MSA
MARKET SURVEILLANCE
ADMINISTRATOR

Q4/14 Quarterly Report

October - December 2014

January 30, 2015

Spot market

Lowest priced quarter since 2000

The average pool price in Q4/14 was 30.47/MWh ($35.37/MWh ext. on-peak, $20.70/MWh ext. off-peak), down 37% from $48.59/MWh in Q4/13. This quarter yielded the lowest average quarterly price since 2000.

Just as scarce capacity can result in high prices, strong wind generation, new capacity coming online and high availability of existing generators can result in low prices, which benefits consumers of electricity. A price signal resulting from supply and demand in an effectively competitive market is a fundamental part of Alberta's market design.

October pool prices averaged $27.04/MWh over all hours, $30.13/MWh over ext. on-peak hours, and $20.87/MWh over ext .off-peak hours.

November pool prices averaged $37.70/MWh over all hours, $45.27/MWh over ext. on-peak hours, and $22.67/MWh over ext. off-peak hours.

December pool prices averaged $26.90/MWh over all hours, $18.67/MWh over ext. on-peak hours, and $31.01/MWh over ext. off-peak hours.

		2013	2014	*Change*
Average Spot Price ($/MWh)	October	64.56	27.04	*-58.1%*
	November	28.34	37.70	*33.0%*
	December	52.26	26.90	*-48.5%*
	Q4	**48.59**	**30.47**	***-37.3%***
Average Demand (AIL, MW)	October	8639	9005	*4.2%*
	November	9350	9647	*3.2%*
	December	9821	9807	*-0.1%*
	Q4	**9269**	**9485**	***2.3%***
Average Outages (MW, MC-AC)	October	3178	3158	*-0.7%*
	November	2462	2523	*2.5%*
	December	2173	2188	*0.7%*
	Q4	**2606**	**2624**	***0.7%***
Average Supply Cushion (MW)	October	1623	1655	*1.9%*
	November	1715	1802	*5.1%*
	December	1592	1993	*25.2%*
	Q4	**1643**	**1816**	***10.6%***
Average Wind (MW)	October	376	629	*67.3%*
	November	454	496	*9.3%*
	December	458	617	*34.8%*
	Q4	**429**	**582**	***35.6%***
Constrained Down Generation (Total MWh)	October	5586	1095	*-80.4%*
	November	549	30	*-94.5%*
	December	2161	0	*-100.0%*
	Q4	**8296**	**1125**	***-86.4%***
Average BC/MATL Combined Intertie ATC (MW)	October	455	393	*-13.6%*
	November	552	572	*3.6%*
	December	620	731	*17.9%*
	Q4	**542**	**565**	***4.3%***

October and December monthly average pool prices were the fourth and fifth lowest, respectively, since 2000.

Falling market heat rate

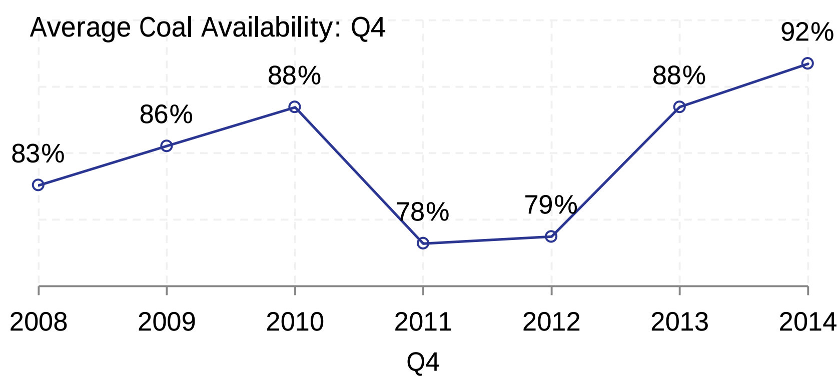
Q4 had an average hourly market heat rate of 8.9 GJ/MWh, compared to 14.5 GJ/MWh in Q4/13. The fall in market heat rate over last year (39%) roughly corresponds with the drop in pool prices (37%).

Downward pressure on net revenue

Net revenue for a 100 MW combustion turbine generator with the same characteristics as considered in the MSA's *State of the Market Report 2012* was low. The net revenue in Q4 was calculated to be ~$3200/MW, less than 1% of the overnight capital cost ($1.15 mill./MW). For the year as a whole the imputed net revenue was about $130,000/MW, or roughly 11% of capital cost.

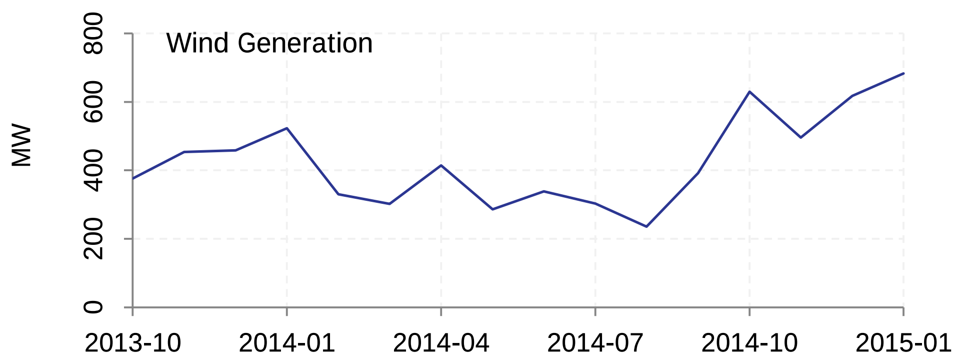
Increased Q4 coal availability

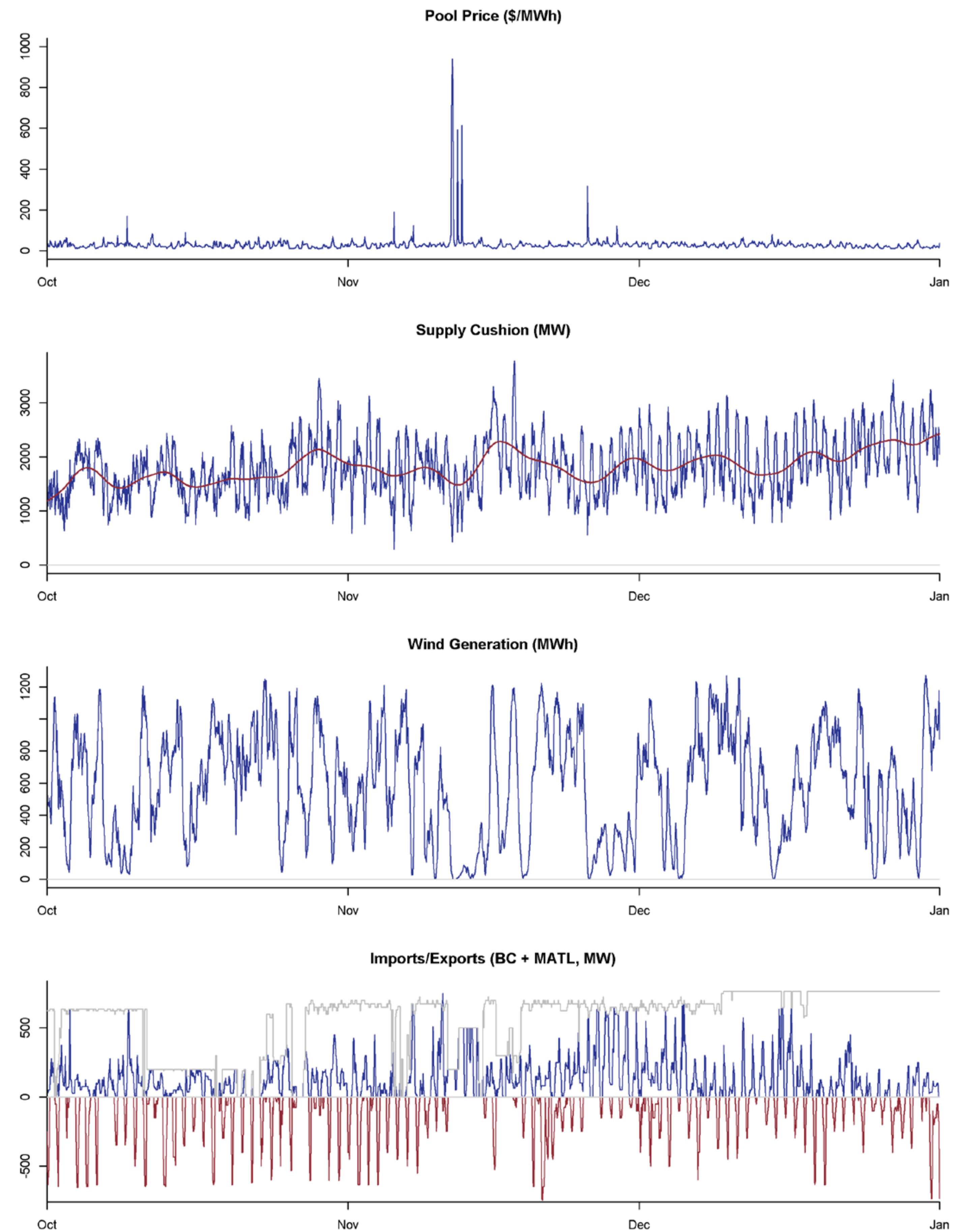
The volume of coal outages has been historically contemporaneous with higher pool prices. The average availability of coal-fired plants over Q4/14 is highest for several years prior.



Wind generation at record levels

The total installed wind generation capacity in Alberta is 1,434 MW. The most recent addition was Blackspring Ridge at 300 MW, jointly owned by Enbridge and EDF. With an expanding fleet wind production continues to set new production records. Average weekly production is presented in the graph below.



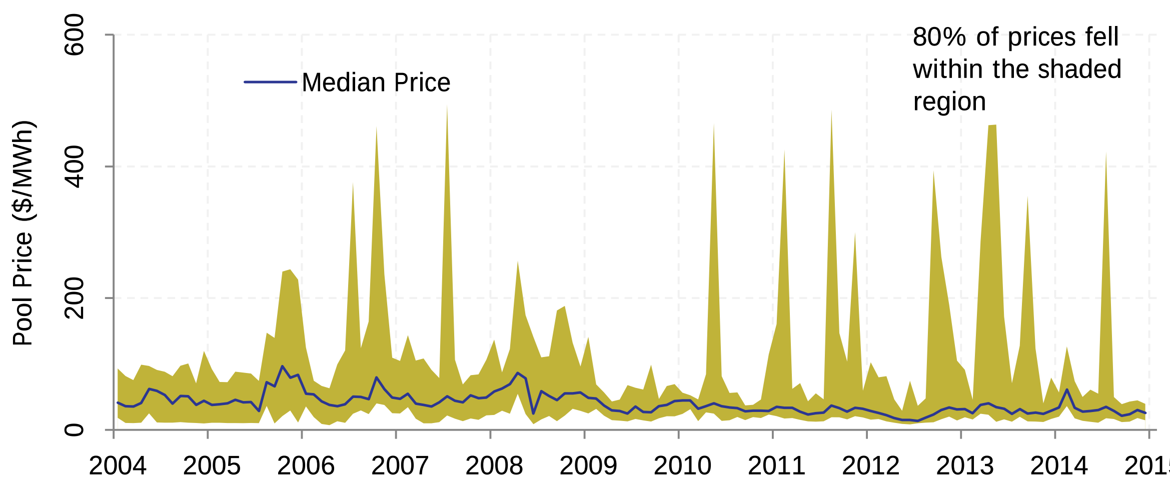

Pool Price ($/MWh)
0
200
400
600
800
1000
Oct
Nov
Dec
Jan
Supply Cushion (MW)
0
1000
2000
3000
Oct
Nov
Dec
Jan
Wind Generation (MWh)
0
200
400
600
800
1200
Oct
Nov
Dec
Jan
Imports/Exports (BC + MATL, MW)
-500
0
500
Oct
Nov
Dec
Jan

Volatility

Price volatility is an important feature of the Alberta market:

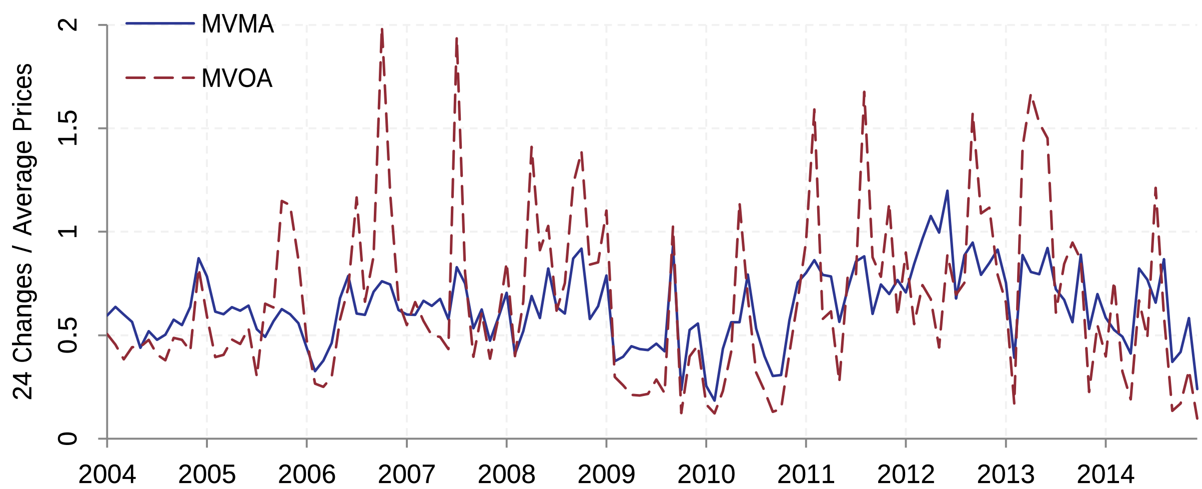
- Provides signals to invest in certain types of technologies and not others (e.g., high volatility will likely favour generation technologies with operational flexibility, or cause economic opportunities for storage);
- Encourages larger customers exposed to the pool price to curtail demand whenever it is above their willingness to pay. Price responsive demand in the short run may reduce volatility in the market and acts as a substitute for some capacity additions that might otherwise have been signalled; and
- May encourage forward contracting to avoid volatile prices. This may in turn reduce the incentives for generators to exercise market power. Forward contracting may also prompt new investment.

While there is no single accepted measure of volatility, 80% of pool prices in Q4/14 fell between $15.05/MWh and $42.48/MWh. No other quarter since 2000 has averaged so small an 80% price spread. For reference, 2009 and 2010, also relatively low volatility years, yielded spreads of $51/MWh and $74/MWh, respectively. Overall for 2014, 80% of prices fell between $16.84/MWh and $88.57/MWh.



The chart above displays price dispersion over time, but it is not a good measure of "unpredictability". The MVMA (Monthly Velocity / Monthly Average) and MVOA (Monthly Velocity / Overall Average) indices measure pool price *velocity*. These indices were first introduced in the 2012 State of the Market Report. MVMA and MVOA take the difference in price in one hour to the same hour the previous day, averaged over a month.

As shown in the graph below, the latter half of 2014 reversed the trend of increasing velocity which started in 2010. This implies that relative to overall average prices, the day-to-day swings in price are at lows last seen in 2009 and 2010.



November 27–28 emergency power

On November 27 and 28, 2014, the AESO provided emergency power to Saskatchewan. The McNeil back-to-back DC converter station was not commercially available at the time but was made available for this purpose. The requirement to have operating agreements with neighbouring jurisdictions is set out in Alberta Reliability Standard EOP-001-AB-2b.[1]

November 11–12 pool price spikes

While the most notable feature of pool prices in Q4/14 was how low they were overall, there was one brief period where they spiked. On November 11 during HE 17-20, pool prices averaged $816/MWh, peaking in HE 18 at $939.39/MWh. On November 12, pool prices jumped to $592.43/MWh for HE 08, and $612.88/MWh for HE 18. Supply cushion averaged approximately 660 MW over these hours, with low wind and increased demand due to cold weather as contributing factors. Intertie capability also was reduced, with the combined BC – MATL ATC limit set at 200 MW.

ATC reporting

The MSA has observed relatively systematic overstatement of the combined BC and MATL available transfer capability (ATC). Generally, it appears adjustments to the public report are made only at the *t*-85 ATC allocation lockdown in cases where no obvious change of transmission conditions is visible. In the table below, the ATC as of *t-1* is shown which would incorporate the adjustments made at *t*-85. In some cases (although less often) the opposite adjustment may be made: ATC may be generally constrained, then revised upwards at *t*-1 on a

[1] EOP-001-AB-2b Emergency Operations Planning: http://www.aeso.ca/downloads/EOP-001-AB-2b_ARS.pdf

consistent basis. The MSA is exploring reasons why the ATC postings could not be updated sooner, thereby improving the forecast accuracy.

As system conditions evolve, forecast combined ATC may be incorrect as adjustments are made approaching and during real-time. For this reason, one would not expect forward-looking transmission capabilities to be right all of the time. However, over Q3 and Q4 of 2014, the MSA assessed that the *t*-2 combined ATC would not match the real-time value in over 57% of hours. In contrast, the *t*-1 estimate would be inaccurate in just 4% of hours. The MSA notes there may be operational aspects that are not fully realized until close to real-time including LSSi availability and Calgary area constraints resulting from internal system conditions. The MSA intends to examine whether these aspects prevent more accurate forecasting, and whether any other public reports or forecasts are affected.

Deviation from Realtime BC/MATL Combined ATC Q3/Q4 2014

t-2			*t-1*		
MW Diff.	**# Hours**	**% Hours**	**MW Diff.**	**# Hours**	**% Hours**
< -100	65	1.5%	< -100	6	0.1%
-51 - -100	15	0.3%	-51 - -100	4	0.1%
-50 - -1	6	0.1%	-50 - -1	5	0.1%
0	1881	42.6%	0	4238	95.9%
1-50	636	14.4%	1-50	103	2.3%
51-100	967	21.9%	51-100	20	0.5%
> 100	847	19.2%	> 100	41	0.9%
Total	4417	100.0%	**Total**	4417	100.0%

Changes to the Historical Trading Report (HTR)

On January 8, 2015 the AESO announced that it will implement certain modifications to the Historical Trading Report (HTR) by June 30, 2015. The AESO's practice is to notify market participants of the details of changes 60 days prior to their implementation. The MSA believes these changes will improve market efficiency and strongly supports the AESO's actions in this regard.

The MSA has committed to monitor the implementation of these modifications for success and unintended consequences. We will form a stakeholder panel to bring forward the observations of market participants and provide input into this monitoring activity. The monitoring will consist of examining market outcomes six and twelve months after implementation.

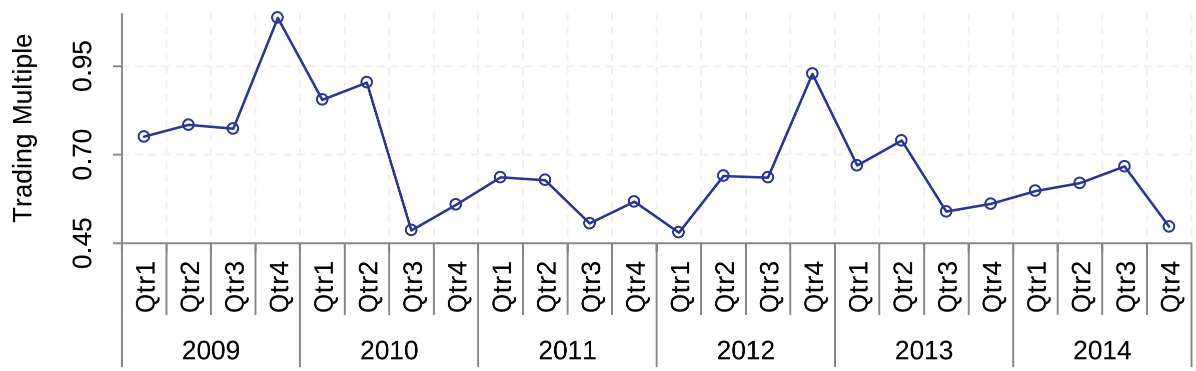
The MSA will give notice to market participants and stakeholders about the formation of the stakeholder panel, including details regarding participation, closer to the implementation date.

Forward markets

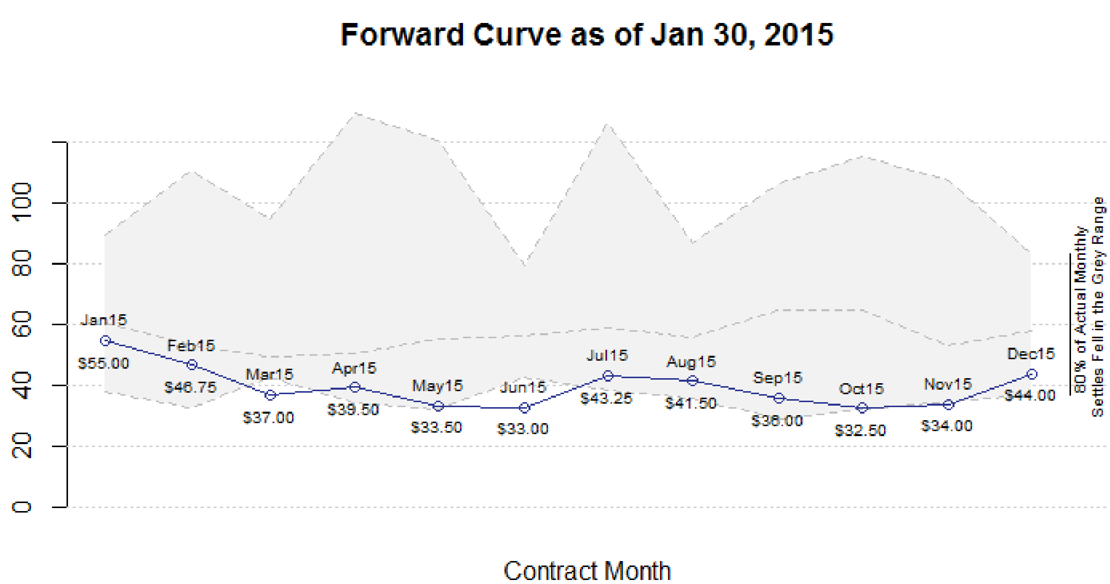
Forward market trading volume declined 9.4% year-over-year for Q4 2014. This volume is about 50% of the physical volume of the spot market. This trading multiple is the lowest since Q1 of 2012, after a year of improving liquidity.

TWh Traded

	2013	2014	*Change*
October	4.75	4.38	*-7.9%*
November	4.19	3.20	*-23.7%*
December	2.54	2.83	*11.3%*
Q4	**11.49**	**10.41**	***-9.4%***



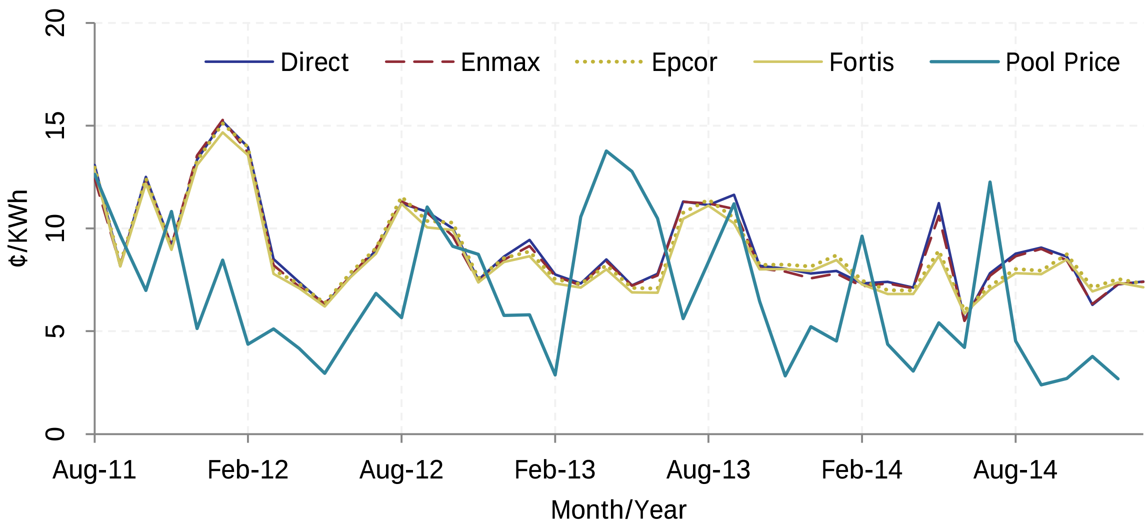
The low prices observed in Q4/14 appear to be part of a trend. The forward price curve remains below $55/MWh for all months in 2015. Relative to historical pool prices, few months have averaged as low as what 2015 has been trading at recently.



Retail market

Regulated retail rates

Consumers of less than 250 MWh of electricity per year are automatically enrolled in the Regulated Rate Option (RRO) offered by their distribution company unless they elect to sign a contract with a competitive retailer. The figure below shows the RRO rates since August 2011 for residential customers in the four largest zones in Alberta.



Prices of the various providers are usually similar for a given month. These prices are the outcomes of the Energy Price Setting Plan (EPSP) each provider uses. There is a negative trend in the monthly RRO rates similar to that of average pool price.

Since the start of 2013 the *Regulated Rate Option Regulation* (AR 262/2005) allows for the use of a 120-day pricing window for the RRO rates. However only EPCOR, which is the RRO provider in Edmonton and the Fortis area, has an EPSP approved by the Alberta Utilities Commission that allows it to make use of the extended window; the other two RRO providers still use the 45-day window. The data for 2014 show some variation in final prices to customers. The change from 45 days to 120 days for the window was done as a means of moderating the volatility of month-to-month prices paid by customers. There is insufficient data at the present time to determine if it has been successful but the early indications are positive.

While the RRO rates in the months of Q4/14 are relatively low, they are not as low as pool prices turned out to be. A significant part of the RRO price is determined by the prices paid in the forward market for the bulk of the RRO energy requirement. The table below shows the prices for flat (7 X 24) and extended peak (7 X 16) products that the companies paid in Q4/14. For each month and contract type, forward prices were substantially in excess of realised pool prices. For generators selling into the near-term forward market, the decision to sell is guided by many factors. When expectations are for very low pool prices the risk of the actual pool price being lower than the forward price is low and hence there is more upside to going to the spot market. Conversely when those forward prices are exceptionally high it is more appealing to sell forward and lock-in a profit since there is more downside risk in real-time prices in the power pool.

	Flat				Ext. Peak			
	Direct	Epcor/Fortis	Enmax	Pool Price	Direct	Epcor/Fortis	Enmax	Pool Price
October	69.09	69.27	68.20	27.04	93.46	94.24	92.19	30.13
November	50.00	55.98	50.28	37.70	64.20	74.63	64.27	45.27
December	60.20	60.26	59.11	26.90	74.95	77.79	75.88	31.01

Operating reserves

Operating reserve costs have declined significantly compared to Q4/13. Active reserve "effective" price discounts (a calculated cost per unit compared with pool price) have remained largely the same, while pool prices in 2014 have fallen.

Cost of procuring active reserves made up 82% of reserve costs for the quarter, 5% less than in 2013. Standby costs declined less than the active costs in 2014, likely because these costs are not directly indexed against pool price.

Costs of active supplemental and spinning reserves saw the largest decline. In Q4 of 2013, spinning reserve was approaching twice the total cost of regulating reserve. This year, while spinning reserve remains the majority, it is roughly comparable to dollars paid for regulating.

Operating Reserves Cost Overview

	Costs ($ Millions)		
	Q4 2013	**Q4 2014**	*Change*
Active Procured	49.7	16.6	*-66.7%*
Standby Procured	5.2	3.1	*-39.5%*
Standby Activated	1.6	0.5	*-71.5%*
Total	**56.5**	**20.2**	***-64.3%***
	Unit Cost ($/MWh)		
Active Procured	31.05	11.72	*-62.2%*
Standby Procured	9.51	5.94	*-37.6%*
Standby Activated	70.05	33.47	*-52.2%*
Total	**26.05**	**10.31**	***-60.4%***
	Unit Cost - Pool Price ($/MWh)		
Active Procured	-17.55	-18.75	*6.9%*
Standby Procured	-39.08	-24.54	*-37.2%*
Standby Activated	21.46	3.00	*-86.0%*
Total	**-22.54**	**-20.16**	***-10.6%***

Active Reserve Costs

	Cost ($Millions)		
	Q4 2013	**Q4 2014**	*Change*
RR	11.2	6.2	*-44.5%*
SR	20.8	7.7	*-63.3%*
SUP	17.6	2.7	*-84.9%*
Total	**49.7**	**16.6**	***-66.7%***
	Unit Cost ($/MWh)		
RR	31.08	17.22	*-44.6%*
SR	33.65	14.58	*-56.7%*
SUP	28.43	5.06	*-82.2%*
Total	**31.05**	**11.72**	***-62.2%***
	Unit Cost - Pool Price ($/MWh)		
RR	-17.52	-13.26	*-24.3%*
SR	-14.95	-15.89	*6.3%*
SUP	-20.16	-25.41	*26.0%*
Total	**-17.55**	**-18.75**	***6.9%***

Compliance

The compliance section of this quarterly report is omitted in favour of the upcoming annual compliance review due out in February.

MSA enforcement hearing

The MSA's application regarding alleged violations by TransAlta Corporation, one existing and one former employee, of section 6 of *the Electric Utilities Act* and the *Fair, Open and Efficient Competition Regulation* was heard by the Alberta Utilities Commission from December 1 – 16, 2014. The MSA submitted its final argument on January 20, 2015. TransAlta and the employees have a right to respond to the MSA's argument and must do so by February 10, 2015. The MSA has an additional right of reply, with a deadline of February 19, 2015. The Commission will issue its decision within 90 days of the conclusion of the proceeding.

All documents submitted during the course of the proceeding are publically available through the Commission's eFiling system. To access the documents you must create a user account, log in, and go to Proceeding 3110.

MSA activities and releases

- Notice re FOIP Designation (12/15/14)
- December 2014 Newsletter (12/04/14)
- MSA 2015 Budget (12/01/2014)
- Notice re State of the Market 2014 (11/27/14)
- MSA 2014 Third Quarter Report (11/06/14)
- Notice re Stakeholder Meeting and Survey (10/23/14)
- Notice re Stakeholder Meeting Agenda (10/01/14)
- MSA Speaking Notes at the CanSIA Solar West (10/01/14)