



Quarterly Report: January - March 2012 (Q1/12)

May 17, 2012

The Market Surveillance Administrator is an independent enforcement agency that protects and promotes the fair, efficient and openly competitive operation of Alberta's wholesale electricity markets and its retail electricity and natural gas markets. The MSA also works to ensure that market participants comply with the Alberta Reliability Standards and the Independent System Operator's rules.

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Executive Summary

General Market Outcomes

The average pool price for Q1/12 was \$60.12/MWh. The year over year comparison shows that Q1/12 prices were down about 25% from Q1/11. Natural Gas prices continued a negative trend which began last summer and has become more apparent this quarter. AECO-C prices are below \$2/GJ at the present time. Market heat rates have remained at high levels, close to 30 GJ/MWh for the quarter.

The volatility of pool prices, whether measured by standard deviation or coefficient of variation, continued to be high in Q1/12. However, the continued levels of volatility that we refer to as 'high' seem to have become the new norm and may not return to the former lower levels for some time. The continued development of new wind farms is one factor contributing to the volatility. In Q1/12, 60% of the value of pool prices was in the top 10% of hours. This is down slightly from Q4/11 (61%).

Figure D.2 shows that prices in Alberta were well above those of our neighbours. This price differential encouraged imports to flow to Alberta and over the quarter we imported some 700,000 MWh, equivalent to an average of 320 MW similar to Q4/11.

There was a modest increase in system capacity (Maximum Capability) in Q1/12. Plant actual availability in Q1/12 at 9335 MW was higher than in Q4/11 (8953 MW) and Q3/11 (8824 MW). Total fleet generation, including wind, was 17,085 GWh, up from Q4/11 (16,076 GWh) and Q1/11 (16,610 GWh). The increase of wind generation between Q1/11 and Q1/12 was the most noticeable change.

Appendix C shows the prices of active and standby operating reserves for Q1/12. Starting mid-December, the AESO began procuring two new regulating reserve products through Watt-Ex: the AM and PM Superpeak. On average the Superpeak products trade at a premium to the standard products.

Forward trading in Alberta continued with moderate volumes through Q1/12 as indicated in Figure E.1. The persistent low liquidity of the forward market will be looked at as part of the MSA's state of the market assessment work currently ongoing.

Monitoring Indicia

The supply cushion – pool price relationship was again used to screen hourly market outcomes for the quarter. A total of 92 high outliers were identified for Q1/12, many more than would be expected based on the historical data used to establish the baseline parameters. This is a continuation of a pattern that persisted throughout 2011, with the frequency of outliers increasing over time.

A notable event in Q1/12 was the economic withholding of an entire coal unit in early March. Prices were elevated for March 1 and 2, contributing some 40% to the monthly average price. This event was the first occasion where an entire coal unit was bid out of the market.

Settlement Agreement Filed with the AUC

On November 4 the MSA and TransAlta filed a settlement agreement with the AUC where it is currently under consideration as Application No. 1607868. The settlement alleges that TransAlta breached section 6 of the Alberta Electric Utilities Act during 31 separate hours during 8 days in November, 2010. The

current details may be found at the Commission's web site at www.auc.ab.ca and search for application 1607868.

On January 19 & 20, 2012 the AUC held an oral hearing on certain procedural aspects relevant to the proposed settlement and, as of January 31, we await the Commission's ruling.

The main proceeding was held on March 14, 2012 with argument and reply argument completed by early April. The decision by the Commission is anticipated in early July, 2012.

Market Data Transparency

In late November, Charles River Associates made a presentation to stakeholders on their work for the MSA examining the efficiency and competition aspects associated with the high level of market information, at or near real time, which is made available to market participants in Alberta. On March 19, 2012 the MSA and AESO held a joint stakeholder meeting to discuss market metrics, data transparency and possible improvements. Subsequently the MSA posted comments on both the stakeholder presentation and the Charles River report previously published in fall 2011. This stakeholder process is in the 'Develop' stage per the MSA's stakeholder process.

MSA Feedback

On April 13, 2012 the MSA posted feedback concerning a question posed by a market participant. The question related to the trading of information on outages at wind farms. The feedback noted that the AESO's wind forecasts include the effect of outages over the upcoming six days and hence the outage information is deemed to be public for this period. Beyond six days out there is currently no mechanism in place by the AESO to make the outages public and hence participants cannot trade on such information.

State of the Market Assessment

The MSA has begun work on a state of the market assessment that would marry the data and analysis of past quarterly reports with new analysis. The purpose of the report is to comment on the state of competition in the Alberta market from a longer term perspective based on established market metrics and benchmarks.

The MSA has formed a small advisory group to assist the initial scoping of the work. As well, various stakeholder groups are being formed to assist the MSA in specific work areas such as supply cushion and potential barriers to entry.

Annual Report to the Minister

On March 23, 2012 the MSA submitted its annual report to the minister as required by subsection 38(1) of the *Alberta Utilities Commission Act*. The report provided a succinct summary of the MSA's main activities over 2011 plus audited financial statements.

Presentation to Retail Market Review Committee

On April 25, 2012 the MSA made a presentation to the government-appointed committee. The committee is charged with making recommendations to the Alberta Government on any changes to the design of the Regulated Rate Option it believes is required. The formation of the committee was due in part to high and volatile RRO prices over the past winter months.

1 General Comments on Market Outcomes

The average pool price for Q1/12 was \$60.12/MWh (Table A.1). This is about 20% less than Q4/11 (\$76.09/MWh) which itself was 20% less than Q3/11. The year over year comparison shows that Q1/12 prices were down about 25% from Q1/11. Natural Gas prices continued a negative trend which began last summer and has become more apparent this quarter (Figure A.2). AECO-C prices are below \$2/GJ at the present time. Market heat rates have remained at high levels, close to 30 GJ/MWh for the quarter.

The volatility of pool prices, whether measured by standard deviation or coefficient of variation, continued to be high in Q1/12. However, the continued levels of volatility that we refer to as 'high' seem to have become the new norm and may not return to the former lower levels for some time. The continued development of new wind farms is one factor contributing to the volatility. The pool price duration curve for Q1/12 lies below those for Q4/11 and Q1/11 across almost the complete range (see Figure A.1). In Q1/12, 60% of the value of pool prices was in the top 10% of hours. This is down slightly from Q4/11 (61%).

Figure D.2 shows that on-peak prices in Alberta were again well above those of our neighbours. Even off-peak pool prices were higher than those in adjacent markets (Figure D.3). This price differential encouraged imports to flow to Alberta and over the quarter we imported some 700,000 MWh, equivalent to an average of 320 MWh (Figure D.4) similar to Q4/11.

There was a modest increase in system capacity (Maximum Capability) in Q1/12. Plant actual availability in Q1/12 at 9335 MW was higher than in Q4/11 (8953 MW) and Q3/11 (8824 MW). Total fleet generation, including wind, was 17,085 GWh, up from Q4/11 (16,076 GWh) and Q1/11 (16,610 GWh). The increase of wind generation between Q1/11 and Q1/12 was the most noticeable change. Installed capacity increased from 762 MW to 865 MW (14% increase) but the main driver was the average capacity factor increasing from 26% to 43%.

Appendix C shows the prices of active and standby operating reserves for Q1/12. Starting mid-December, the AESO began procuring two new regulating reserve products through Watt-Ex: the AM and PM Superpeak. The AM Superpeak includes HE6-8 whilst the PM Superpeak includes HE17-24 for November through January and HE18-24 for all other months. Q1/12 is the first full quarter of these purchases and the pricing is shown on Figure C.1. It can be seen that on average the Superpeak products trade at a premium to the standard products.

Forward trading in Alberta continued with moderate volumes through Q1/12 as indicated in Figure E.1. The persistent low liquidity of the forward market will be looked at as part of the state of the market assessment work currently ongoing.

In Q4/11 AESO began the use of Load Shedding Services for Imports (LSSi) as a means of increasing import capability on the BC interconnection toward its rated capacity. The AESO ran a competitive procurement process in 2011 and contracted with several providers including one aggregator. The contracts provide for a three part payment plan. The availability payment is set at \$5/MW for capacity that is made available for the service. In the event that the capacity needs arming, to allow for enhanced import capability, there is an arming payment that varies among the providers. In the event that the intertie trips whilst armed and load is shed there is a trip payment set at \$1000/MW. Ongoing internal transmission work has resulted in no ability for the System Controller to use LSSi throughout much of the quarter. Hence, there is not yet a sufficiently long time series to assess how well LSSi is working in terms of increasing the efficient use of the BC interconnection.

2 Monitoring Indices

Monitoring indices are data summaries the MSA uses to flag apparent anomalous market outcomes or report on the competitive health of the market for further assessment now, or in the future.

The detailed derivation of the supply cushion for each hour was described in the MSA's Q3/10 report. Data for the period February 1, 2008 through June 30, 2010 was used to establish a statistical baseline for the relationship between the supply cushion and pool price. For a given hour, the supply cushion is the volume of energy available to the system controller but not called upon to meet load. The supply cushion measures market tightness and would be expected to be strongly related to pool price. This relationship is a prime metric to enable the MSA to identify anomalous hours. It does not speak to the possible reasons for the anomaly, but it does flag the hour as being unusual.

In the Q1/11 report, we described a detailed methodology for analysis of the undispached MW in the merit order. This is termed an output gap analysis. In the cases where market prices are higher than the short-run costs of the generators, it is an analysis of economic withholding. To be clear, as explained in the MSA's *Offer Behaviour Enforcement Guidelines*, economic withholding by individual market participants is not proscribed under Alberta's market construct. However, identification and reporting of its occurrence contributes to stakeholders' understanding of market outcomes and also provides a record for the longer term assessment of the health of the market.

For this quarterly report we have not undertaken any detailed analysis of hours that were flagged as being statistically unusual. In part, this is due to the results of previous analysis which have shown that most of these events are caused by similar patterns of withholding by one or more market participants when supply cushion is less than about 1000 MW. The MSA is focusing its analytical efforts into a longer-term analysis of these patterns as part of its state of the market assessment which we plan to complete later this year.

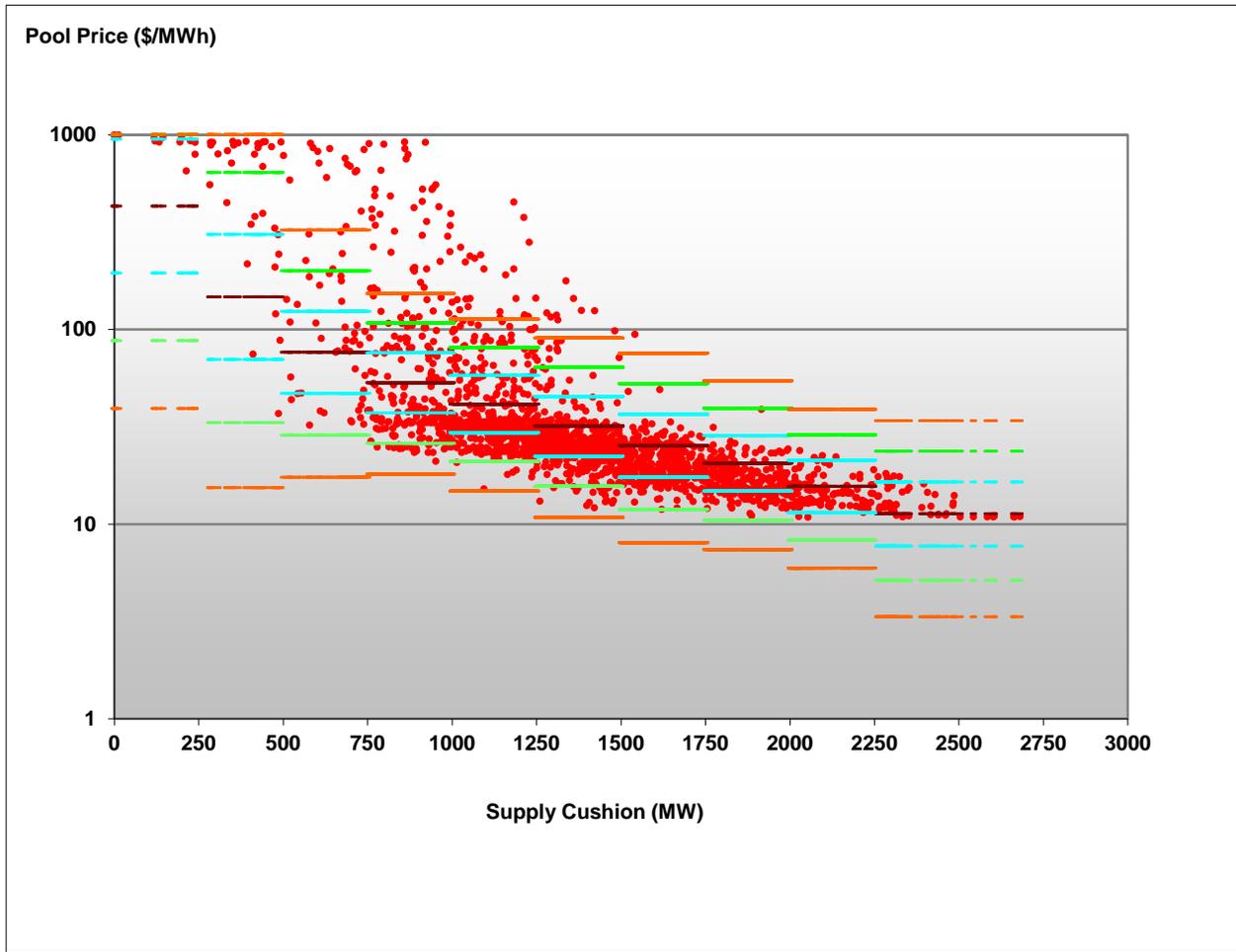
2.1 SUPPLY CUSHION ANALYSIS – Q1/12

In Q1/12, a total of 92 hours were observed when the pool prices were higher than 3 standard deviations above the mean established using the historical data.¹ No hours were observed when the pool prices were lower than -3 standard deviations. The prices above +3 standard deviations were concentrated in the hours when the supply cushion was in the range of 500 MW to 1250 MW. A greater proportion occurred between 1000 MW and 1250 MW than in previous quarters. Of the 790 hours when the supply cushion was between 500 MW and 1250 MW, there were 82 hours in which the pool prices were above +3 standard deviations, counting for 10% of the total number of hours in the 500 MW to 1250 MW supply cushion range. The data observed in Q1/12 are in line with recent quarters.

Appendix F presents more details of the 92 hours identified above.

¹ For details on how the mean and standard deviations were calculated with the historical data, refer to MSA Quarterly Report for Q3/10. The numerical values are reported in the Q3/11 Quarterly Report.

Figure 2.1: Q1/12 Supply Cushion v. Pool Price (Confidence Bands Based on Historic Data)



	≤ 250	> 250	≤ 500	> 500	≤ 750	> 750	≤ 1000	> 1000	≤ 1250	> 1250	≤ 1500	> 1500	≤ 1750	> 1750	≤ 2000	> 2000	≤ 2250	> 2250	Total
$\geq +3$	0	0	16	41	25	9	1	0	0	0	0	0	0	0	0	0	0	0	92
$< +3$ & $\geq +2$	0	20	5	14	27	9	0	0	0	0	0	0	0	0	0	0	0	0	75
$< +2$ & $\geq +1$	7	7	8	29	25	10	2	2	5	7	102								
$< +1$ & $\geq \text{mean}$	8	3	15	21	40	52	58	36	29	31	293								
$< \text{mean}$ & ≥ -1	0	3	6	37	194	353	221	155	87	17	1073								
< -1 & ≥ -2	0	0	0	20	8	19	0	0	0	0	47								
< -2 & ≥ -3	0	1	12	80	167	94	73	65	2	0	494								
< -3	0	0	0	0	0	0	0	0	0	0	0								
Total	15	34	62	242	486	546	355	258	123	55	2176								

2.2 OUTPUT GAP ANALYSIS – Q1/12

The output gap analysis calculates the market supply cushion by market participant, identifying the proportion of the supply cushion that is attributable to each market participant in a given hour. The theory and its application in our work were fully described in the MSA’s Q1/11 report. There has been ongoing work with stakeholders as part of the state of the market assessment aimed at improving the way that the supply cushion values are estimated and assessed. The results herein are based on the same methodology as used over the past year.

As for other quarters, due to the high number of identified hours, we have not done the manual adjustment of the assignment of control by market participant. Table 2.1 shows the results of the unadjusted analysis for the Q1/12 events.

Table 2.1: Output Gap Analysis – Q1/12

Month	Count of Events	Average Price	Average SC	Average Share of Supply Cushion by Participant						Average HHI
				A	B	C	D	E	Other	
Jan-12	20	\$460.62	850	22%	12%	31%	26%	2%	7%	2,545
Feb-12	26	\$270.97	980	26%	13%	22%	25%	2%	11%	2,341
Mar-12	46	\$405.82	979	29%	16%	29%	14%	1%	11%	2,628
Q1/12	92	\$379.62	951	27%	14%	27%	19%	1%	10%	2,529

The most significant feature of Table 2.1 is the distribution of outlier hours across the quarter. Of the 46 outliers in March, 27 occurred over the March 1-2 period in an event that is discussed below in Section 2.3. The remaining outliers were fairly evenly spread throughout the quarter. The distribution of the market shares by participant for the events in each month are shown in Figures 2.2, 2.3 & 2.4.

Figure 2.2: Output Gap Analysis - January 2012

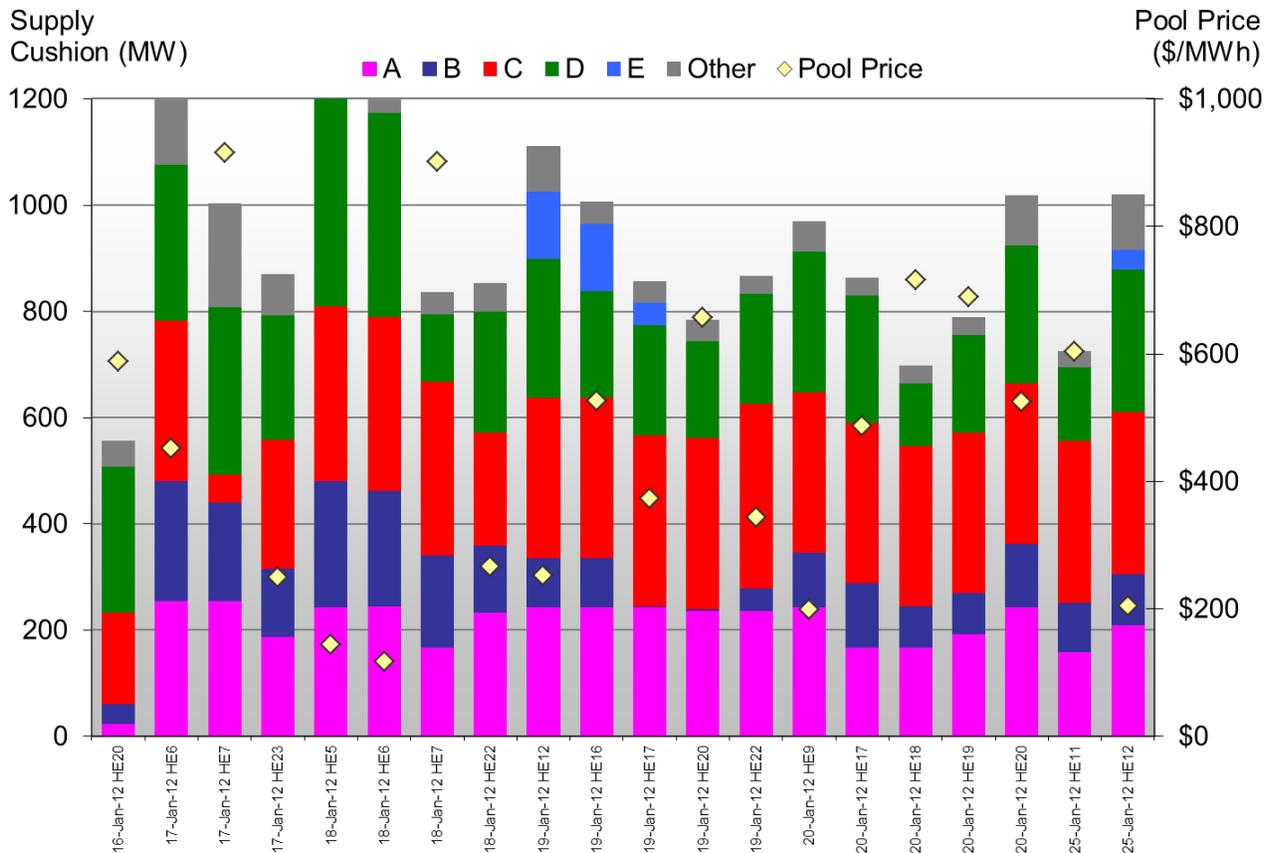


Figure 2.3: Output Gap Analysis - February 2012

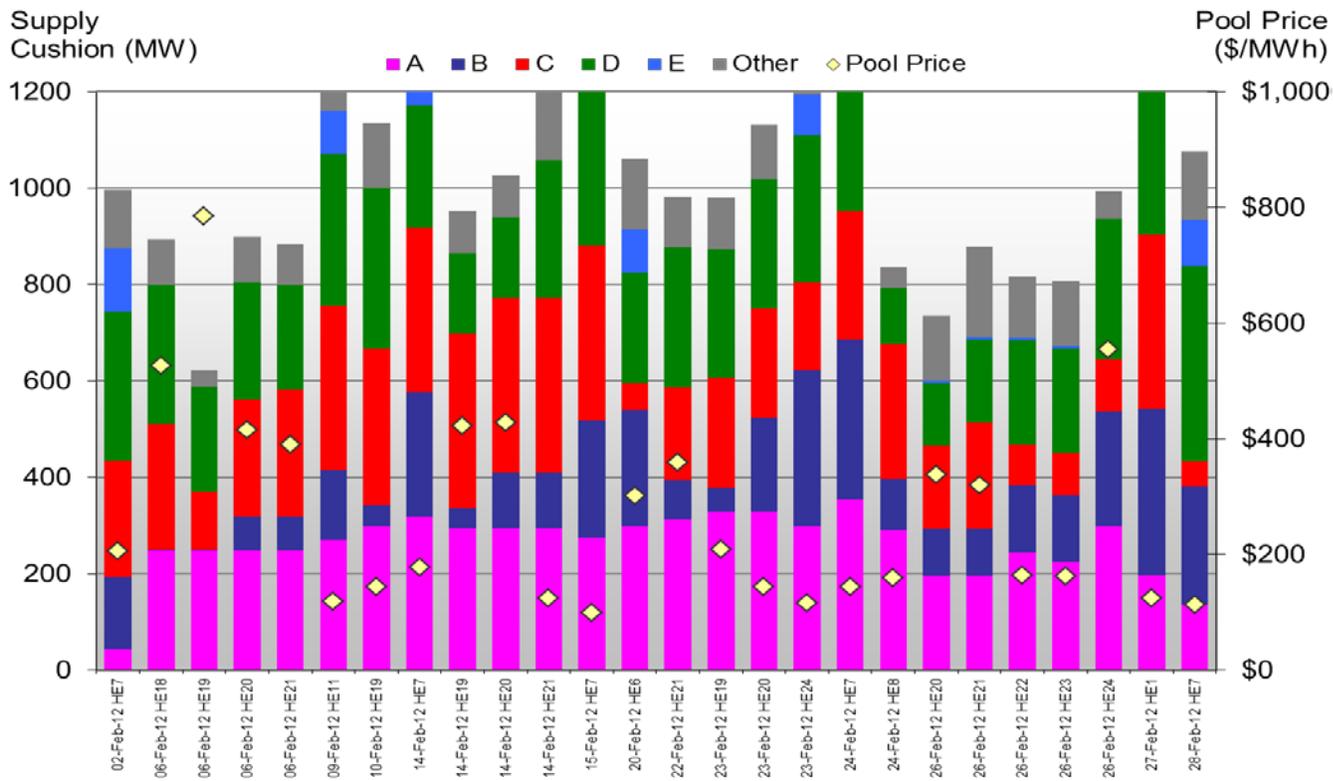
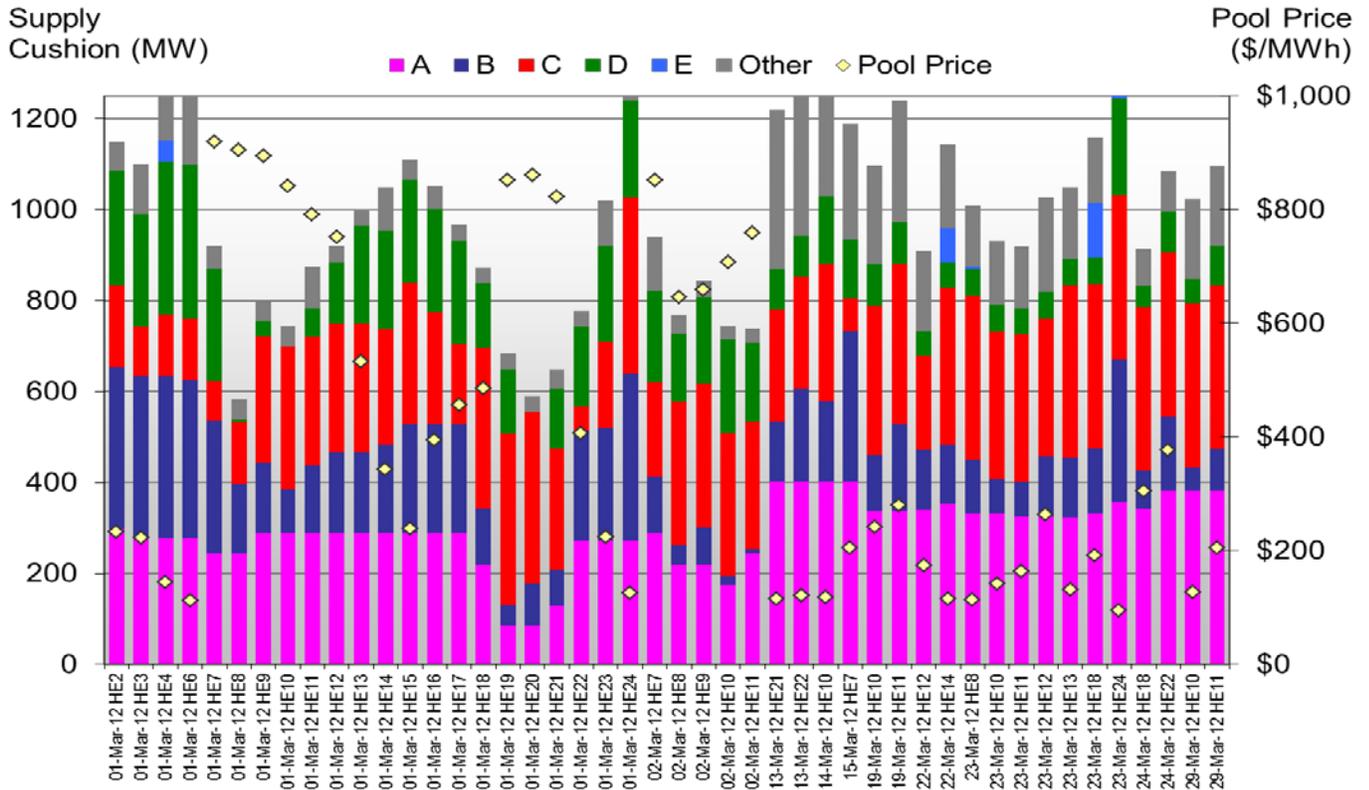


Figure 2.4: Output Gap Analysis – March 2012



2.3 COAL UNIT BID OFF LINE

For HE2 of March 1, 2012, the entire Available Capacity of a coal unit was offered into the power pool at a price such that it fell out of merit and was subsequently dispatched off by the system controller. This offer strategy remained in place for the duration of March 1 and much of March 2 with the unit coming back online in the early hours of March 3. The MSA can confirm that there were no abnormal operating issues with the unit.

The cycling of gas-fired assets is a relatively common feature of the Alberta energy market. This is the first time a coal unit has economically withheld its entire available capacity from the power pool and been dispatched off the system.

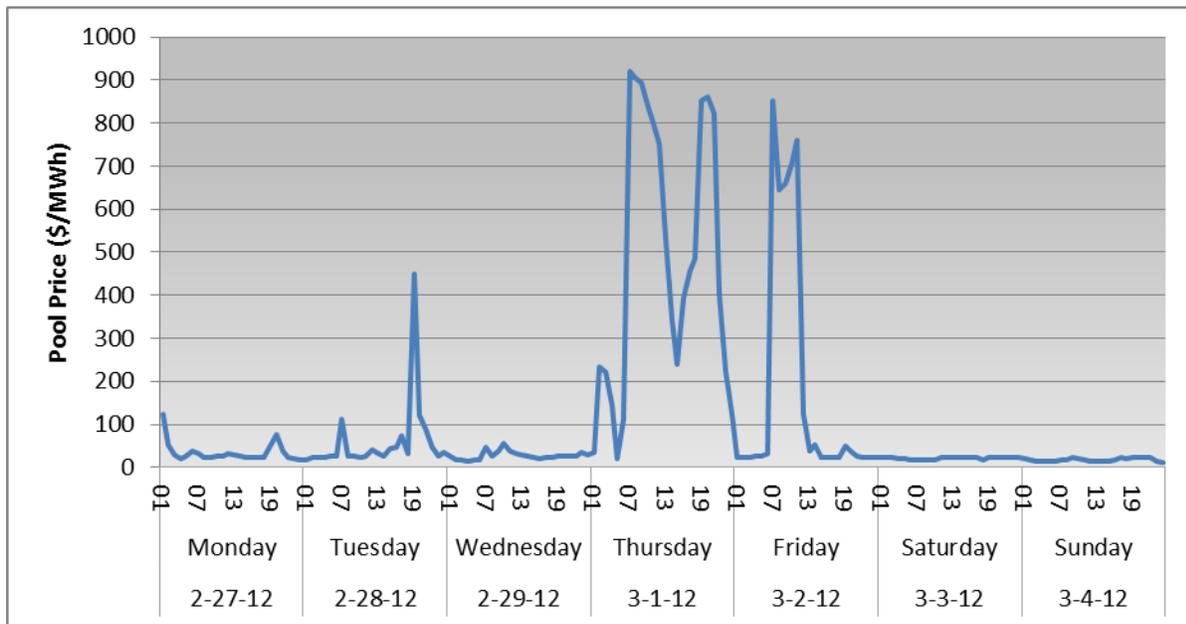
2.3.1 Fact Pattern

Beginning in HE2 on March 1, 2012 the entire capacity of the unit was offered into the power pool at a price likely to cause it to be dispatched off the system. During the preceding hour, the whole capacity had been offered well below System Marginal Price and the unit was generating at full available capacity. By the end of HE2 the unit had ramped down to 0 MW. The unit was synchronized to the grid and producing energy early on March 3.

Once the unit was at zero output it took on the attributes of a long lead time asset. There is an initial minimum off-time for the unit, and a start-up time that lengthens as the unit cools down. The available energy to the system controller is reduced compared with situations where the asset is online but out of merit.

Whilst the unit was off line, pool prices rose as is evident in Figure 2.5. This event yielded 27 hours where pool prices were more than 3 standard deviations above the mean in the reference data set. The market would have observed the ramping down of the unit during HE2 (on the ISO's Current Supply and Demand report) and assumed that the unit would be offline for some time, thus tightening the market. Those generators long in the market priced up their generation offers in response to the tightness. The average pool price for March 1-2 was \$330.94/MWh and contributed over 40% of the average pool price for the month of March (\$51.08/MWh).

Figure 2.5: Pool Prices for February 27 through March 4, 2012



2.3.2 Assessment

In principle, this economic withholding of the coal unit is no different from any other exercise of market power through economic withholding. In this case, the unit went offline and was thus not available to the system controller for a period of time, whatever the market price. This is the case whenever long-lead time units exit the market.

An element of this event is the relative lack of experience in cycling the Alberta coal fleet. Normal practice is that the coal units run until it is time for maintenance. Coal units returning from outages often experience some difficulties and a smooth return to online service is by no means certain. Once the coal unit is cold, the total start time is 10 hours. If this practice of cycling units was to become more common, and possibly more widespread, the system controller might well need more tools – both computer tools and regulatory tools – to manage the system. Obviously, these are matters for the ISO to consider under its mandate to maintain reliability.

From the MSA's perspective, this is another instance of market behaviour leading to a loss of static efficiency similar to the events documented in the quarterly reports over the past year or so. The state of the market work currently ongoing will attempt to assess whether the observed loss of static efficiency is counterbalanced by other sources of efficiency.

2.4 ENERGY MARKET IN LIMITED OPERATION

On April 6, 2012, AESO experienced some technical issues of their IT systems lasting from 14:14 to 22:30.² As noted on the AIES Event Log, during this period of internal network issues the AESO operated in a state of Limited Market Operation under Rule 202.7 from 15:00 to 16:20. In that timeframe, the System Controller used a static copy of the HE 15 energy market merit order. At 16:20, normal market operations resumed. By 22:30, the network issues were resolved with all critical ETS reports displaying accurate data. All applicable rules were followed throughout this event.

In the period that the AESO was in Limited Market Operation, since the system controller was using a static merit order some hours in which he could not access the 'real' or up-to-date version, there was a potential pool price impact. In this case, pool prices were about \$15/MWh and the effect of the action was very modest both in duration and magnitude.

3 Compliance

3.1 ISO RULES COMPLIANCE

Table 3.1 provides an update of the MSA's ISO rules compliance activities as of the end of Q1/12. From the beginning of 2012, 10 notices of specified penalty have been issued. In 43 other cases, the MSA chose to forbear, while 27 other matters remained under review. For comparison, during the first three months of 2011, the MSA had issued 16 notices of specified penalty, 59 forbearances and had 12 files remaining under review. Fifty-eight new files were opened in Q1/12, down from 76 files opened during Q1/11.

Table 3.1: Compliance Files (as of end of Q1/12)

	Under Review	Notice of Specified Penalty	AUC Administrative Proceedings	Forbearance
3.5.3	3	2		5
3.6.3	1	1		
6.3.3	4			11
6.5.3	1	3		7
6.6	8	1		13
OPP 003.2				3
OPP 102	10	3		2
OPP 404				1
OPP 1305				1
Total	27	10		43

The contravention dates of the 10 notices of specified penalty issued in Q1/12 ranged from August 2011 through January 2012. Five of these notices of specified penalty were referrals from the AESO. The remaining 5 notices of specified penalty are attributed to self-reports that did not meet the MSA's criteria to forbear. None of the 10 notices of specified penalty issued during Q1/12 were disputed and all have been paid. Table 3.2 segments the second, third and fourth columns of Table 3.1 by month of contravention date.

² http://www.aeso.ca/downloads/Technical_Difficulties_with_Internal_Network_Systems_-_April.pdf

As described in the MSA 2011 Compliance review, a revised version of AUC rule 019, which enables the MSA to issue notices of specified penalty, became effective on January 1, 2012. The details of those changes, primarily amendments to the penalty tables, were noted in that report.

Table 3.2: Q1/12 Compliance Files by Month of Contravention

	Rule	2011					2012					Total
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
Under Review	3.5.3					2	1					3
	3.6.3										1	1
	6.3.3										4	4
	6.5.3								1			1
	6.6								4	4		8
	OPP 003.2											
	OPP 102		9		1							10
	OPP 404											
	OPP 1305											
Total			9		1	2	1			5	9	27
NSP	3.5.3			1	1							2
	3.6.3								1			1
	6.3.3											
	6.5.3						3					3
	6.6			1								1
	OPP 003.2											
	OPP 102			2	1							3
	OPP 404											
	OPP 1305											
Total			4	2		3		1				10
Forbearance	3.5.3						1	2	2			5
	3.6.3											
	6.3.3							3	6	1	1	11
	6.5.3	1					2	3	3		1	7
	6.6						1	4	5	3		13
	OPP 003.2							1	1	1		3
	OPP 102								1	1		2
	OPP 404						1					1
	OPP 1305							1				1
Total	1					5	11	18	6	2	43	

3.1.1 Emerging Trends

Q1/12 provided further indications of a declining frequency of ISO rule 6.3.3 related compliance matters suggested in the MSA’s 2011 year end compliance metrics. Q1/12 saw 12 matters leading to 11 forbearances with 1 matter remaining under review at the end of the quarter. This was down substantially from the 43 rule 6.3.3 related files addressed in Q1/11 which led to 11 Notices of Specified Penalty, 24 forbearances, and 8 files under review at quarter end. The MSA believes this trend reflects improved awareness and focus by participants on addressing compliance with this rule through training and, as applicable, systems improvements.

As indicated in Table 3.1, timed-out dispatches (OPP 102) have been a somewhat more common compliance issue. Participants are reminded that a dispatch instruction issued through ADaMS must be

accepted or rejected within the allotted 2 minute period. A dispatch that has timed out may be re-issued and thus a series of consecutive dispatch time-outs may result if operations personnel are unaware.

3.2 ALBERTA RELIABILITY STANDARDS

As of the end of Q1/12, the MSA has received 8 self-reported compliance matters relating to Alberta Reliability Standards (ARS). Table 3.3 illustrates the distribution of these matters by Reliability Standard. Four of these matters received forbearance, 2 matters were each deemed a non-breach, one matter is pending the completion of a mitigation plan, and one matter was under review at quarter end.

Table 3.3: Q1/12 Alberta Reliability Standards Compliance Matters

Reliability Standard	Count
CIP-001-AB-1	2
FAC-003-AB-1	3
PRC-001-AB-1	2
PRC-004-AB-1	1
Total	8

The MSA issued its first Notice of Specified Penalty involving Alberta Reliability Standards which pertained to PRC-001-AB-1 (Protection System Coordination). In this case, the MSA had previously extended conditional forbearance on the matter pending the completion of a mitigation plan. The mitigation plan was subsequently not completed in accordance with the prescribed milestones and completion date nor was an extension request submitted to the MSA in accordance with section 4.8.3 of the MSA's Compliance Process.

Registered entities should note that section 4.8.3 of the MSA Compliance Process requires entities to submit requests to revise or extend a mitigation plan that had been accepted by the MSA, at least 5 business days prior to the existing deadline. Such requests will be considered on a case by case basis given the relevant facts and circumstances but will be viewed more favorably when submitted as soon as it is evident the prevailing plan will not meet its objectives.

3.3 STAKEHOLDER SESSION

In February, the MSA held a compliance stakeholder session to present the highlights of its 2011 Compliance Review, and to gather feedback on strategic enforcement. Presentation materials from this session can be found in the compliance section of the MSA website.

In the session, the MSA discussed areas of focus including rules 3 and 6 as core market rules affecting real time market operations as well as a more assertive enforcement approach regarding compliance with directives. Going forward, the MSA intends to work closely with the AESO to ensure the best possible alignment of priority areas. The MSA also outlined a strategic enforcement framework that contemplates stronger advocacy in relation to ISO rules based upon the MSA's enforcement observations and experience, focusing on regulatory efficient outcomes, and seeking alternative resolutions where appropriate. The intended outcome is an efficient and more forward looking approach to compliance rather than one that is reactive.

A question was raised on whether relaxation of enforcement, within defined limits, would be possible with respect to rule 6.3.3 given the number of compliance issues during the last two years. Subsequently, the MSA engaged the AESO to consider the implications from a system operations perspective. AESO was not comfortable with changes to prevailing enforcement and reiterated the importance of offer accuracy across all asset types. Consequently, in this case the MSA will maintain its prevailing enforcement approach until further notice. The MSA is encouraged by recent compliance outcomes indicating that the few participants responsible for the majority of 6.3.3 matters during 2011 have demonstrated significantly better compliance thus far in 2012.

Regarding Reliability Standards, the MSA reiterated its support of compliance programs and participant self-monitoring by articulating a preference toward effective mitigation as opposed to penalties in the first instance.

4 MSA Activities

4.1 SETTLEMENT AGREEMENT

On November 4, 2011 the MSA and TransAlta filed a settlement agreement with the AUC where it is currently under consideration as Application No. 1607868. The settlement alleges that TransAlta breached section 6 of the Alberta Electric Utilities Act during 31 separate hours during 8 days in November, 2010. The current details may be found at the Commission's web site at www.auc.ab.ca and search for application 1607868.

On January 19 & 20, 2012 the AUC held an oral hearing on certain procedural aspects relevant to the proposed settlement and, as of January 31, we await the Commission's ruling.

The main proceeding was held on March 14, 2012 with argument and reply argument completed by early April. The decision by the Commission is anticipated in early July, 2012.

4.2 DATA TRANSPARENCY

In late November, Charles River Associates made a presentation to stakeholders on their work for the MSA examining the efficiency and competition aspects associated with the high level of market information, at or near real time, which is made available to market participants in Alberta. On March 19, 2012 the MSA and AESO held a joint stakeholder meeting to discuss market metrics, data transparency and possible improvements. Subsequently the MSA posted comments on both the stakeholder presentation and the Charles River report previously published in fall 2011.³ This stakeholder process is in the 'Develop' stage per the MSA's stakeholder process.

4.3 MSA FEEDBACK

On April 13, 2012 the MSA posted feedback concerning a question posed by a market participant. The question related to the trading of information on outages at wind farms. The feedback noted that the AESO's wind forecasts include the effect of outages over the upcoming six days and hence the outage

3

<http://albertamsa.ca/uploads/pdf/Archive/2012/Notice%20re%20Stakeholder%20Comments%20on%20Data%20Transparency%20041312.pdf>

information is deemed to be public for this period. Beyond six days out there is currently no mechanism in place by the AESO to make the outages public and hence participants cannot trade on such information.⁴

4.4 STATE OF THE MARKET REPORT

The MSA has begun work on a state of the market assessment that would marry the data and analysis of past quarterly reports with new analysis. The purpose of the report is to comment on the state of competition in the Alberta market from a longer term perspective based on established market metrics and benchmarks.

The MSA has formed a small advisory group to assist the initial scoping of the work. As well, various stakeholder groups are being formed to assist the MSA in specific work areas such as supply cushion and potential barriers to entry.

4.5 ANNUAL REPORT TO THE MINISTER

On March 23, 2012 the MSA submitted its annual report to the minister as required by subsection 38(1) of the *Alberta Utilities Commission Act*.⁵ The report provided a succinct summary of the MSA's main activities over 2011 plus audited financial statements.

4.6 PRESENTATION TO RETAIL MARKET REVIEW COMMITTEE

On April 25, 2012 the MSA made a presentation to the government-appointed committee. The committee is charged with making recommendations to the Alberta Government on any changes to the design of the Regulated Rate Option it believes is required. The formation of the committee was due in part to high and volatile RRO prices over the past winter months.

⁴ <http://albertamsa.ca/uploads/pdf/Archive/2012/MSA%20Feedback%20-%20Wind%20Outage%20041312.pdf>

⁵ <http://albertamsa.ca/uploads/pdf/Archive/2012/MSA%20Annual%20Report%20-%202011.pdf>

Appendix A: Wholesale Energy Market Metrics

Table A.1: Pool Price Statistics

Month	Average Price ¹	On-Pk Price ²	Off-Pk Price ³	Std Dev ⁴	Coeff. Variation ⁵
Jan-12	84.54	126.46	31.37	200.35	237%
Feb-12	43.67	51.67	32.85	66.49	152%
Mar-12	51.08	67.98	27.61	118.24	231%
Q1-12	60.12	82.25	30.59	141.94	236%
Oct-11	69.75	105.22	24.77	141.62	203%
Nov-11	108.24	146.07	56.65	209.08	193%
Dec-11	51.26	66.10	30.72	103.33	202%
Q4-11	76.09	105.29	37.02	158.61	208%
Jan-11	79.05	109.66	40.23	149.02	189%
Feb-11	122.45	182.94	41.79	232.14	190%
Mar-11	48.52	63.32	27.96	80.86	162%
Q1-11	82.05	116.25	36.60	165.98	200%

1 - \$/MWh

2 - On-peak hours in Alberta include HE08 through HE23, Monday through Saturday

3 - Off-peak hours in Alberta include HE01 through HE07 and HE24 Monday through Saturday, and HE01 through HE24 on Sundays

4 - Standard Deviation of hourly pool prices for the period

5 - Coefficient of Variation for the period (standard deviation/mean)

Figure A.1: Pool Price Duration Curves

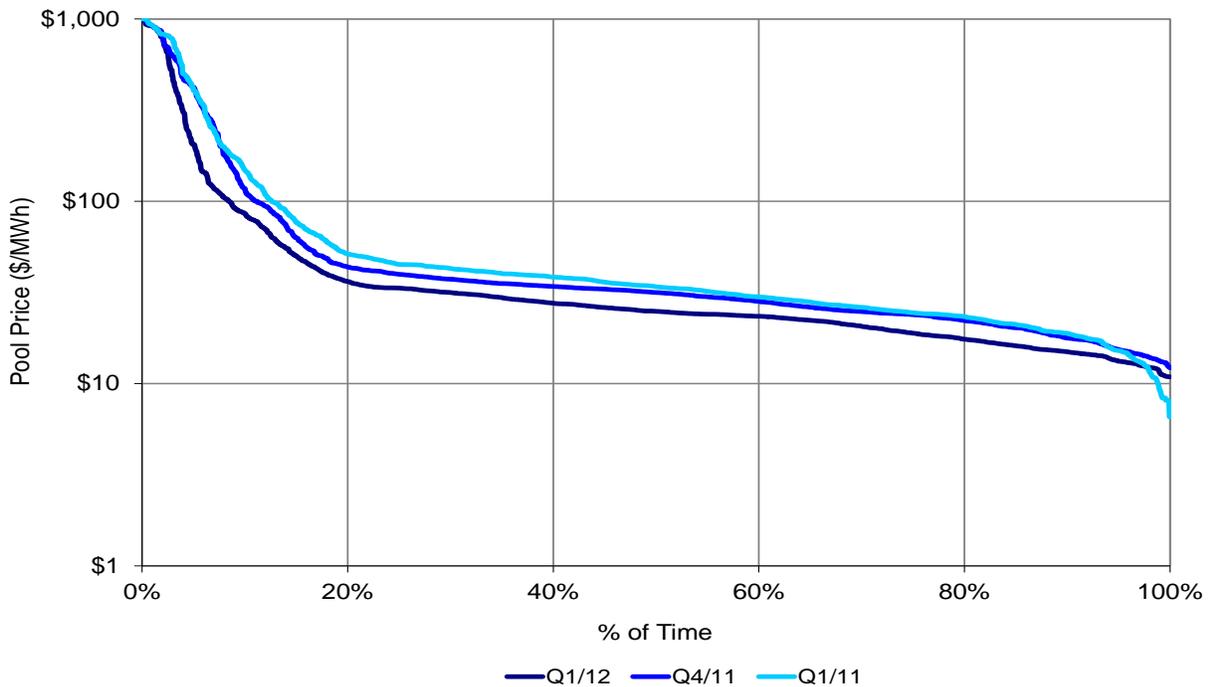
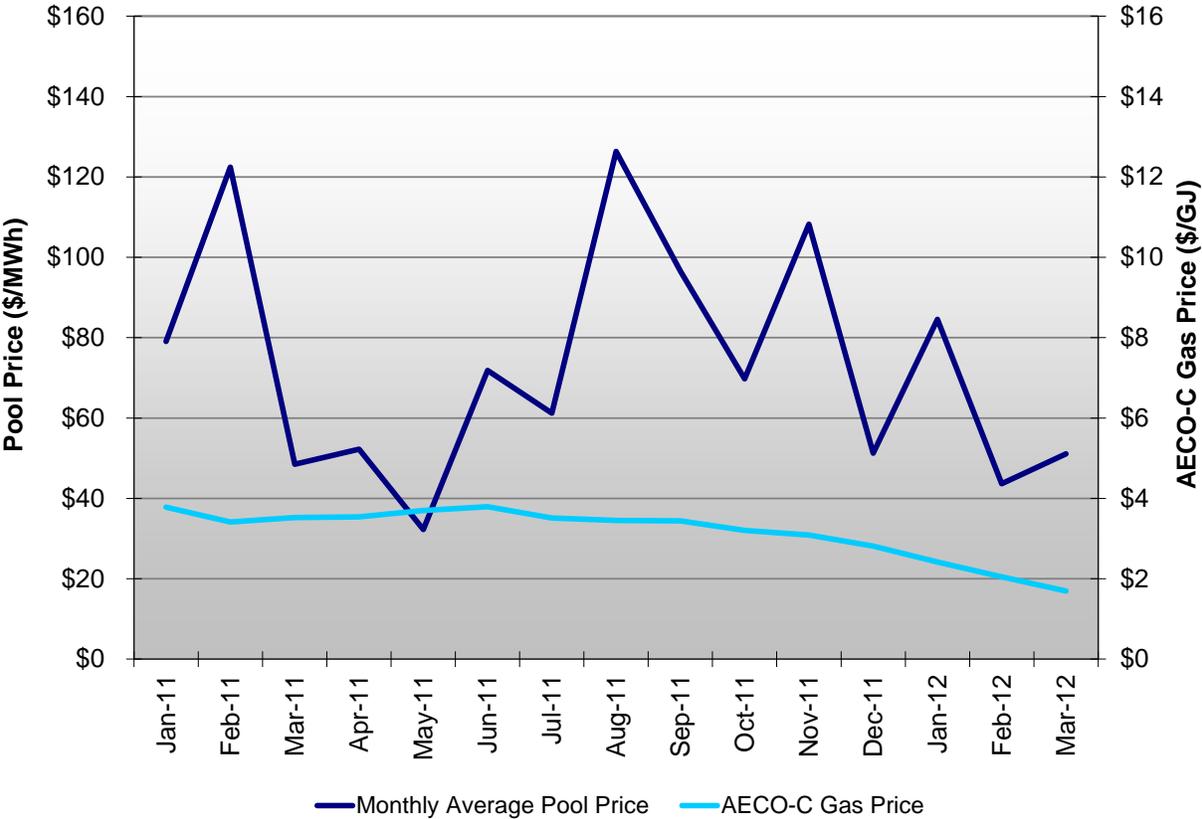


Figure A.2: Pool Price and AECO Gas Price

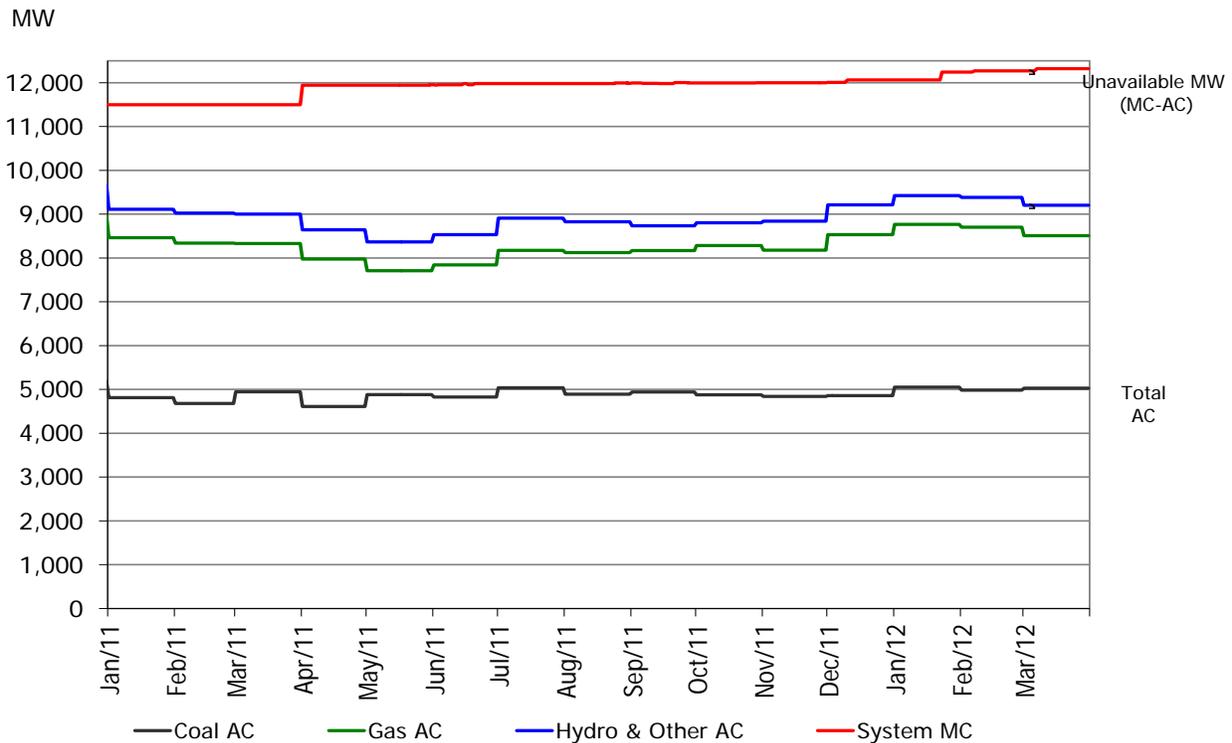


Appendix B: Supply Availability Metrics

Table B.1: Availability and Capacity Factors

Fuel Type	Quarter	Average MC	Average AC	Availability Factor	Generation	Capacity Factor
		[A]	[B] MW	[C]=[B]/[A]	[D]	[E] = ([D]x1000)/([A]xhrs)
		(MW)	(MW)	(%)	(GWh)	(%)
All Fuels <i>(excl. Wind)</i>	Q1/12	12,229	9,335	76%	16,270	61%
	Q4/11	12,014	8,953	75%	15,260	58%
	Q1/11	11,499	9,047	79%	16,186	65%
Coal	Q1/12	6,249	5,022	80%	10,029	73%
	Q4/11	6,237	4,858	78%	9,077	66%
	Q1/11	5,782	4,816	83%	9,938	80%
Natural Gas	Q1/12	4,977	3,637	73%	5,774	53%
	Q4/11	4,825	3,475	72%	5,709	54%
	Q1/11	4,800	3,562	74%	5,743	55%
Hydro & Other	Q1/12	1,003	676	67%	468	21%
	Q4/11	952	619	65%	474	23%
	Q1/11	917	668	73%	505	25%
Wind	Q1/12	865	n/a	n/a	814	43%
	Q4/11	844	n/a	n/a	816	44%
	Q1/11	762	n/a	n/a	424	26%

Figure B.1: Available Capacity (AC) vs Maximum Capacity (MC)



Appendix C: Operating Reserves Market Metrics

Figure C.1: NGX Active Reserves Weighted Average Trade Index

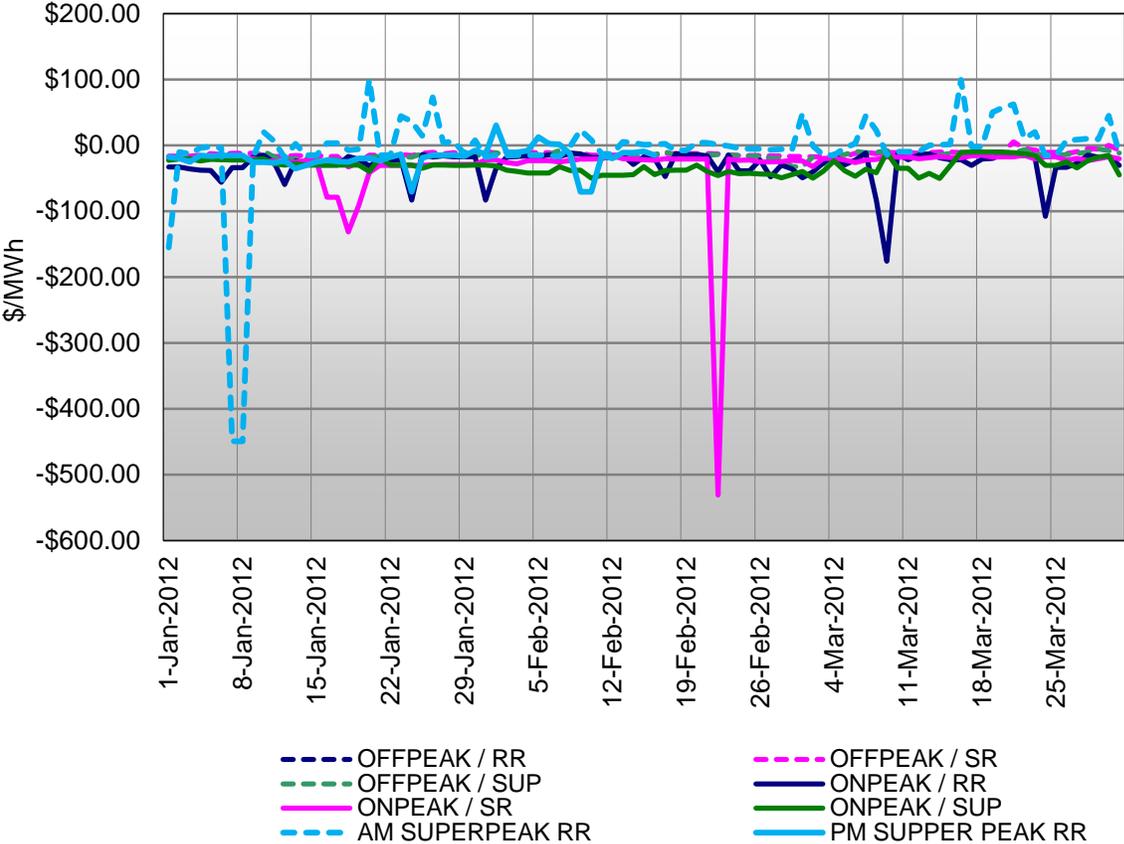
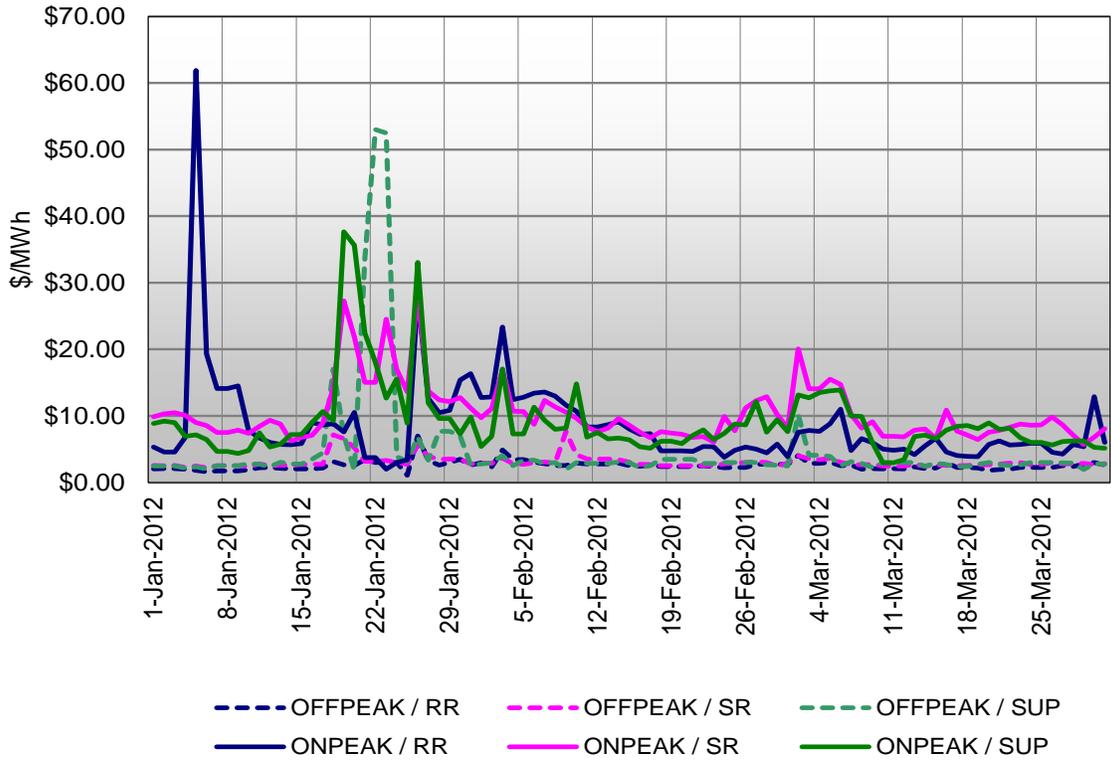
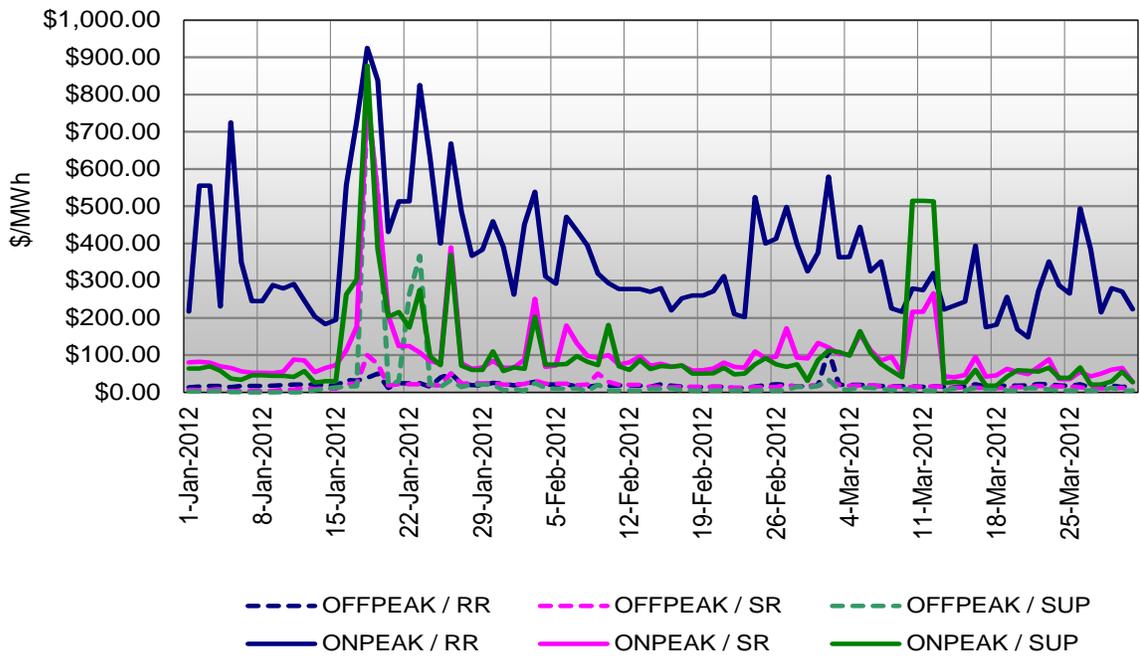


Figure C.2: Standby Reserve Prices

Standby Reserves Average Premium Price



Standby Reserves Average Activation Price



Appendix D: Intertie Metrics

Figure D.1: Intertie Utilization – Q1/12

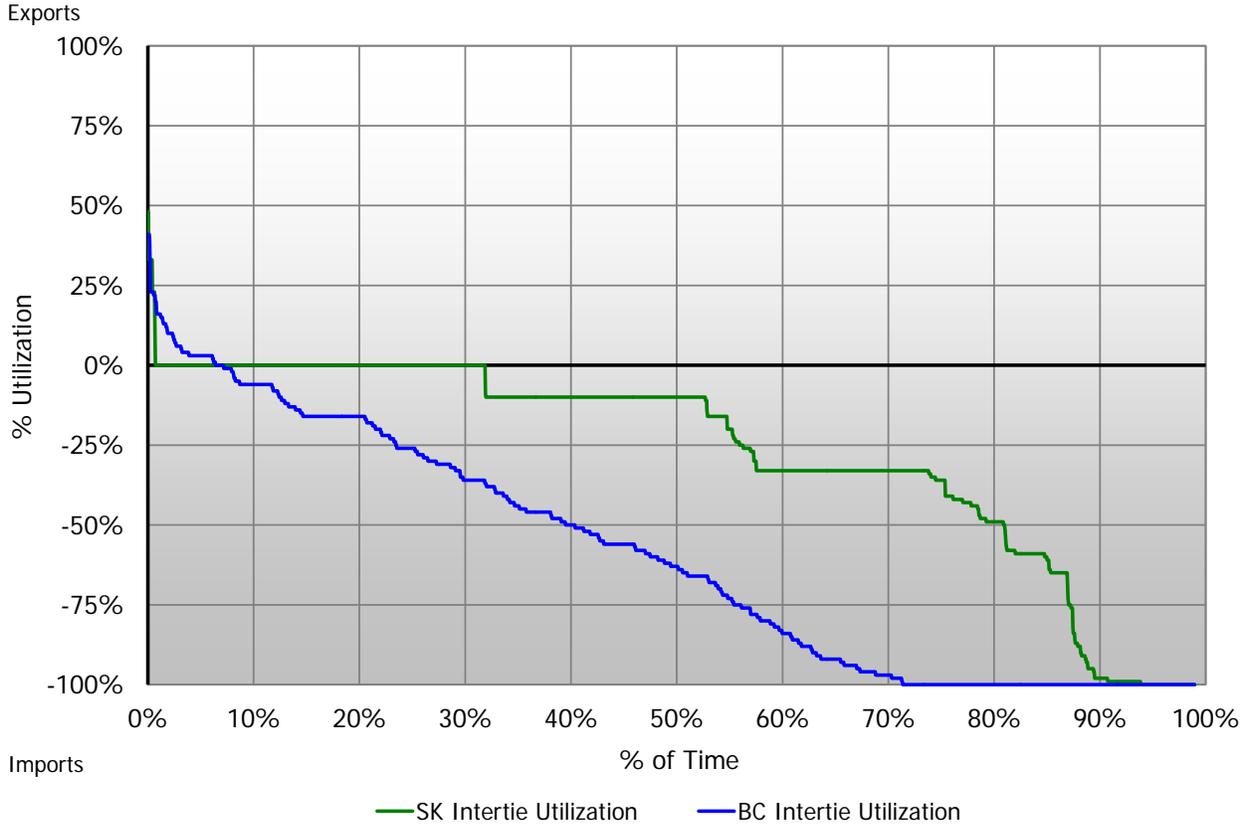


Figure D.2: On-Peak Prices in Neighbouring Markets

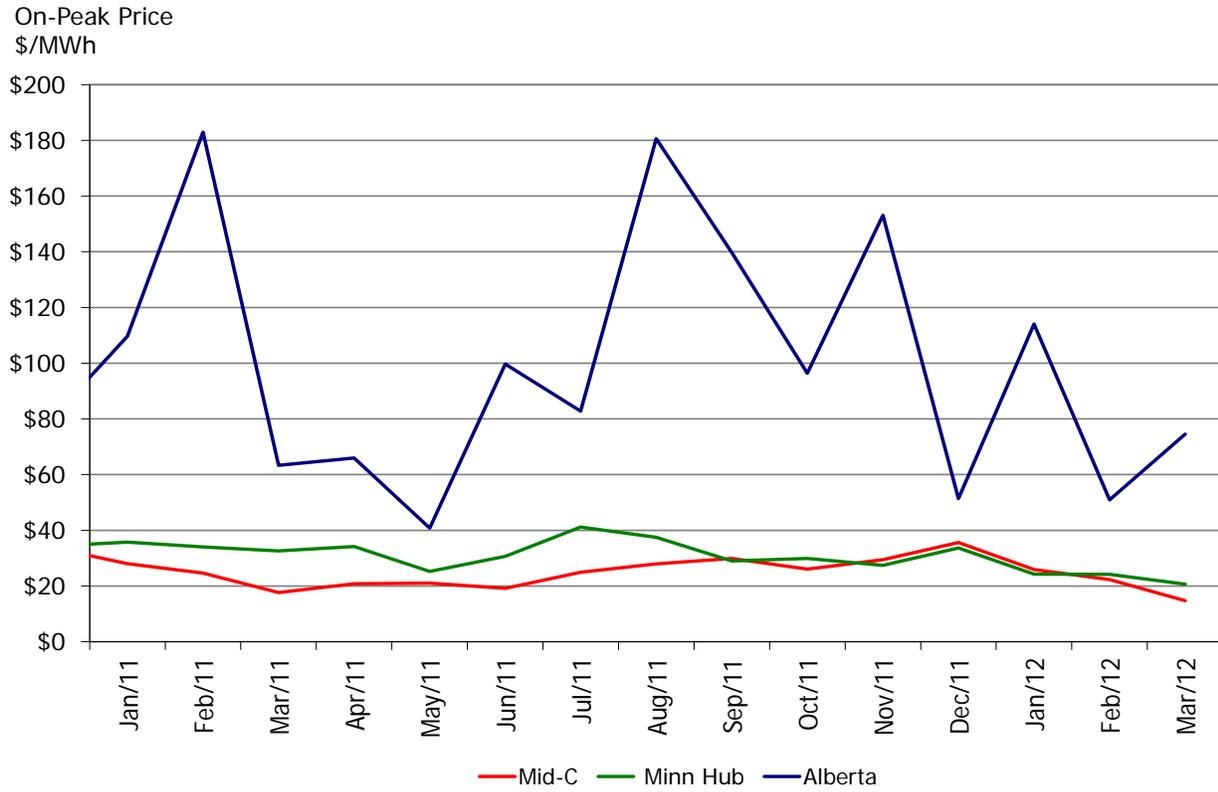


Figure D.3: Off-Peak Prices in Neighbouring Markets

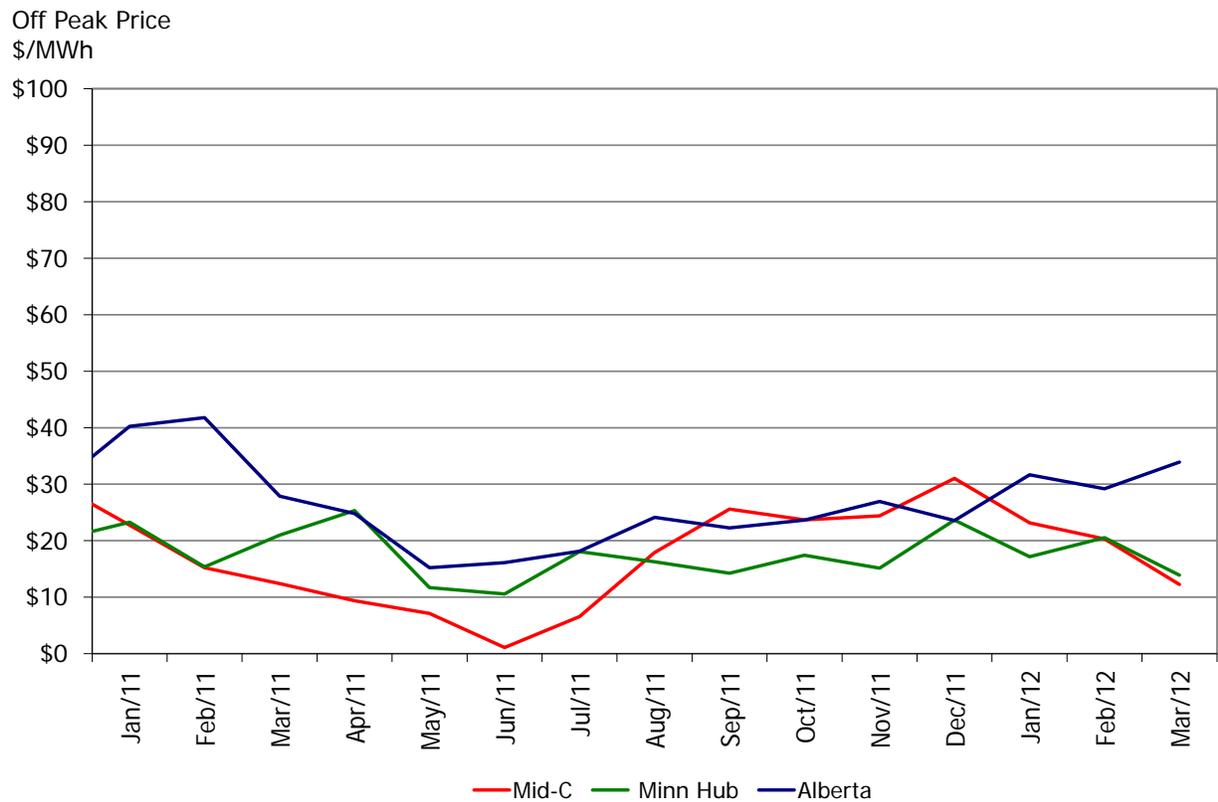
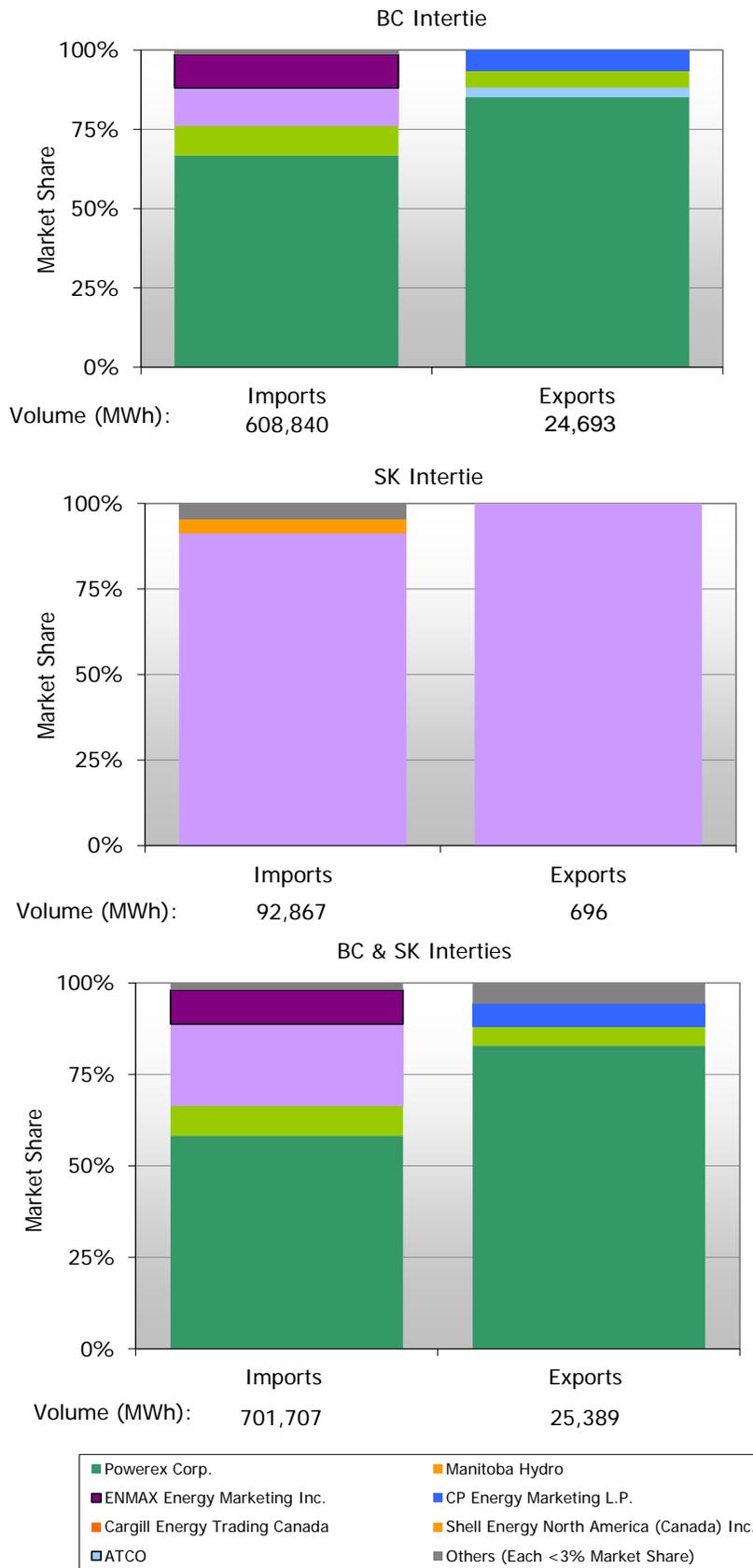


Figure D.4: Intertie Market Shares – Q1/12



Appendix E: Forward Market Metrics

Figure E.1: Volume by Trading Month

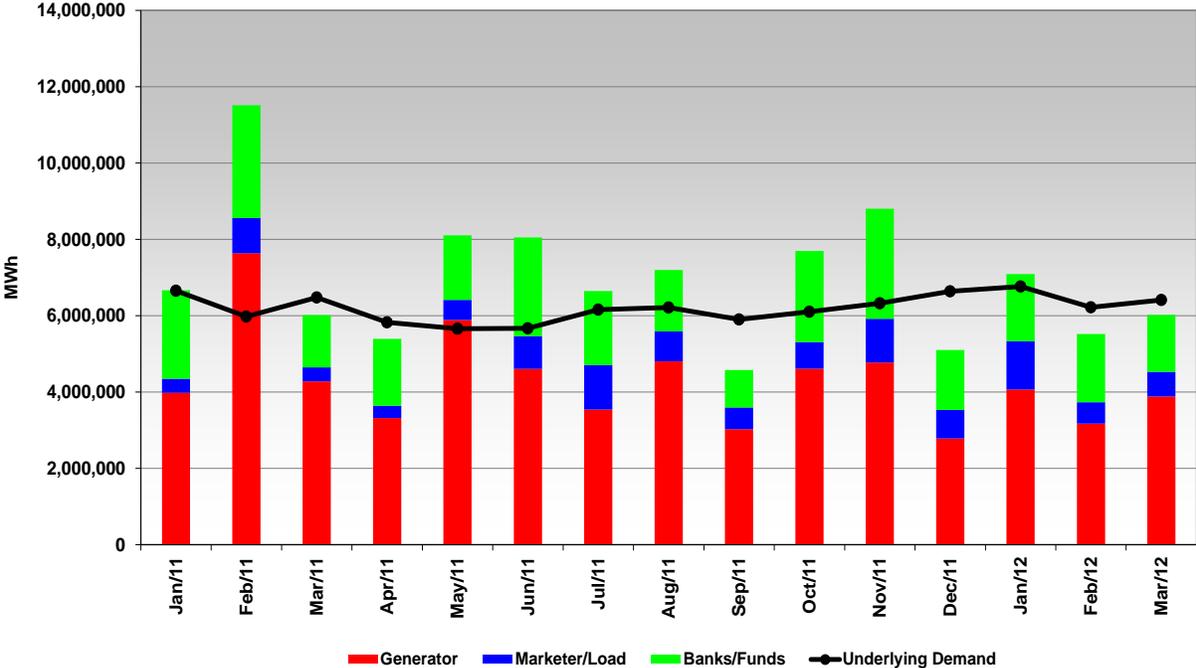


Figure E.2: Market Shares by Participant Type

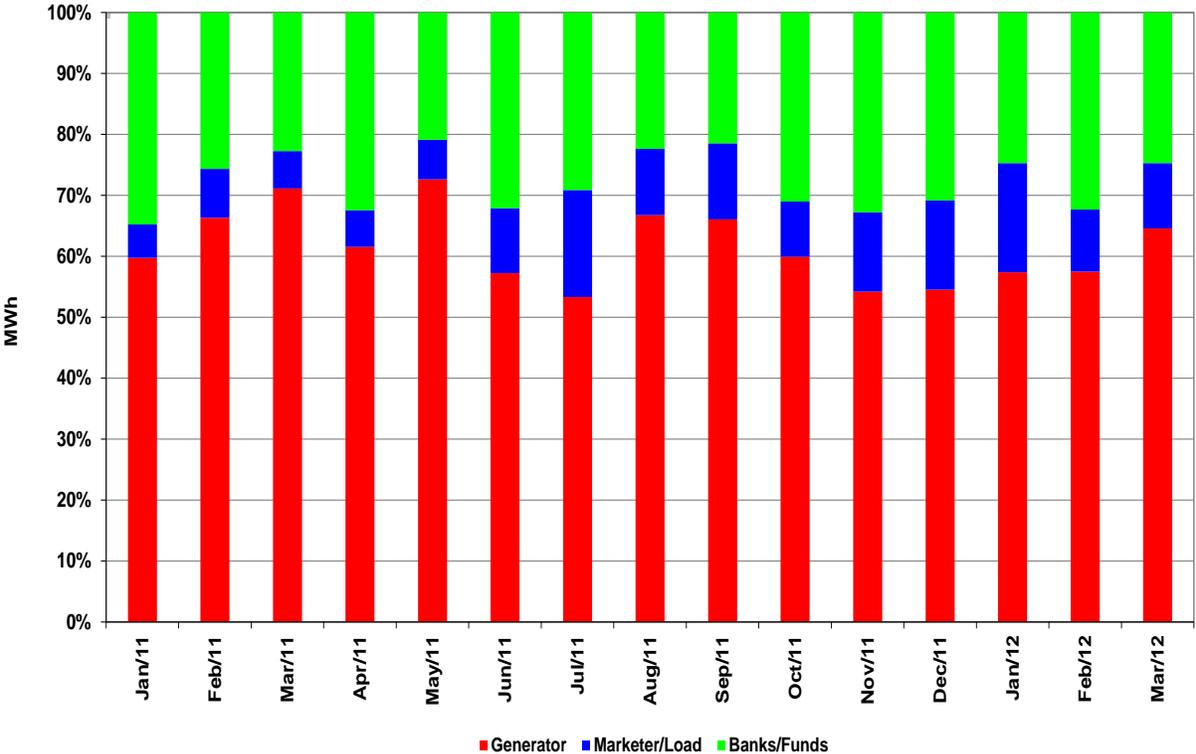
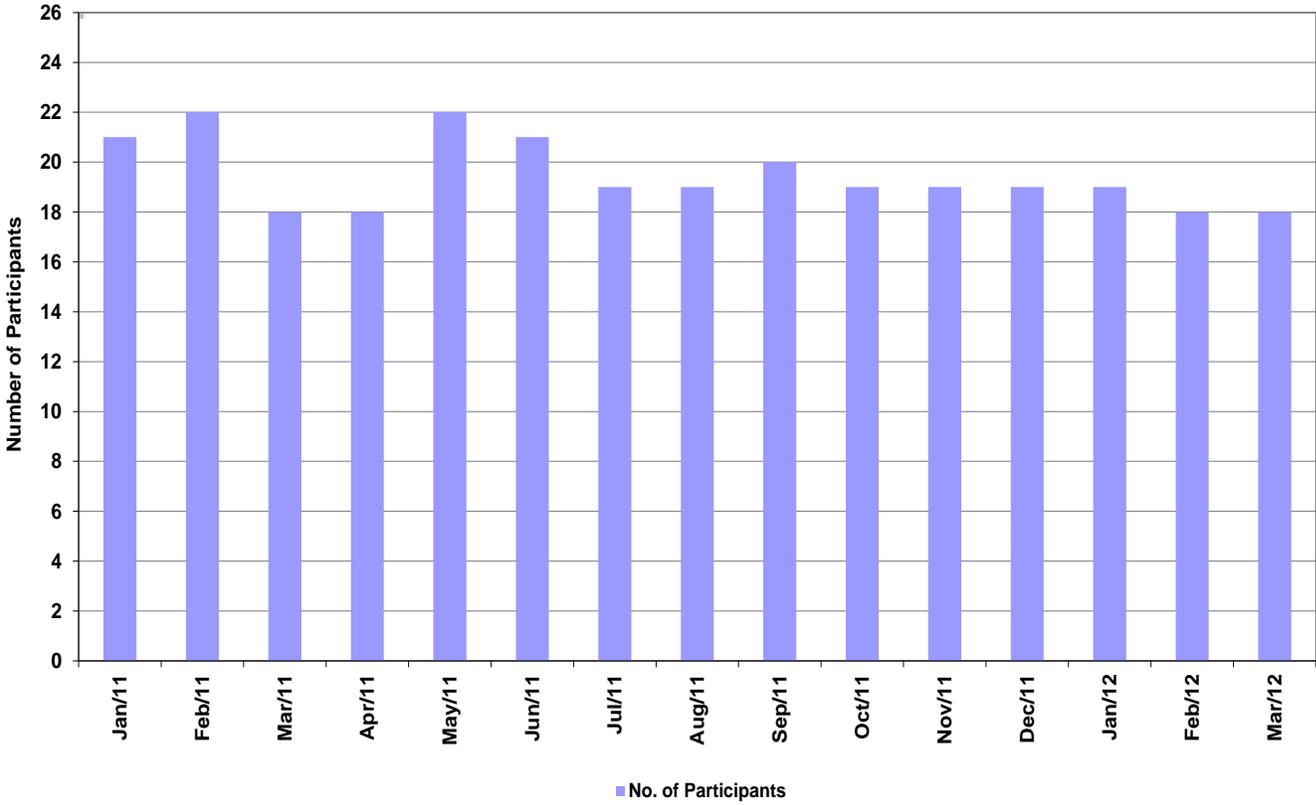


Figure E-3: Number of Active Market Participants



Appendix F: Hours >3StD in Q1/12

Date	HE	Pool Price(>=3)	Demand	MC	AC	Dispatched MW	Supply Cushion	BC Net Import	SK Net Import	Wind	% of Supply Cushion					
											A	B	C	D	E	Other
2012-01-16	20	587.66	10346	12062	10146	9439	519	500	52	46	4%	7%	31%	49%	0%	9%
2012-01-17	6	452.36	9116	12062	9568	8381	1182	500	15	0	20%	18%	24%	23%	0%	15%
2012-01-17	7	916.09	9394	12062	9580	8599	921	500	15	0	25%	18%	5%	31%	0%	20%
2012-01-17	23	249.75	9476	12062	9393	8574	819	550	129	7	22%	15%	28%	27%	0%	9%
2012-01-18	5	144.59	8905	12062	9383	8071	1189	330	55	30	19%	19%	26%	32%	0%	4%
2012-01-18	6	116.8	9061	12062	9336	8119	1225	600	17	42	19%	17%	26%	30%	0%	8%
2012-01-18	7	902.25	9392	12062	9297	8590	754	550	17	47	20%	21%	39%	15%	0%	5%
2012-01-18	22	265.73	9913	12062	9814	9013	767	500	63	46	27%	15%	25%	27%	0%	6%
2012-01-19	12	251.79	9936	12062	10108	9162	993	600	74	32	22%	8%	27%	24%	11%	8%
2012-01-19	16	526.12	9773	12062	9936	8990	912	500	22	0	24%	9%	30%	20%	13%	4%
2012-01-19	17	373.74	9896	12062	9972	9131	763	500	33	0	28%	0%	38%	24%	5%	5%
2012-01-19	20	656.38	10080	12062	10045	9211	718	500	35	0	30%	0%	41%	23%	0%	5%
2012-01-19	22	343.67	9833	12062	9939	9028	773	500	83	0	27%	5%	40%	24%	0%	4%
2012-01-20	9	199.38	9967	12062	9941	9126	888	500	67	72	25%	11%	31%	27%	0%	6%
2012-01-20	17	487.19	9867	12062	9790	8937	771	500	31	120	19%	14%	35%	28%	0%	4%
2012-01-20	18	715.79	10112	12062	9753	9063	606	500	31	160	24%	11%	43%	17%	0%	5%
2012-01-20	19	689.59	10005	12062	9816	9025	698	500	66	167	24%	10%	38%	23%	0%	4%
2012-01-20	20	525.37	9809	12062	9700	8809	940	500	66	199	24%	12%	30%	25%	0%	9%
2012-01-25	11	603.22	9096	12244	9112	7908	628	14	115	436	22%	13%	42%	19%	0%	4%
2012-01-25	12	204.85	9129	12244	9105	7858	924	45	153	514	20%	10%	30%	26%	4%	10%
2012-02-02	7	205.2	8675	12244	8768	7804	884	500	50	141	4%	15%	24%	31%	13%	12%
2012-02-06	18	526.77	9692	12244	9404	8760	772	500	153	7	28%	0%	29%	32%	0%	11%
2012-02-06	19	784.47	9789	12244	9408	9010	501	500	153	25	40%	0%	19%	35%	0%	6%
2012-02-06	20	415.18	9674	12244	9409	8781	762	500	153	42	28%	8%	27%	27%	0%	11%
2012-02-06	21	390.5	9562	12244	9426	8735	787	500	153	56	28%	8%	30%	25%	0%	10%
2012-02-09	11	118.93	9415	12270	9914	8710	1214	500	55	39	21%	11%	27%	25%	7%	9%
2012-02-10	19	144.52	9809	12270	9878	8907	1053	500	153	145	26%	4%	29%	29%	0%	12%
2012-02-14	7	178.23	8806	12270	9637	8234	1337	480	0	102	23%	18%	24%	18%	10%	6%
2012-02-14	19	422.2	9535	12270	9641	8850	887	500	153	86	31%	4%	38%	17%	0%	9%
2012-02-14	20	427.6	9462	12270	9577	8726	961	500	152	64	29%	11%	35%	16%	0%	9%
2012-02-14	21	123.7	9317	12270	9576	8538	1141	500	150	54	24%	10%	30%	24%	0%	12%
2012-02-15	7	98.54	8884	12270	9553	8126	1481	500	66	194	18%	16%	23%	27%	6%	10%
2012-02-20	6	301.46	8093	12270	8753	7355	987	80	0	149	28%	23%	5%	22%	8%	14%
2012-02-22	21	358.94	9447	12270	9309	8510	924	500	147	216	32%	8%	20%	30%	0%	11%
2012-02-23	19	209.09	9706	12270	9343	8545	889	500	151	443	34%	5%	23%	27%	0%	11%
2012-02-23	20	143.54	9640	12270	9403	8451	1041	500	152	437	29%	17%	20%	24%	0%	10%
2012-02-23	24	116.05	8603	12270	9362	7783	1292	160	0	97	22%	24%	13%	22%	6%	13%
2012-02-24	7	144.61	8850	12270	9437	8093	1359	500	0	60	25%	23%	19%	21%	0%	12%
2012-02-24	8	158.91	9214	12270	9210	8395	778	420	50	40	35%	13%	33%	14%	0%	5%
2012-02-26	20	338.53	9481	12270	9341	8766	686	500	152	0	27%	13%	23%	18%	1%	18%
2012-02-26	21	319.81	9341	12270	9276	8618	829	500	152	0	22%	11%	25%	20%	1%	21%
2012-02-26	22	163.69	9193	12270	9142	8509	768	500	50	0	30%	17%	10%	27%	1%	16%
2012-02-26	23	162.83	8926	12270	9030	8120	759	329	0	1	28%	17%	11%	27%	1%	17%
2012-02-26	24	554.12	8538	12270	9265	7896	951	180	0	3	30%	24%	11%	29%	0%	6%
2012-02-27	1	124.82	8424	12270	9277	7810	1422	500	0	3	13%	23%	25%	29%	0%	9%
2012-02-28	7	112.86	9023	12270	9011	8021	1006	500	50	485	13%	23%	5%	38%	9%	13%
2012-03-01	2	232.7	8213	12270	8986	7224	1067	80	0	259	26%	31%	16%	22%	0%	5%
2012-03-01	3	222.12	8100	12270	8900	7237	1039	80	0	250	25%	32%	10%	23%	0%	10%

Date	HE	Pool Price(>=3)	Demand	MC	AC	Dispatched MW	Supply Cushion	BC Net Import	SK Net Import	Wind	% of Supply Cushion					
											A	B	C	D	E	Other
2012-03-01	4	145.24	8070	12270	8990	7010	1248	130	0	251	21%	27%	10%	26%	4%	11%
2012-03-01	6	112.39	8308	12270	9079	7312	1313	500	50	147	20%	24%	10%	24%	0%	23%
2012-03-01	7	919.06	8718	12270	9253	7889	859	500	50	134	27%	32%	9%	27%	0%	5%
2012-03-01	8	904.95	9054	12270	9344	8321	581	420	100	116	42%	26%	23%	1%	0%	8%
2012-03-01	9	894.69	9118	12270	9313	8291	798	500	152	118	36%	19%	35%	4%	0%	6%
2012-03-01	10	840.83	9164	12270	9377	8313	739	500	151	114	39%	13%	42%	0%	0%	6%
2012-03-01	11	791.98	9188	12270	9387	8272	869	500	151	135	33%	17%	32%	7%	0%	10%
2012-03-01	12	752.06	9198	12270	9404	8310	864	500	152	160	31%	19%	31%	15%	0%	4%
2012-03-01	13	532.48	9173	12270	9413	8243	943	500	150	171	29%	18%	28%	22%	0%	4%
2012-03-01	14	342.6	9173	12270	9479	8255	994	500	151	172	27%	19%	24%	21%	0%	9%
2012-03-01	15	238.75	9175	12270	9535	8262	1053	500	151	160	26%	22%	28%	20%	0%	4%
2012-03-01	16	394.54	9178	12270	9537	8321	996	500	151	150	27%	23%	23%	21%	0%	5%
2012-03-01	17	456.11	9243	12270	9522	8398	911	500	151	135	30%	25%	18%	23%	0%	4%
2012-03-01	18	485.61	9308	12270	9439	8405	817	500	150	151	25%	14%	41%	16%	0%	4%
2012-03-01	19	851.53	9477	12270	9455	8523	638	500	151	129	13%	7%	55%	21%	0%	5%
2012-03-01	20	860.16	9545	12270	9415	8609	588	490	152	140	15%	16%	64%	0%	0%	6%
2012-03-01	21	821.97	9443	12270	9378	8463	602	491	150	135	20%	12%	41%	20%	0%	6%
2012-03-01	22	406.21	9195	12270	9359	8367	731	500	151	95	35%	31%	7%	22%	0%	5%
2012-03-01	23	224.11	8850	12270	9272	7994	964	500	100	88	27%	24%	19%	21%	0%	10%
2012-03-01	24	125.37	8474	12270	9231	7544	1383	480	50	83	19%	25%	27%	15%	0%	14%
2012-03-02	7	851.19	8763	12270	8935	7813	860	500	100	210	31%	13%	22%	21%	0%	13%
2012-03-02	8	646.47	9056	12270	8938	7969	713	484	150	345	28%	6%	41%	20%	0%	5%
2012-03-02	9	659.24	9180	12270	8920	7950	789	484	151	441	26%	10%	37%	23%	0%	4%
2012-03-02	10	707.7	9213	12270	9074	8044	690	484	150	425	23%	3%	42%	28%	0%	4%
2012-03-02	11	759.23	9203	12270	9056	8170	683	484	151	462	33%	1%	38%	23%	0%	4%
2012-03-13	21	115.92	9346	12320	9479	8318	1213	590	0	350	33%	11%	20%	7%	0%	29%
2012-03-13	22	121.87	9072	12320	9433	8023	1280	374	0	322	31%	16%	19%	7%	0%	27%
2012-03-14	10	118.61	9130	12320	9648	8289	1309	434	0	189	31%	13%	23%	11%	0%	22%
2012-03-15	7	204.62	8612	12320	9093	7502	1182	130	0	333	34%	28%	6%	11%	0%	21%
2012-03-19	10	242.1	9165	12320	9392	8296	1085	530	92	228	31%	11%	30%	8%	0%	20%
2012-03-19	11	280.61	9134	12320	9397	8142	1228	575	50	221	27%	15%	28%	7%	0%	22%
2012-03-22	12	174.47	9204	12320	9424	8504	907	550	0	18	37%	15%	23%	6%	0%	19%
2012-03-22	14	115.14	9098	12320	9353	8246	1141	575	0	55	31%	12%	30%	5%	7%	16%
2012-03-23	8	113.56	8894	12320	9253	8123	1007	570	0	28	33%	12%	36%	6%	0%	13%
2012-03-23	10	142.34	9168	12320	9430	8362	1015	575	0	33	36%	8%	35%	6%	0%	15%
2012-03-23	11	164.54	9226	12320	9435	8420	917	575	0	40	35%	8%	35%	6%	0%	15%
2012-03-23	12	264.42	9192	12320	9415	8314	1025	575	0	39	32%	13%	30%	6%	0%	20%
2012-03-23	13	131.26	9093	12320	9423	8251	1047	556	0	46	31%	12%	36%	6%	0%	15%
2012-03-23	18	191.26	8963	12320	9426	8169	1158	575	0	4	29%	12%	31%	5%	10%	13%
2012-03-23	24	94.41	8353	12320	9302	7432	1541	330	39	1	23%	20%	23%	14%	8%	11%
2012-03-24	18	305.32	8431	12320	9162	7585	911	0	76	63	37%	9%	39%	5%	0%	9%
2012-03-24	22	376.67	8691	12320	9003	7740	1212	430	51	105	35%	15%	33%	8%	0%	8%
2012-03-29	10	126.44	8828	12320	8736	7896	1022	460	153	286	37%	5%	35%	5%	0%	17%
2012-03-29	11	204.96	8819	12320	8807	7839	1094	460	153	348	35%	8%	33%	8%	0%	16%

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Market Surveillance Administrator

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MSA Quarterly Reports

<http://albertamsa.ca/index.php?page=quarterly-reports>

MSA Annual Report to the Minister, 2012

<http://albertamsa.ca/uploads/pdf/Archive/2012/MSA%20Annual%20Report%20-%202011.pdf>

Statutes and Regulations

Independent System Operator

Commission Decisions and Rules

Application No. 1607868 Settlement Agreement MSA TransAlta

https://www.auc.ab.ca/eub/dds/iar_query/ApplicationAttachments.aspx?AppNumber=1607868

Other

Charles River Associates. Electricity Market Data Transparency. 2011. Report Prepared for MSA.

<http://albertamsa.ca/uploads/pdf/Archive/2011/Market%20Data%20Transparency/CRA%20Report%20for%20MSA%2011-22%202011.pdf>



The Market Surveillance Administrator is an independent enforcement agency that protects and promotes the fair, efficient and openly competitive operation of Alberta's wholesale electricity markets and its retail electricity and natural gas markets. The MSA also works to ensure that market participants comply with the Alberta Reliability Standards and the Independent System Operator's rules.