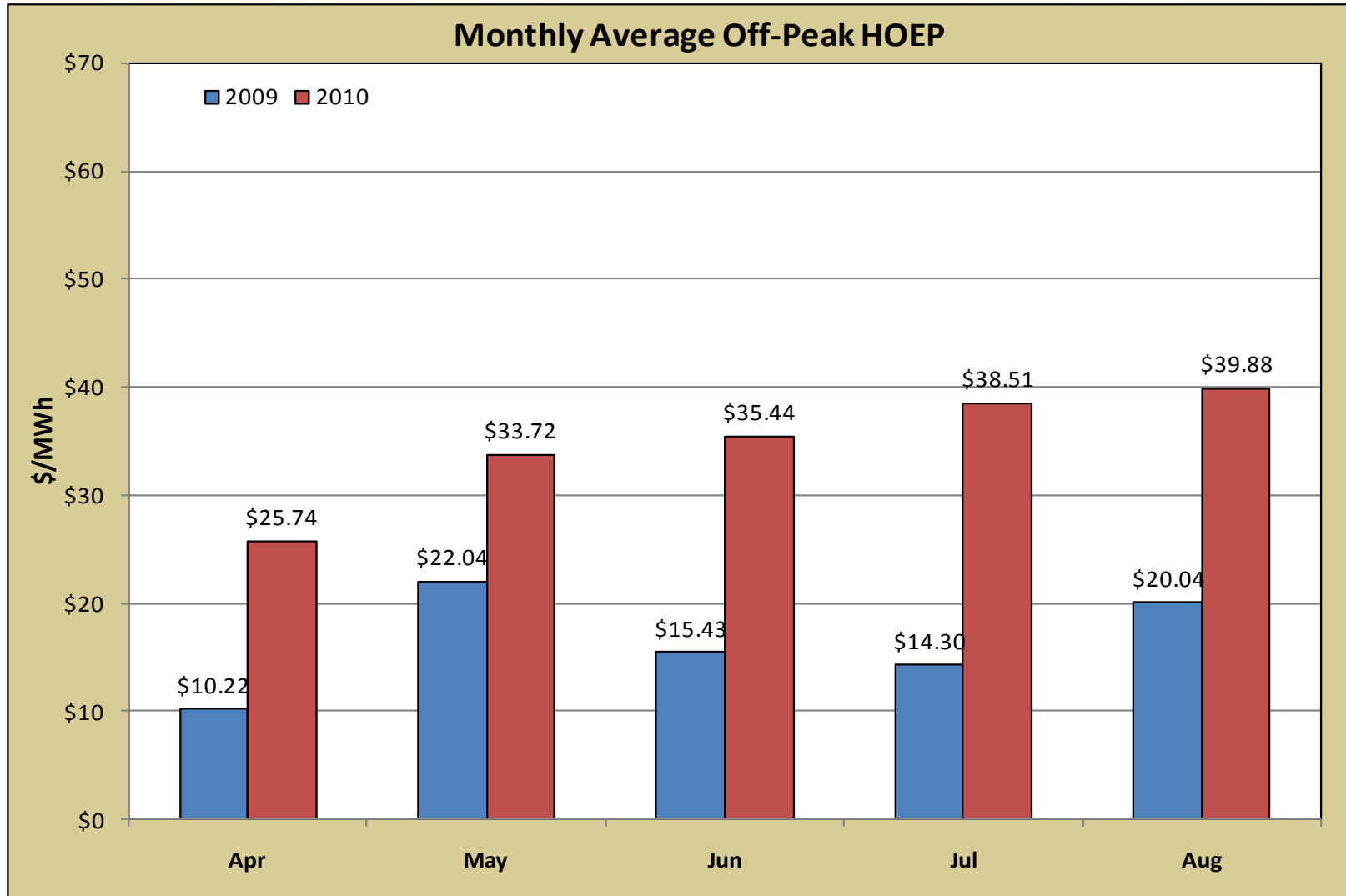
- Recent Operation Outcomes – What a Difference a Year Makes! (April to August)
 - HOEP
 - Very low water & sticky-hot weather (a.k.a. where did all the Surplus Baseload Generation (SBG) go?)
- Recent Operating Events
 - G20 sandwiched between Toronto load interruptions
 - Voltage control challenges
 - Update on Quebec DC tie
- Other Updates
 - Niagara tieline outages
 - A high-level perspective on recent Transmission Load Relief (TLR) activity
 - Michigan/Ontario Phase Angle Regulators (PARs)
 - A perspective on SBG

Summer Price Outcomes

Average HOEP April to August

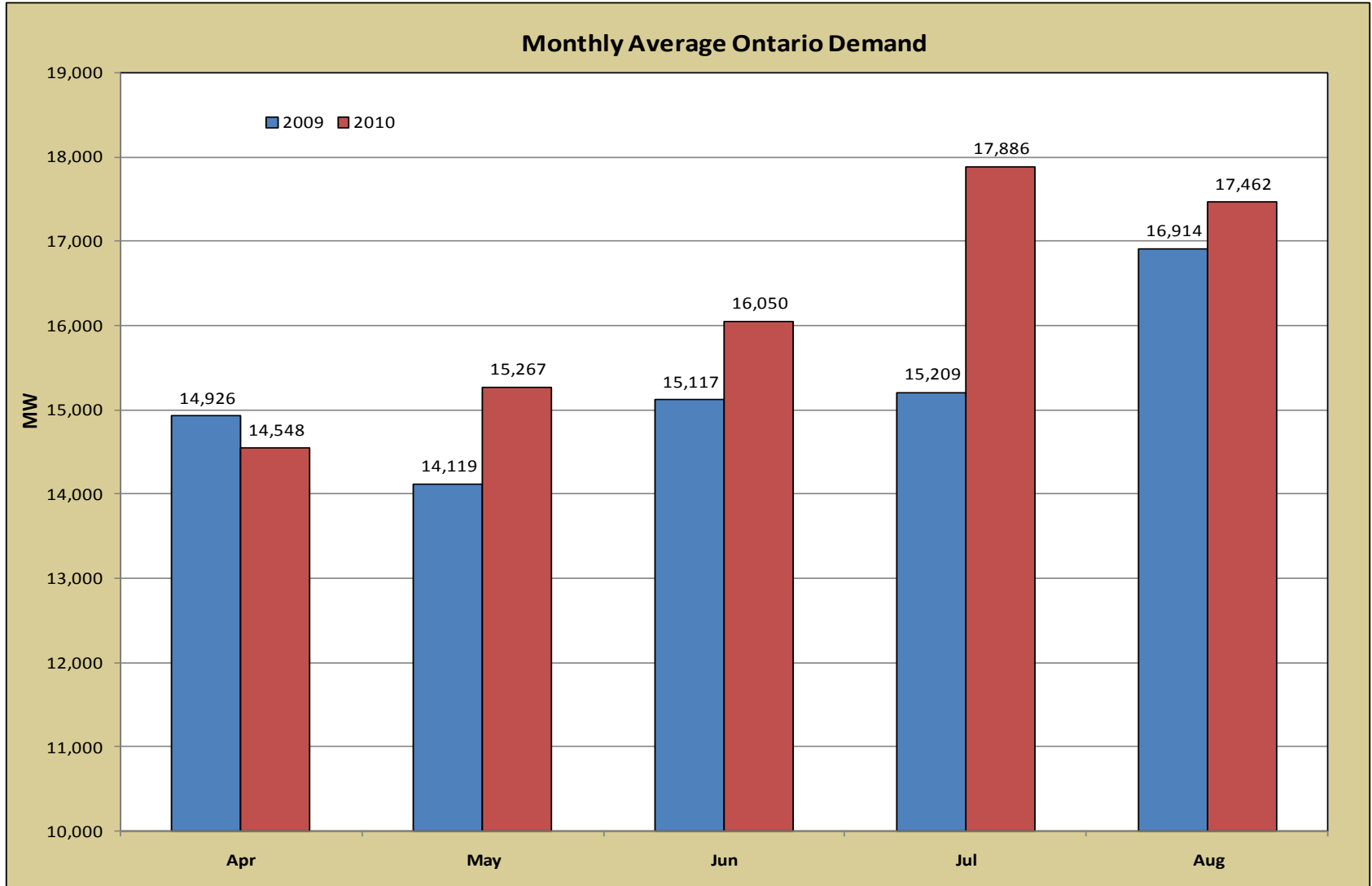




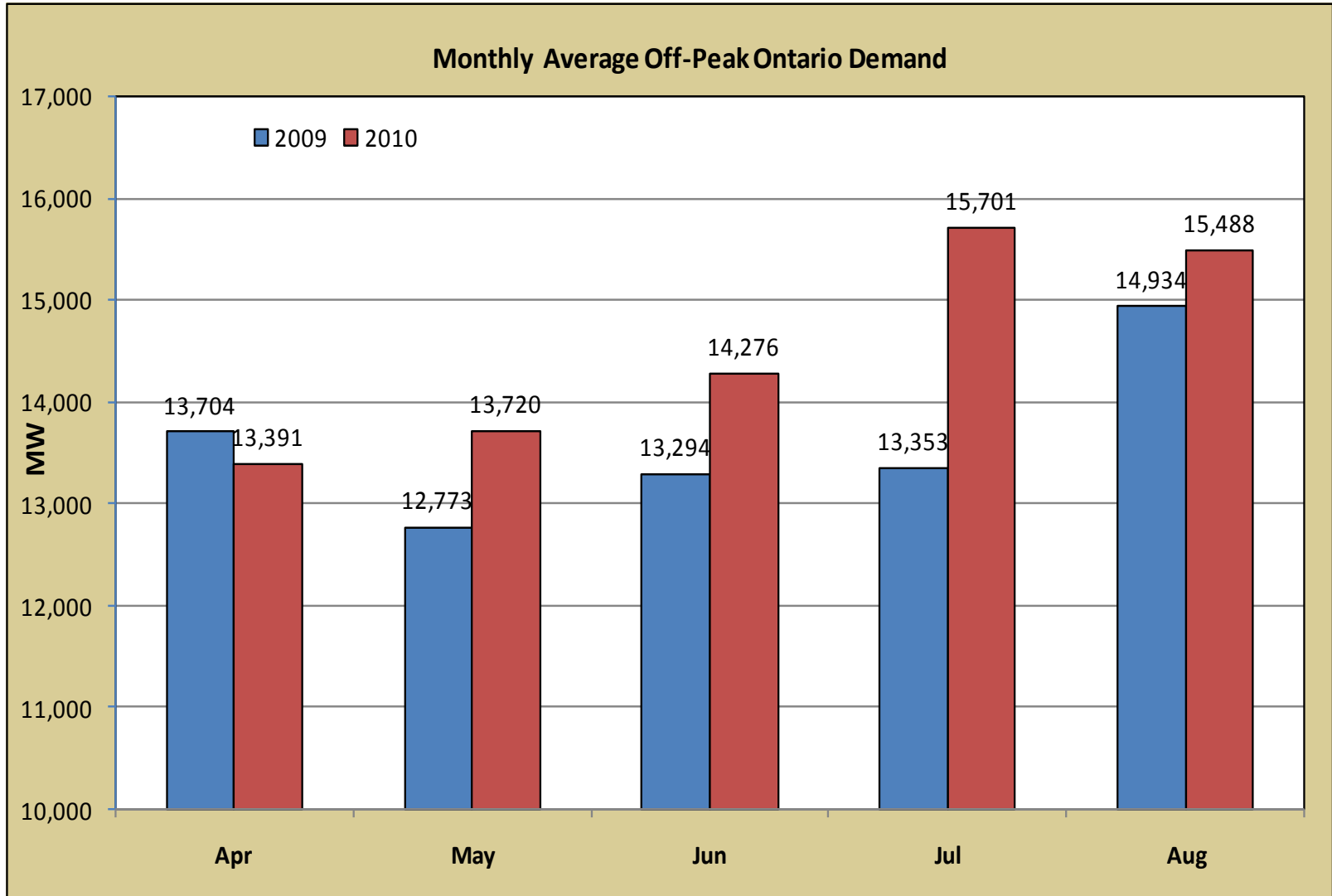


Operating Outcomes

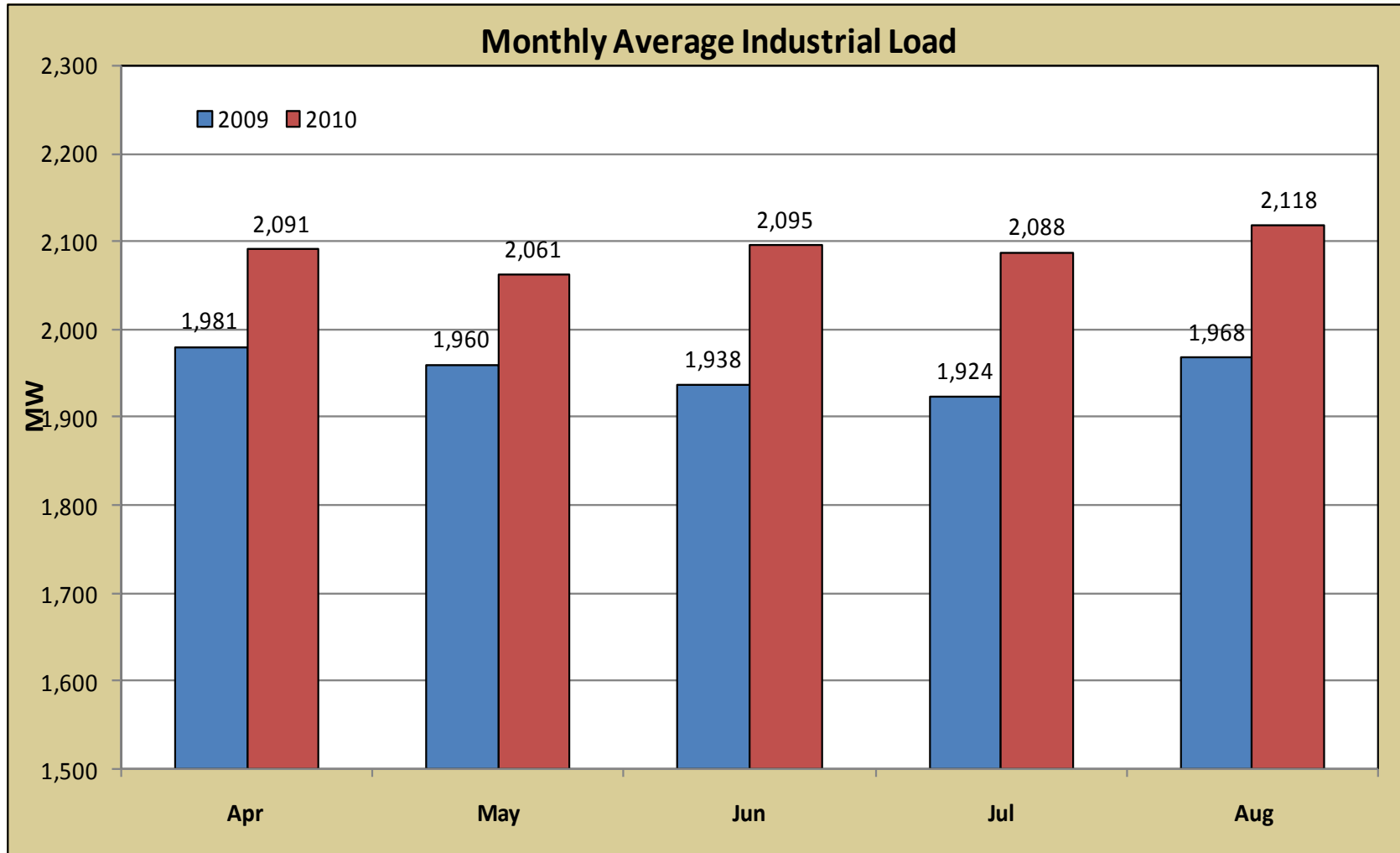
Average Ontario Demand (All Hours)



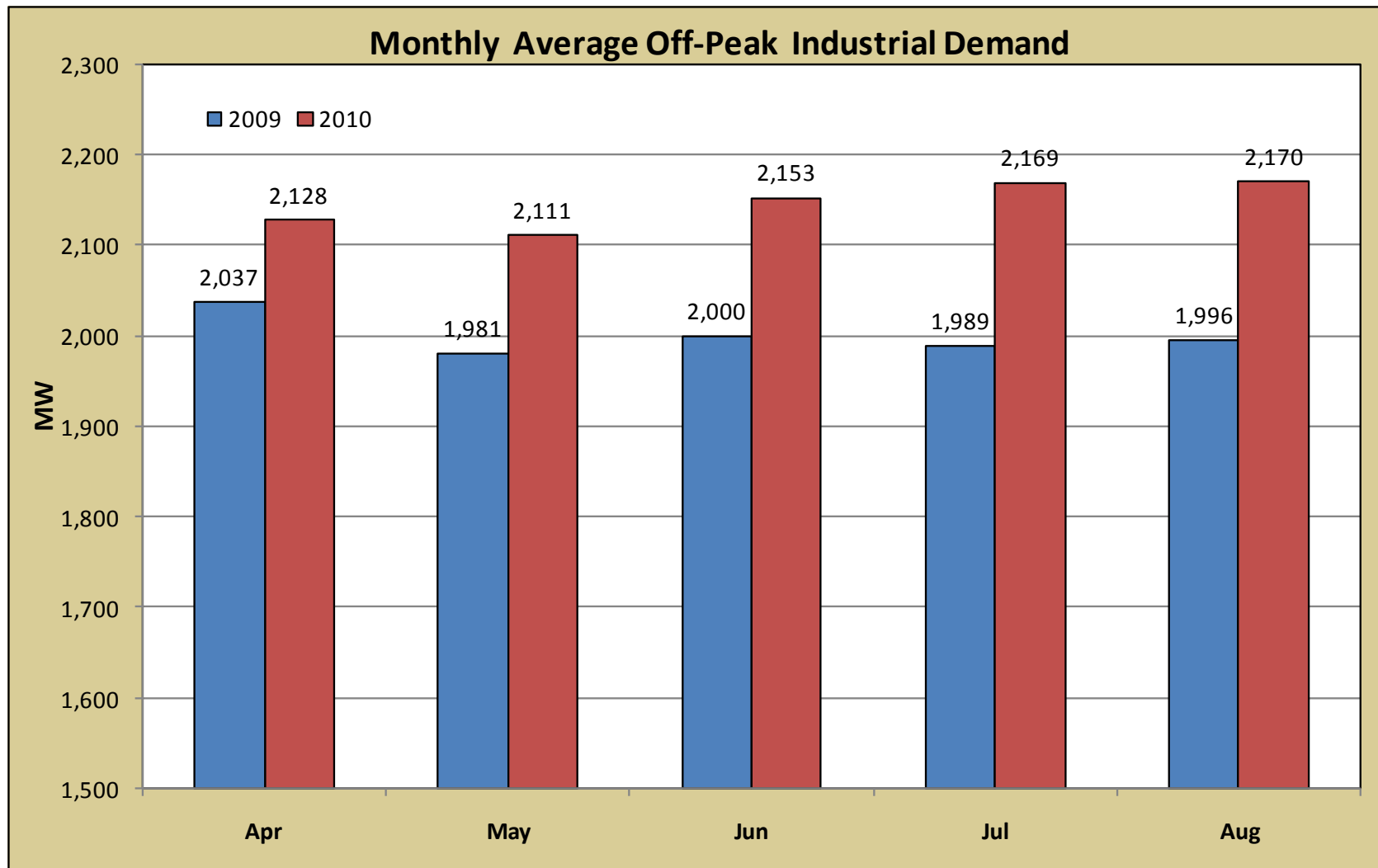
Average Ontario Demand (Off-Peak Hours)



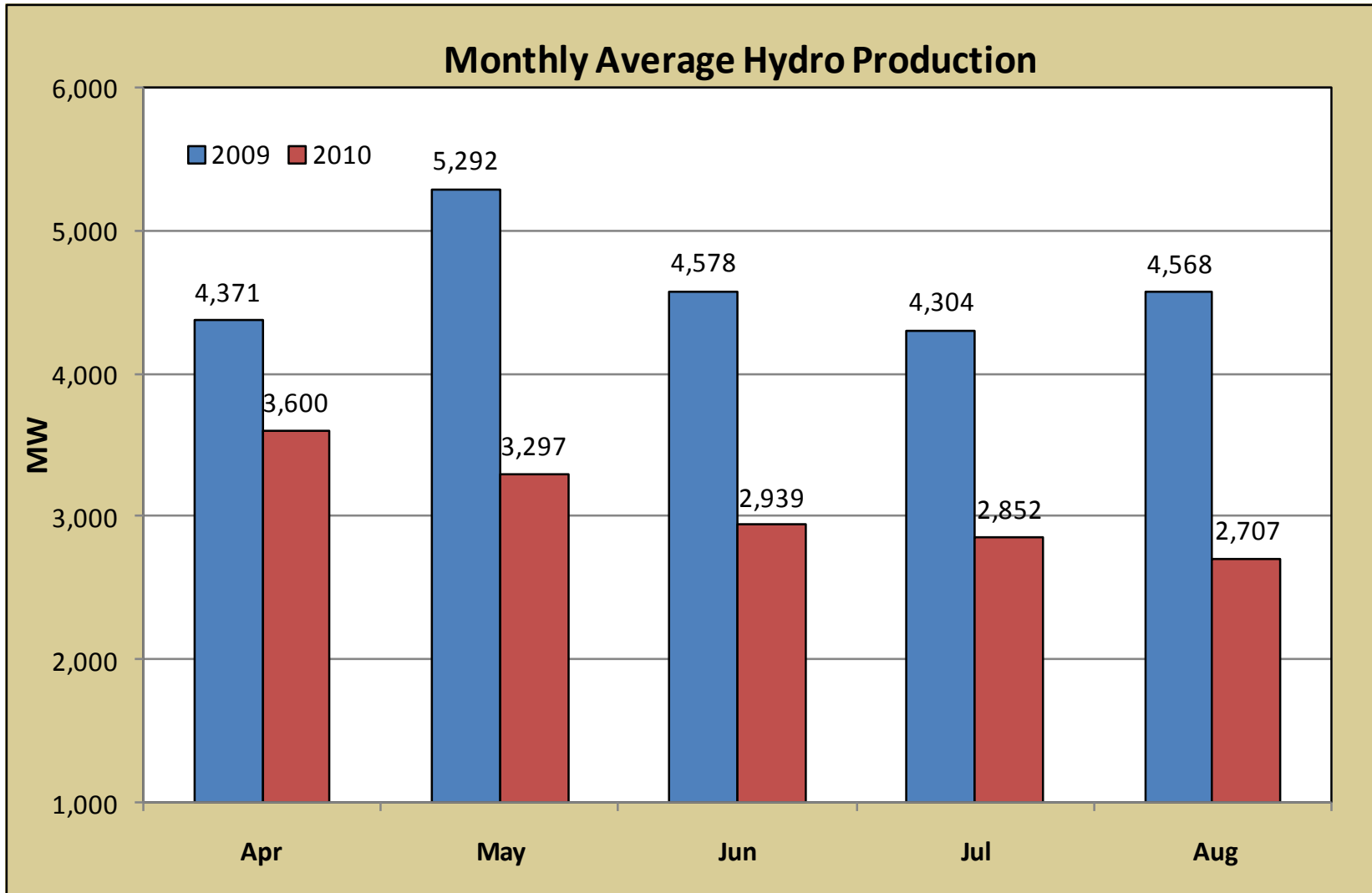
Average Industrial Demand (All Hours)



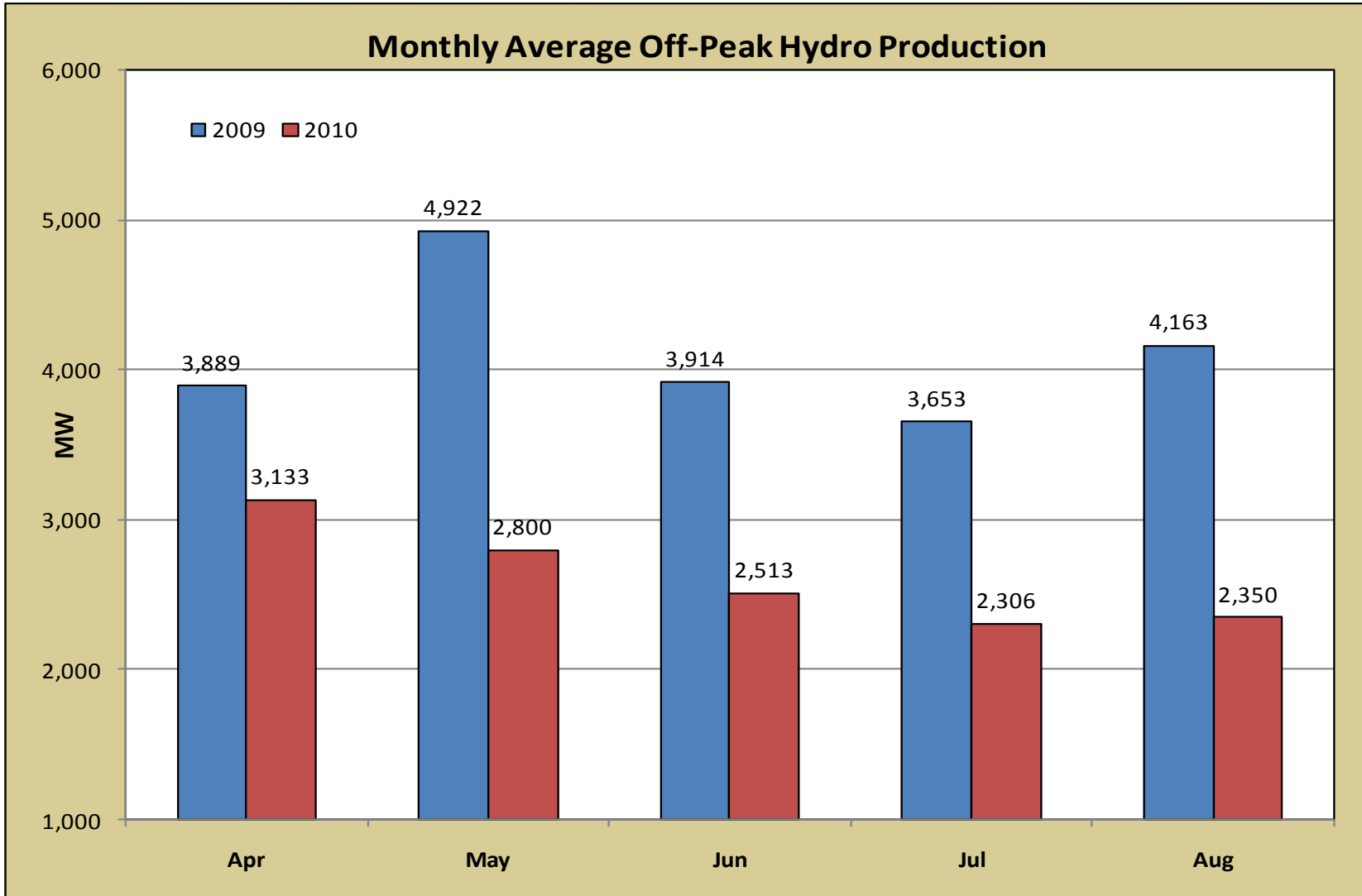
Average Industrial Demand (Off-Peak Hours)



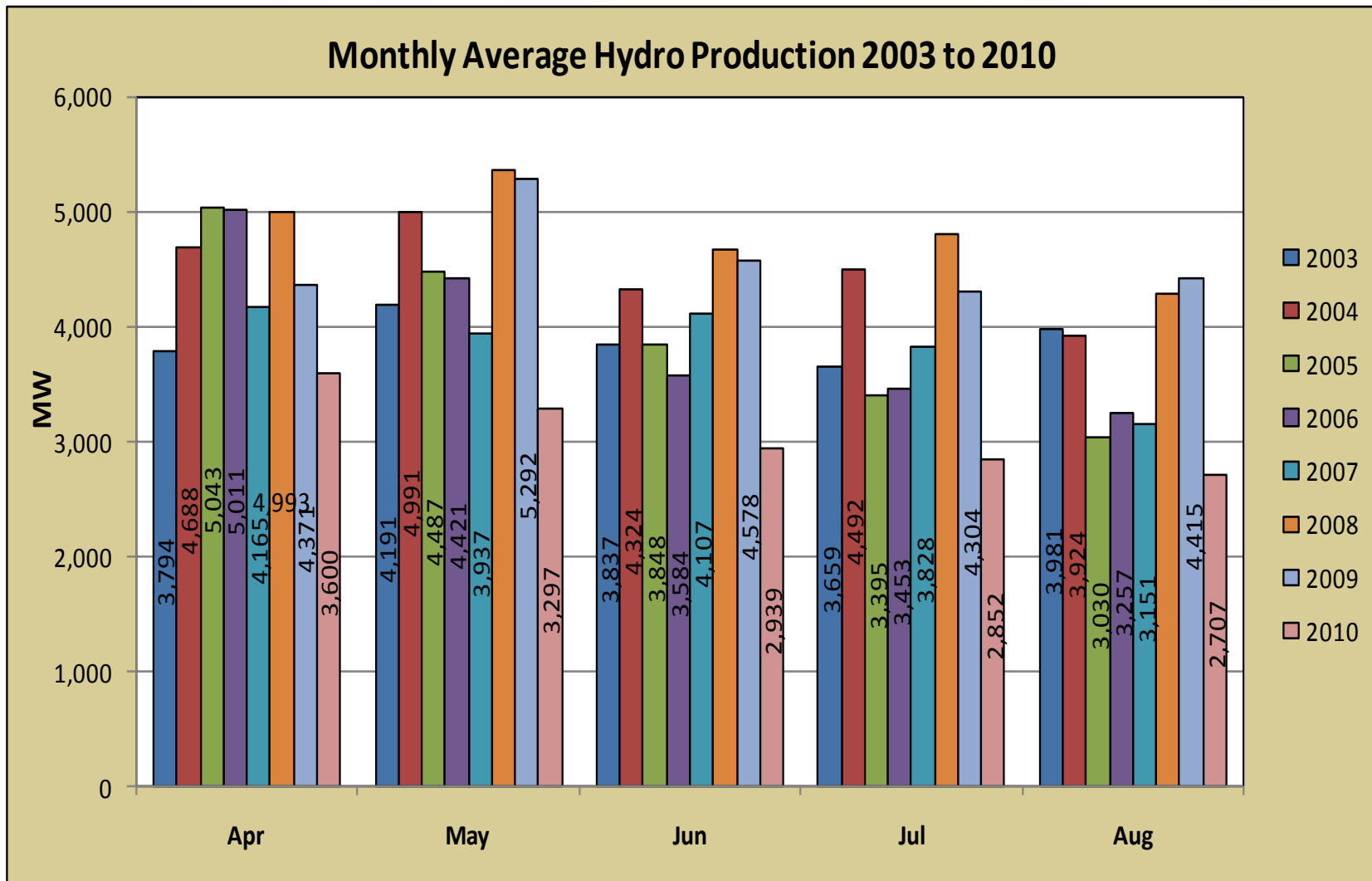
Average Hydro Production (All Hours)



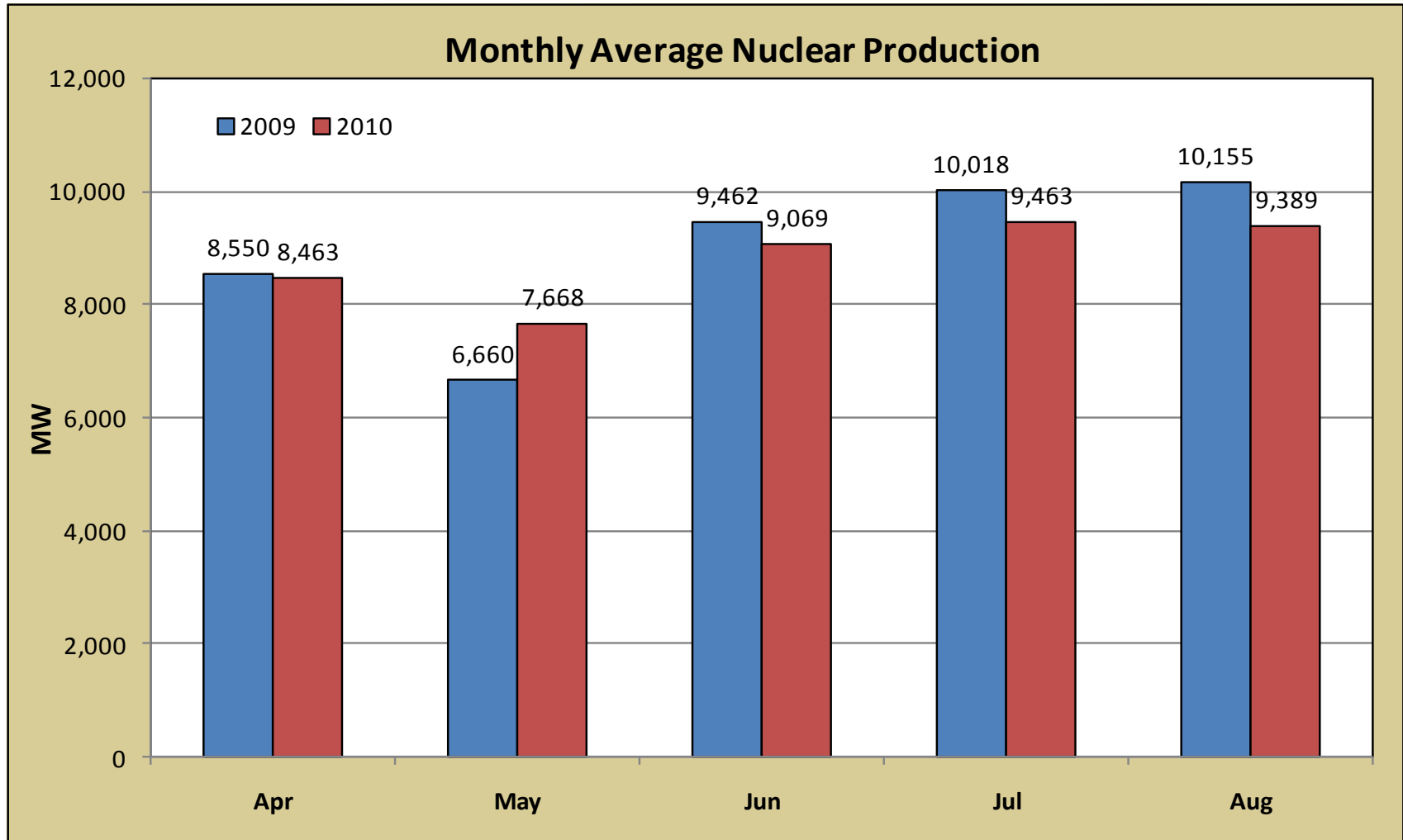
Average Hydro Production (Off-Peak Hours)



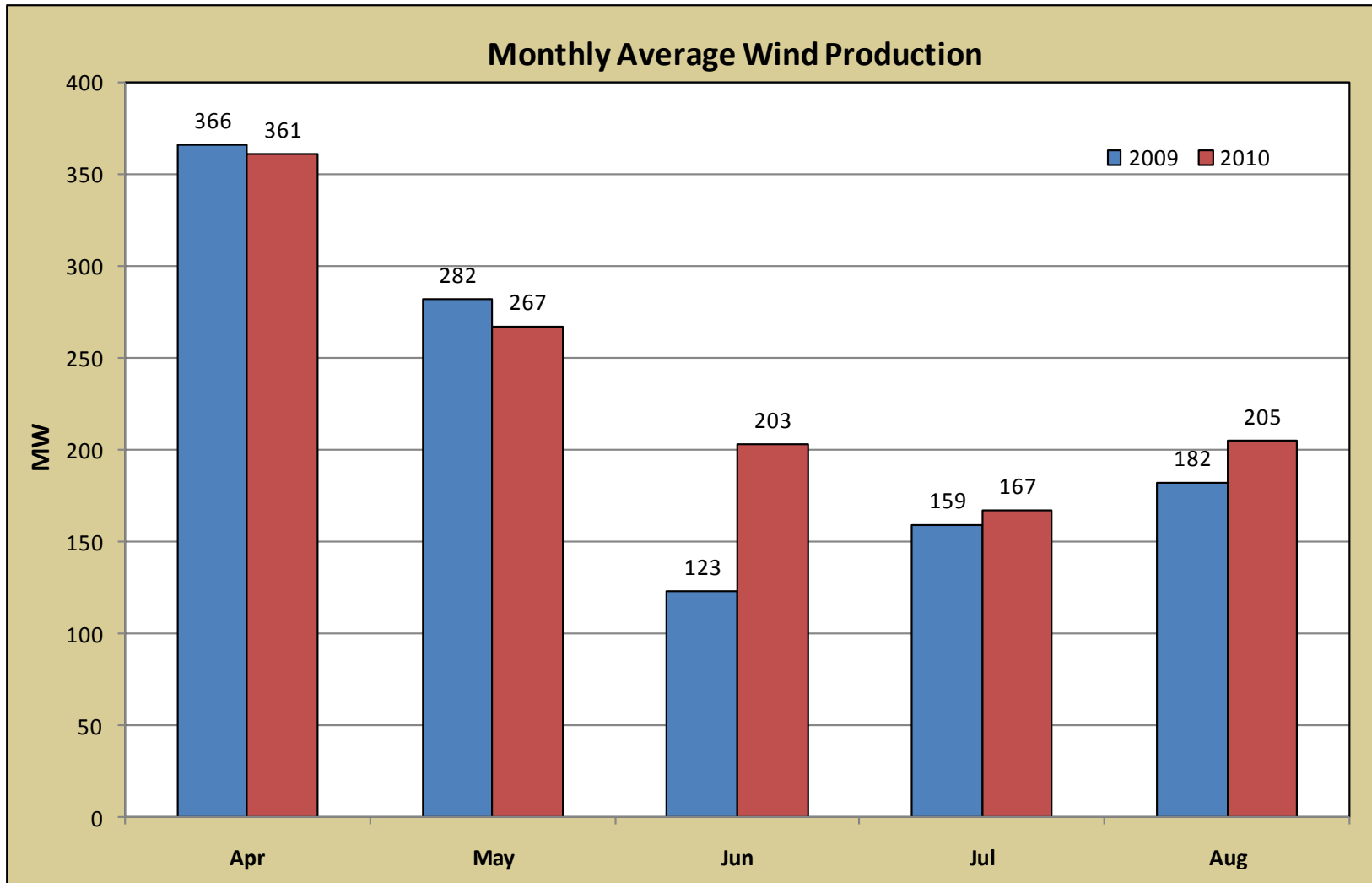
Average Hydro Production 2003 to 2010 (All Hours)

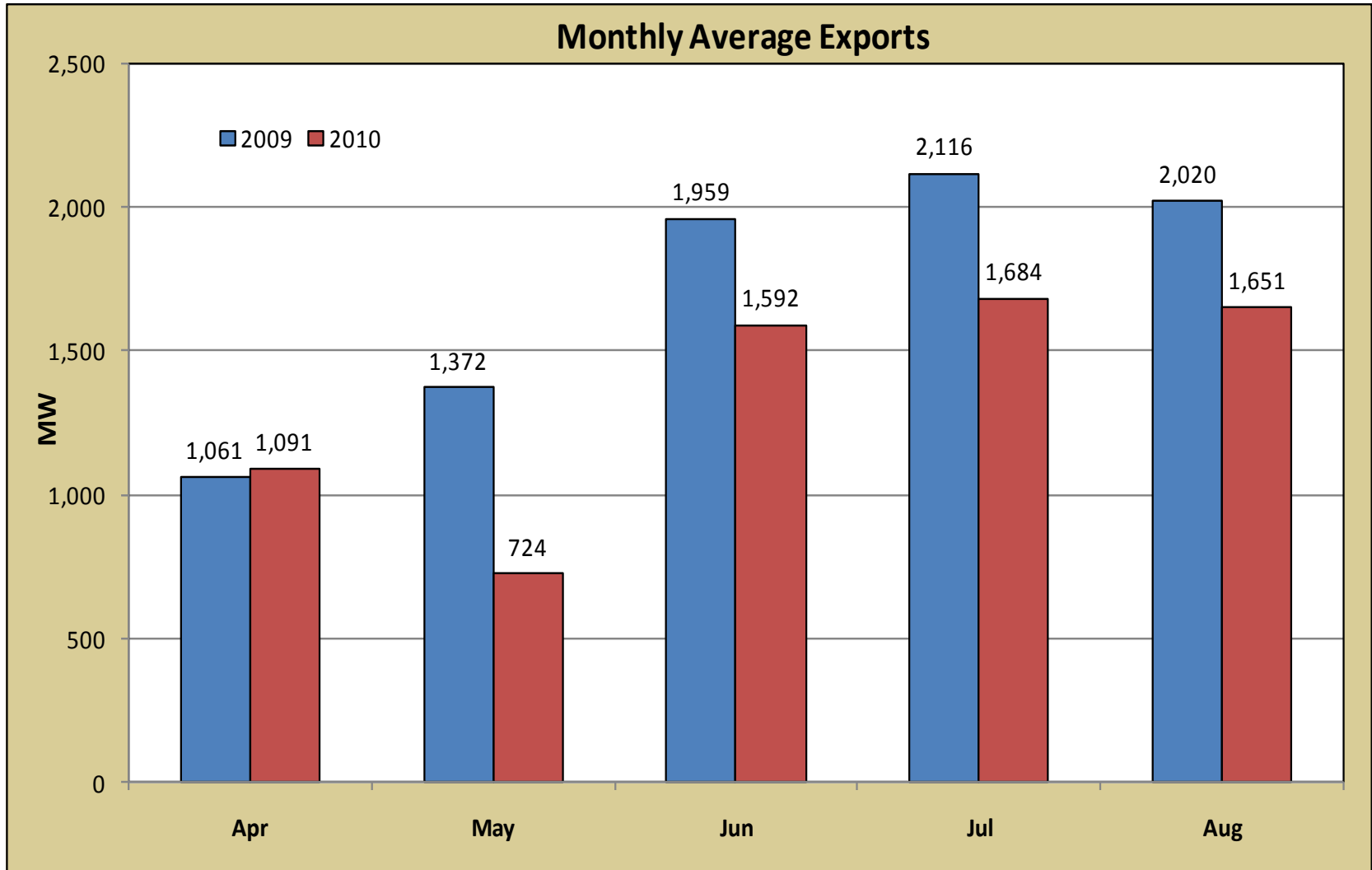


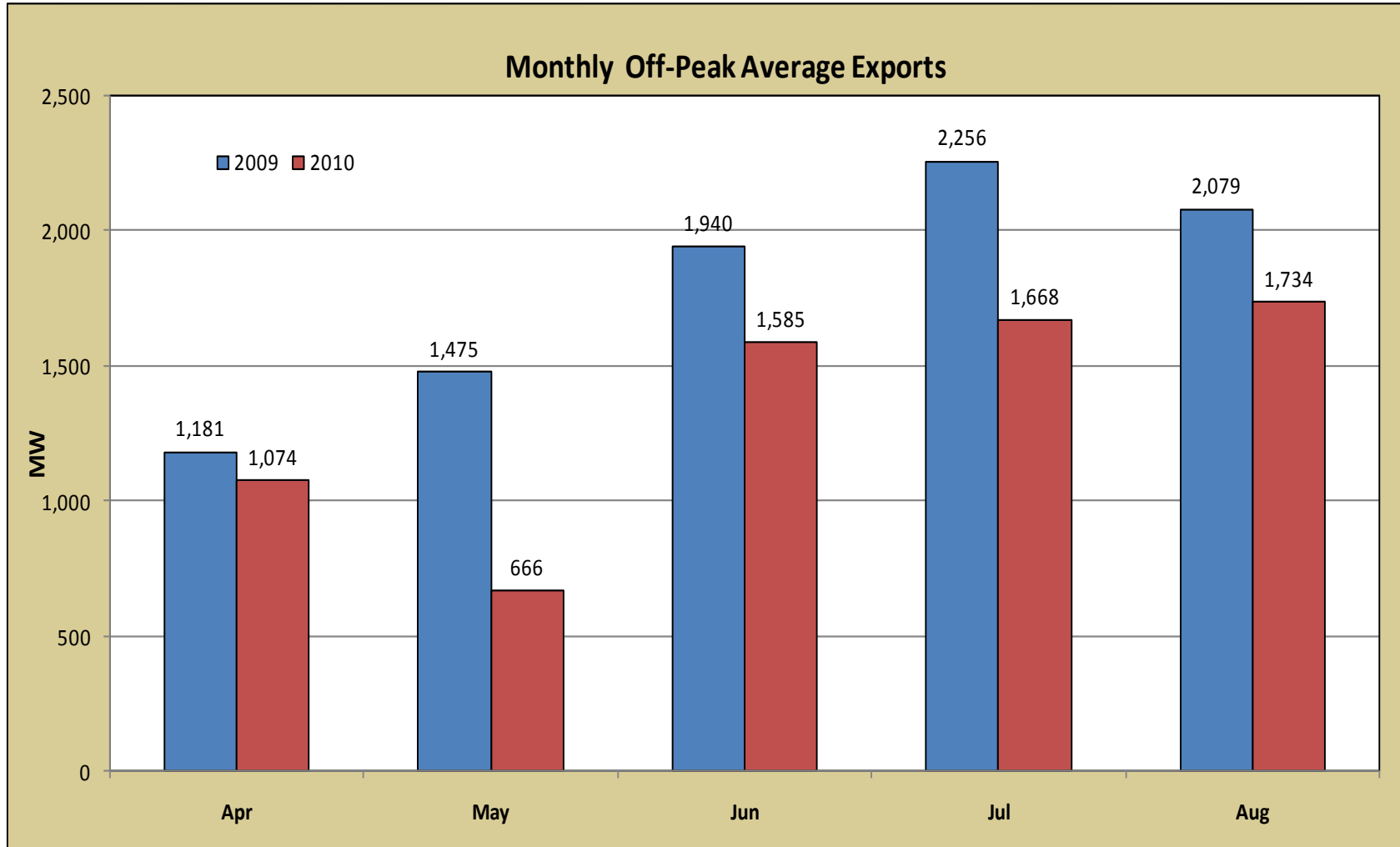
Average Nuclear Production (All Hours)



Average Wind Production (All Hours)







Recent Operating Events

Timing is Everything!

Downtown
Interruption
Emanating from
John T.X.

G20
Summit
In
Toronto

Manby
Breaker
Explosion

18

26/27

5

June

July

- Explosive failure of a 230 kV oil circuit breaker in the Manby TS West yard
- Six additional faults recorded within 3.6 seconds
- Over 1,000 MW of customer interruptions including Toronto downtown core
- 90% of service restored within two hours



- Significant reduction in TLRs called thus far in 2010 relative to 2009
 - 85% decrease in NY-initiated TLRs that impact Ontario market (normally in on-peak periods with high clockwise circulation)
 - 97% decrease in Ontario-initiated TLRs to relieve Niagara transmission loadings (normally in off-peak periods with high clockwise circulation)
- Reduction in Ontario-initiated TLRs can be attributed to less SBG, eliminating periods of very-high export volumes
- Likely several factors causing NY TLR reduction

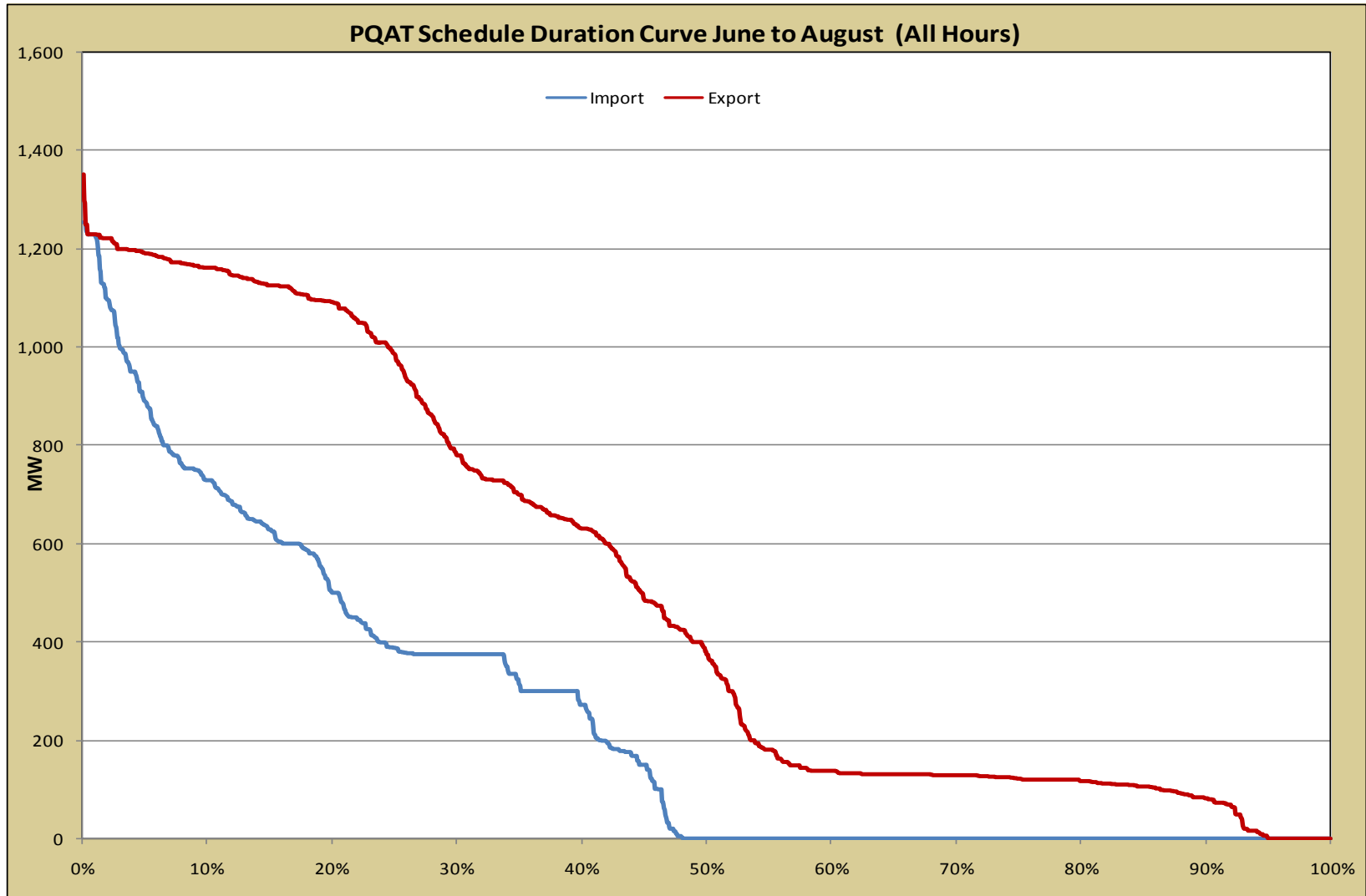
Voltage Control Challenges with Low Demands

- Low demands and lightly-loaded transmission lines can result in very high voltage levels
- Cannot operate equipment at voltage levels that exceed design expectations
- Operation of East-West Ties is particularly challenging – occasionally removing circuits from service
- Throughout Spring, 500 kV circuits were being removed in Southern Ontario to control Toronto area voltages
- Southern Ontario challenge has reduced – air conditioning load!

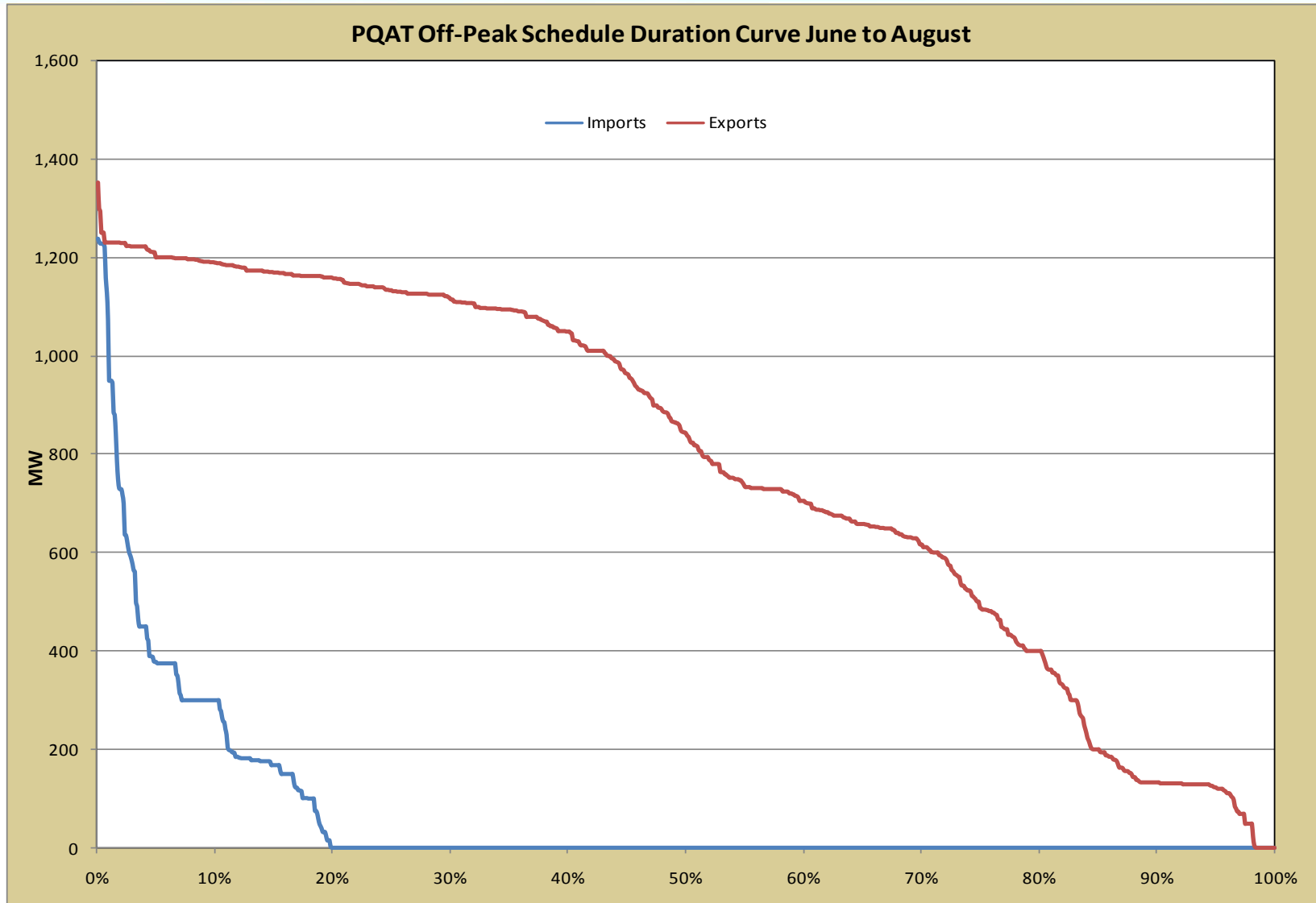
New Tieline with Quebec

- 1,250 MW back-to-back DC tieline with Quebec
- Year-long process to fully integrate into system
- Finally declared fully in service June 4, 2010
- Still require fine tuning on the solid-state controls to eliminate voltage fluctuations on Ontario system when changing flows

PQAT Schedules (All Hours)



PQAT Schedules (Off-Peak Hours)



Looking Forward

- Retirement of 2,000 MW of coal-fired generation this fall is on track:
 - 2 Lambton units
 - 2 Nanticoke units

- 4 NY-ON interties on the Niagara flowgate:
 - PA301 & PA302 – connect to NY 345kV system
 - PA27 and BP76 – connect to NY 230kV system
- BP76 forced from service January 30, 2008
 - regulator R76 failure
 - expected return to service: Dec 2012
- Previous PA301 or PA302 outages:
 - Nov 17-20, Dec 1-4 2008
 - Mar 24 – Apr 16 2009
 - Nov 16 – Dec 6 2009

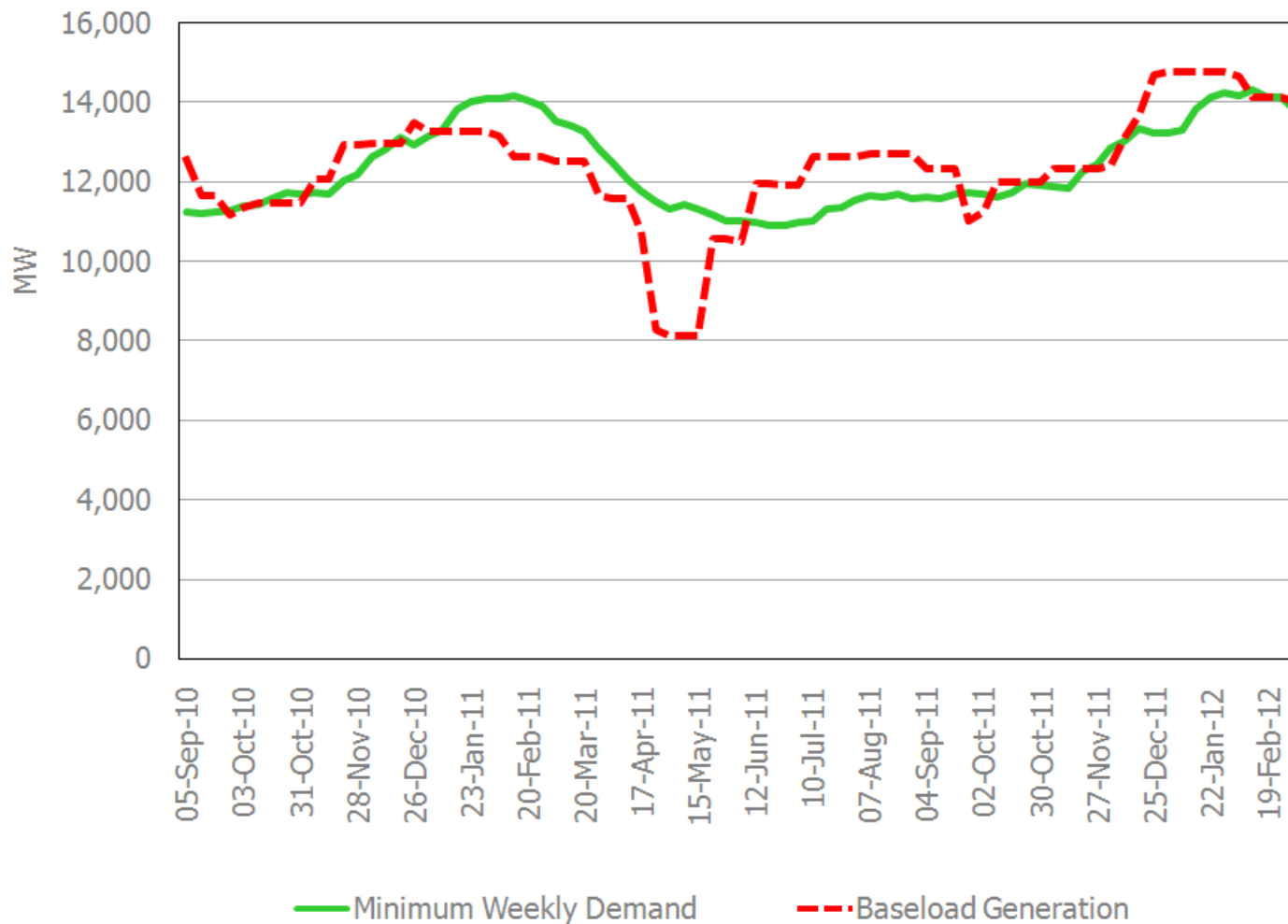
Fall, 2010 Outage Schedule

Element (s) Out-Of Service	Dates	Notes
PA301 and BP76	Nov 1 - 12	BP76 bypass constructed
PA301	Nov 12 - 18	BP76 operating with R76 bypassed
PA301 & PA302	Nov 18 – Dec 7	BP76 operating with R76 bypassed
PA302	Dec 8 - 28	BP76 operating with R76 bypassed
PA301	Dec 29	BP76 operating with R76 bypassed
BP76	Dec 30 onward	BP76 removed from service until R76 replaced Dec 2012

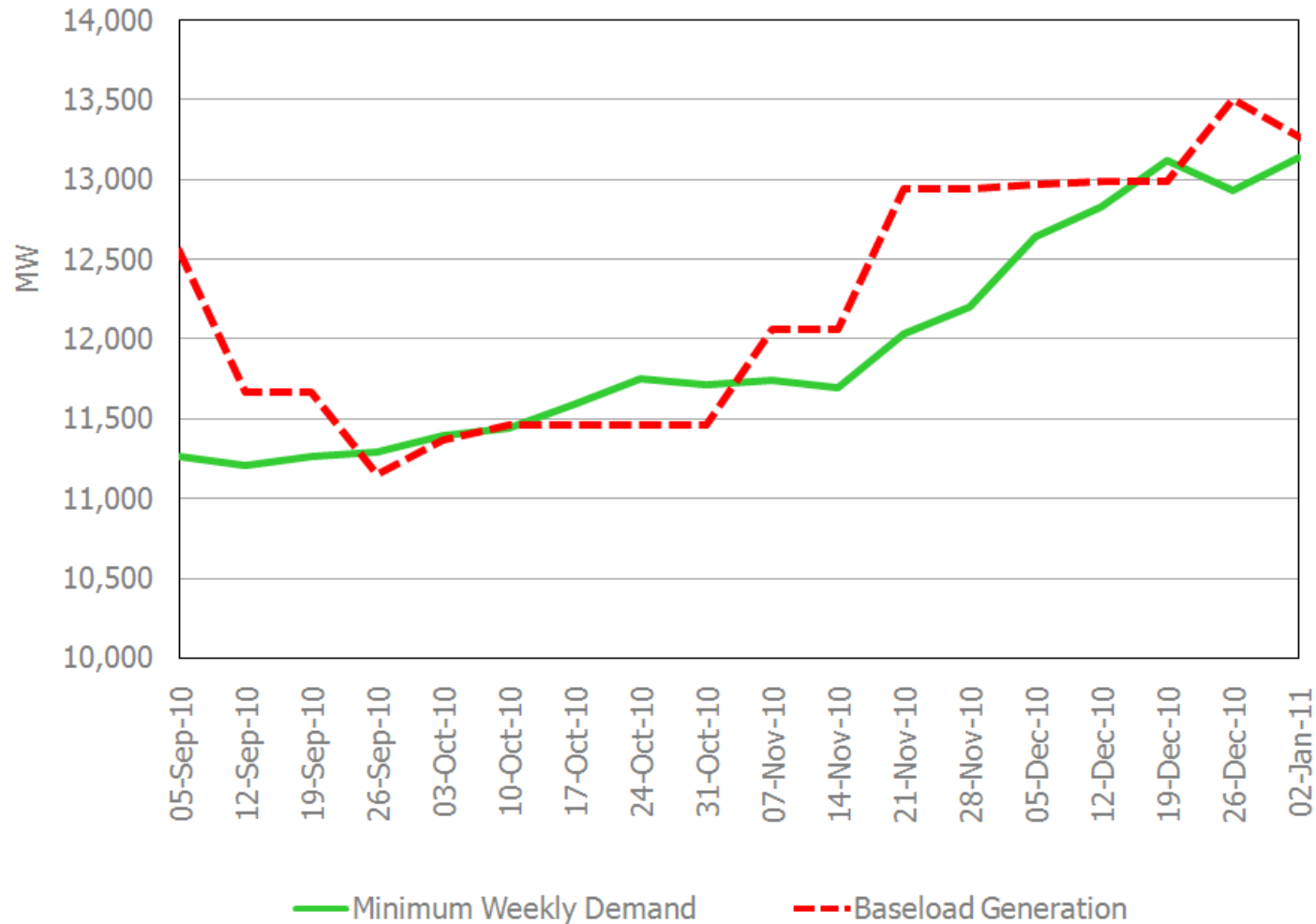
- PA301 & PA302 outages conclude Dec 29 2010
 - BP76 removed from service at that time; will remain out-of-service until R76 installed Dec 2012
 - Transfer limits higher with only PA27, PA301 and PA302 in-service in comparison with PA27, PA301, PA302 and BP76 (R76 bypassed) in-service
- PA301 or PA302 outages: 2011 - 2020
 - Three 1-week outages, several 1-2 day outages scheduled for regular maintenance

- 3 of 4 Ontario/Michigan interties have PARs located in Ontario and in-service and available
- The fourth PAR, located in Michigan, has been long anticipated
- All physical work now completed to incorporate the final PAR
- ITC, the owner of the final PAR, does not agree that entire cost of PAR should be shouldered by Michigan ratepayers
- MISO and ITC exploring alternative cost recovery models
- Both MISO and ITC are committed to Q4 operation

Minimum Demand vs. Baseload Generation Generation - 18-Month Outlook



Minimum Demand vs. Baseload Generation Generation - Remainder of 2010



Surplus Baseload Generation

- next three weeks

Forecast Surplus Baseload Generation Report (EnergyMW)

Created at Aug 23, 2010

Date	Surplus Baseload Generation for Hour																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Tue Aug 24, 2010		230	407	405																				
Wed Aug 25, 2010		115	423	344																				
Thu Aug 26, 2010	313	639	953	856	440																			
Fri Aug 27, 2010	656	807	1005	940	415																			
Sat Aug 28, 2010	462	860	1154	1264	1268	1069	408																	14
Sun Aug 29, 2010	1071	1441	1593	1691	1688	1547	1052	292																
Mon Aug 30, 2010	345	704	892	959	533																			
Tue Aug 31, 2010																								
Wed Sep 01, 2010	415	933	1302	1262	719																			
Thu Sep 02, 2010			394	538	220																			
Fri Sep 03, 2010	1368	1564	1824	1782	1256	75																		735
Sat Sep 04, 2010	2058	2332	2605	2742	2657	2283	1905	977	70													371	1156	1906
Sun Sep 05, 2010	1867	2137	2318	2416	2477	2438	2118	1394	595														374	978
Mon Sep 06, 2010	2041	3368	3549	3568	3523	3390	3204	2436	1495	619	25											263	1246	1964
Tue Sep 07, 2010	88	535	890	938	587																			
Wed Sep 08, 2010	307	914	1302	1403	1072	350																		345
Thu Sep 09, 2010	612	1868	2171	2105	1591	431																	104	1140
Fri Sep 10, 2010	1206	1793	2047	2011	1540	378																	381	1294
Sat Sep 11, 2010	2050	2328	2599	2741	2657	2286	1898	988	84													377	1171	1924
Sun Sep 12, 2010	2387	2603	2812	2843	2789	2611	2282	1560	789	347	121		70	153	217						301	1057	1716	
Mon Sep 13, 2010	2181	2349	2541	2458	1959	660																	394	1321
Tue Sep 14, 2010	1581	1941	2199	2168	1633	254																	318	1323

- Southern Ontario demands have increased due to air conditioning load – no significant increase in large industrial demand yet
- Extremely low water conditions
- Previous two points combine to limit SBG occurrences
- Light loading scenarios present some unique operating challenges
- Progress being made on inertia issues
- System is in a resilient state