

## November 2014 Sets another record—wind blows harder than ever!

By Parker Gallant and Scott Luft

It was another “wow” month for the electricity sector in Ontario for November as wind generation set a new record producing 879 thousand megawatt hours (MWh). The cost for that production alone<sup>1</sup> added over \$108 million to ratepayer bills. Coupled with curtailed wind production of over 70 thousand MWh cost ratepayers about \$116 million dollars in a month that valued all generation at about \$1.1 billion.<sup>2</sup>

Wind made up 6.6% of total supply and represented 10.7% of what the market valued all generation at, but it also drives down the market rates which transfers costs to the smaller Ontario ratepayer. No wonder our electricity bills continue their relentless march upwards!

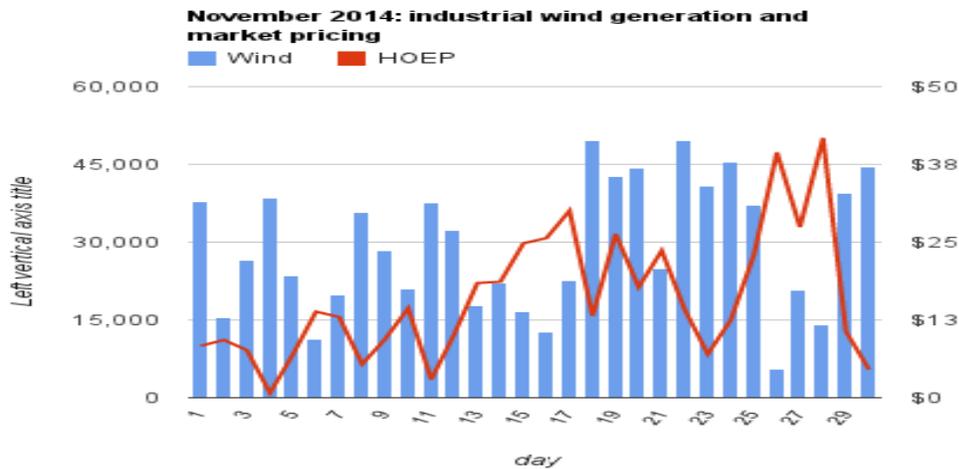
November 2014					
	TWh	Value at HOEP (\$Ms)	Global Adjustment (\$Ms)	Total Cost (\$Ms)	Average Rate (\$/MWh)
Ontario Demand	11.5	\$189	870.2	\$1,060	\$92
Exports	1.8	\$24	0.0	\$24	\$13
<b>Total</b>	<b>13.3</b>	<b>\$213</b>	<b>870.2</b>	<b>\$1,084</b>	<b>\$81</b>
Estimated Ontario Figures					
Class A	2.1	\$35	83.4	\$118	\$56
Class B	9.4	\$155	786.8	\$941	\$100
Cost Shift To Class B	\$Millions	Rate impact on class B (\$/MWh)			
Exports	\$125.6	\$13		<i>Note: \$100.38 is as per the math - \$99 is IESO's weighted average HOEP of \$16.49 plus class B GA of \$82.32. A variance is expected due to monthly cost corrections and actual usage likely being greater than reported "Ontario Demand"</i>	
Class A	\$53.3	\$6			
<b>Total</b>	<b>\$178.9</b>	<b>\$19</b>			

The Global Adjustment didn't set a new record as it did in October, but at \$870.2 million it is the 2<sup>nd</sup> highest on record, as is the \$82.32/MWh class B rate. Coupled with the \$16.49 HOEP (Hourly Ontario Energy Price), the “bare bones” price for the commodity will be 9.9 cents/kWh for most Ontario ratepayers. That price is before inclusion of all those others nickel-and-dime charges such as regulatory, debt retirement, delivery, HST, etc.

The low HOEP in November continues a trend that has seen three of the five lowest weighted monthly average rates occur in the past three months. As we demonstrated in [reporting on October's record pricing](#), the low HOEP rates result in a large shift in supply costs away from export markets and Ontario's largest consumers to the rest of us.

During November Ontario had the highest average hourly Ontario Demand it had experienced since March, so low demand was not the driver of low market pricing.

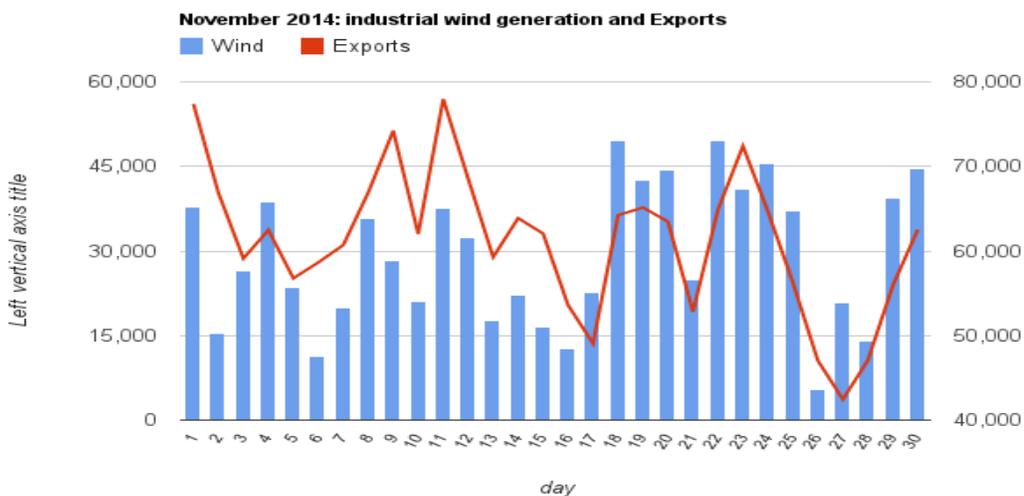
High supply was.



That high supply was significantly attributable to record wind generation<sup>3</sup> from Ontario’s rapidly increasing number of industrial wind turbines. The trend of high winds accompanying low pricing was particularly evident during November.

Another trend was apparent during wind’s record production month — the IESO’s market experienced the highest average hourly net export of electricity.

Exports, like pricing, related to wind generation. Particularly in the latter half of the month, high wind days were high export days.



Also during November the Ontario Energy Board (OEB) was preparing for a Natural Gas Market Review and invited various participants to become involved. One of the participants was the OPA or Ontario Power Authority (due to merge shortly with the Independent Electricity System Operator sic IESO) and they prepared a [Power Point Presentation](#) dated November 27 that had some interesting commentary including the following: Here are three that caught our attention.

*“Renewable output can be intermittent and highly variable; it also follows daily and seasonal*

*patterns that can challenge system operations”*

*“The situation has changed. We have more wind generation (still highly variable) and no coal generation to compensate.”*

*“As a result, gas-fired generators are now required to compensate for wind generation’s intermittency.”*

Amusingly, on page 13 of the OPA presentation one finds a comment and chart that glorifies coal for its ability to overcome the variability of wind generation with the following lead-in to the chart:

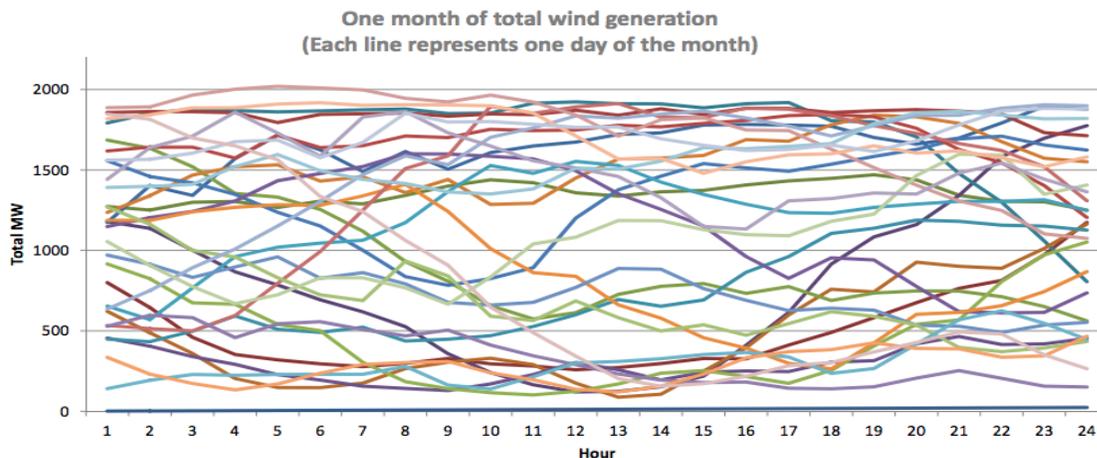
*“The variable behaviour of wind generation was compensated by the flexibility (ramping/low minimum loading point) of coal,i.e., Coal was used to absorb the variability of wind and load.”*

That ability of coal generation to compensate for the wind's variability disappeared earlier this year not long after Premier Wynne and the Energy Minister shut them down and was praised by Al Gore for doing so.

Here is one of the charts (one month of wind output) from the OPA presentation reflecting the volatility of wind generation:

### Snapshot of 2014 – one month of wind output

**Not only does wind generation vary by individual facilities, even total wind output varies significantly on any given day.**



Delving further into wind's volatility one need only look at IESO who have responsibility for managing the electricity grid, forecasting our power needs and ensuring that generators are ready for any spikes or drops in power demand to prevent blackouts or brownouts. The volatility caused by wind generation has become an issue that they must now deal with and it appears to be causing them problems. This is

somewhat evident if one simply looks at the daily demand at hour 17 on December 2, 2014 as wind dropped relatively quickly as demand was rising. The result was the HOEP went from \$30.23 per/MWh to \$643.00 per/MWh from one hour to the next. The question raised by this occurrence is: was this bad planning, or volatility caused by the sun sinking (no solar output) and the wind dying down, coupled with ratepayers turning on their lights?

It seems as though IESO misses their forecasts with greater frequency as more and more renewables (both visible and embedded) are added to the grid. This would seem to imply that when the wind dies down or picks up, or when clouds pass overhead or when the sun actually shines on solar panels, they scramble to balance supply with demand. That begs the questions: *has IESO the ability to manage the volatility of renewable energy?* And, *why should they continue to fumble with adding unreliable sources as Ontario is already oversupplied with very low emission electricity?*

Based on recent evidence of record breaking price increases for Ontario's ratepayers and the apparent difficulties of managing Ontario's electricity grid perhaps it is time to stop adding intermittent and unreliable renewable energy to the grid!

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**End notes:**

1. The [Ontario Energy Board's Regulated Price Plan Price Report for November 1, 2014 to October 31, 2015](#) shows wind at 12.3 cents/kWh, which is \$123/MWh.
2. The total includes spending on non-generation items, including conservation and imports.
3. The IESO data clearly shows record month wind generation - but the IESO has so far failed to report on the rapidly growing curtailment of wind generators.

