Ontario Energy Board

Commission de l'énergie de l'Ontario

Market Surveillance Panel's Winter 2014 Period Review

From the Market Surveillance Panel's 24th Monitoring Report

Briefing OEB Gas-Electricity Forum, December 3, 2014

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Disclaimer

Any materials and conclusions herein are preliminary and subject to change.

Briefing OEB Gas-Electricity Forum, December 3, 2014

Agenda

- Introduction
- Factors Impacting Price
- Reliability
- Lessons

Introduction

- Persistently cold temperatures in winter 2014 drastically increased the number of instances of anomalously high wholesale electricity prices in Ontario.
- The high cost of natural gas applied positive price pressure on Ontario's electricity price, particularly in February and early March.
- Cold temperatures did not appear to materially affect the operations of gas generators as forced outages were within historical ranges.

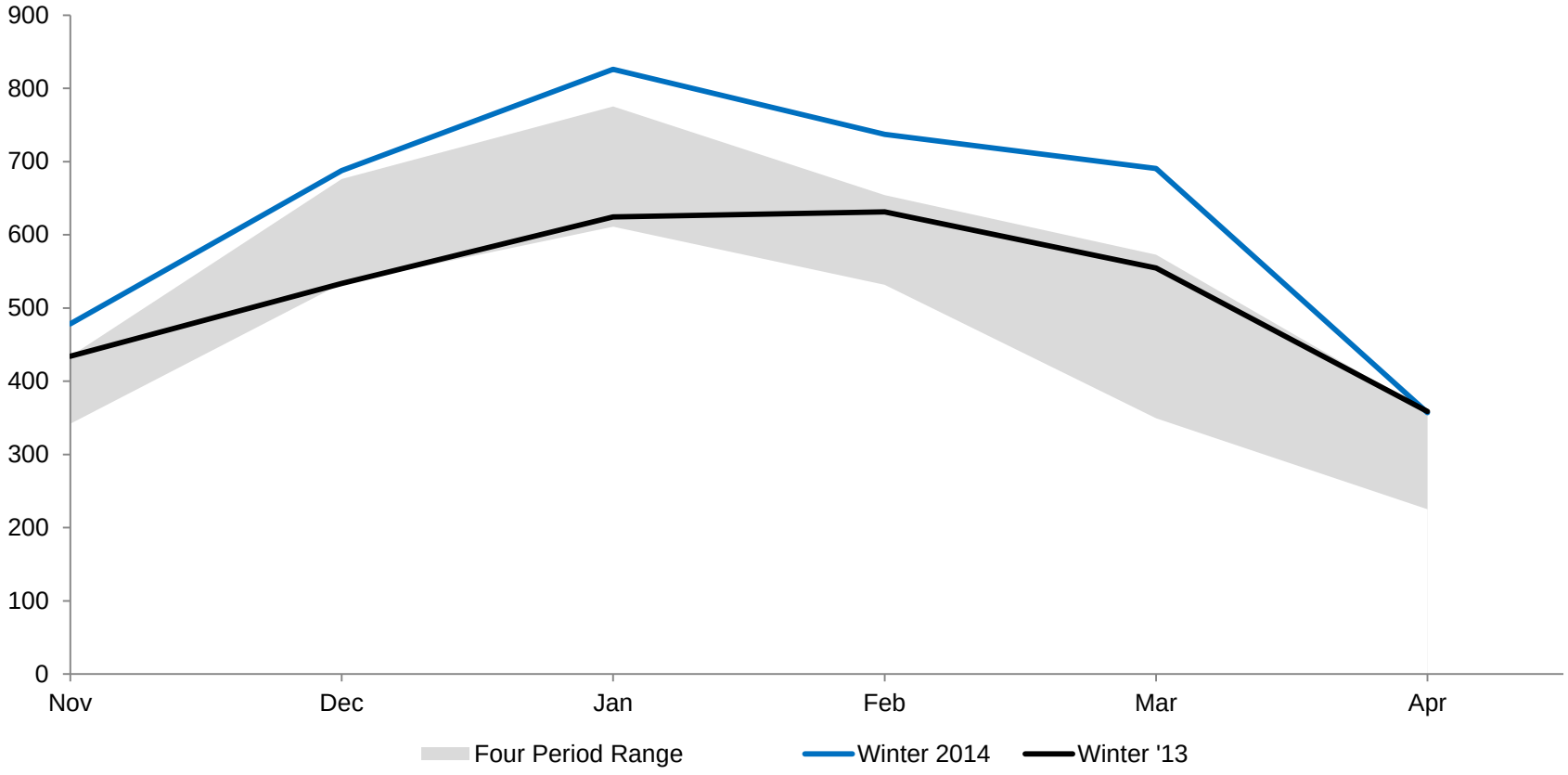
Anomalous Events during Winter 2014

The extreme cold weather drove increases in the number of anomalous events during this winter relative to last winter.

Anomalous Event	'12/'13 Events	'13/'14 Events
HOEP > $200/hour	5	133
CMSC > $1 million/day	7	30
CMSC > $500,000/hour	2	1
IOG > $1 million/day	0	12
OR Payments >$100,000/hour	0	5
HOEP < $0/hour	43	120

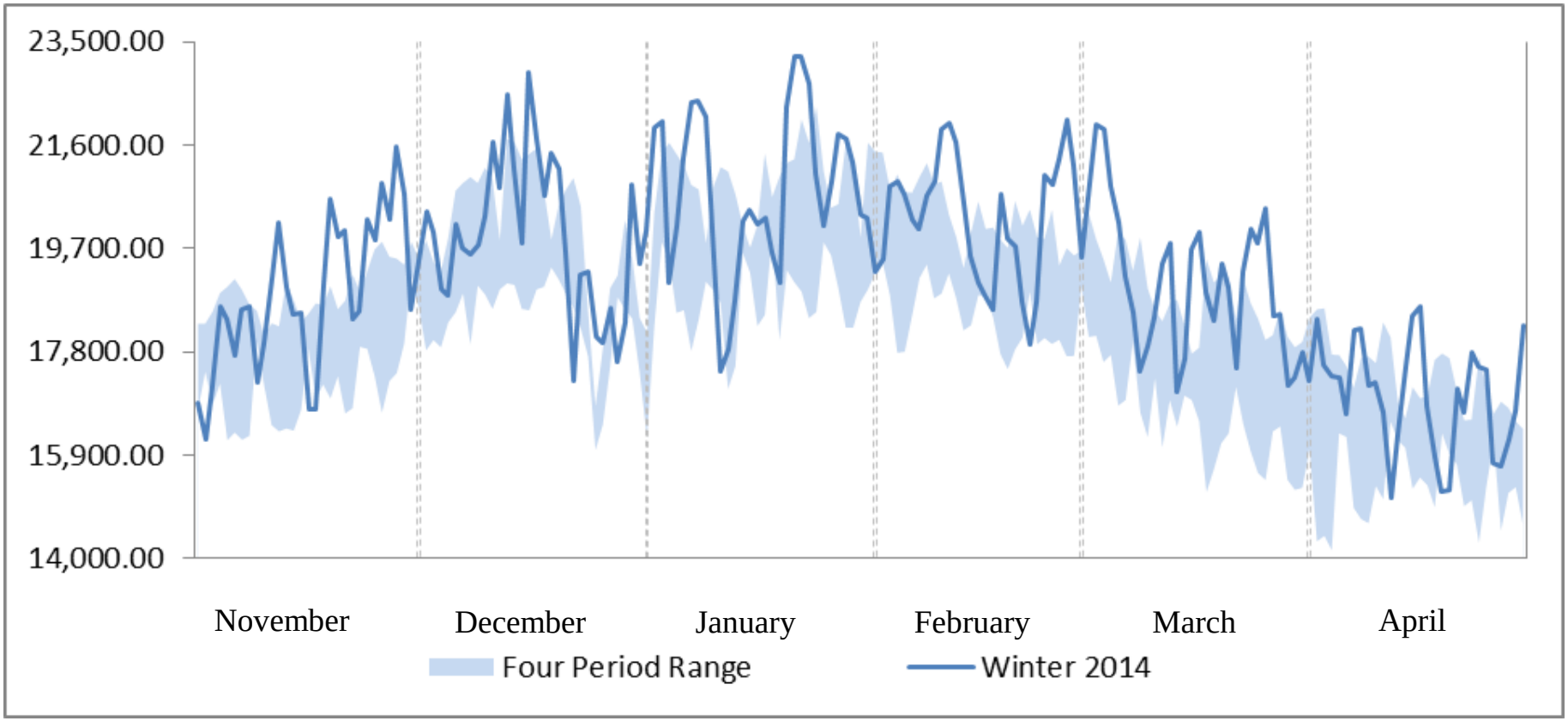
Monthly Heating Degree Days From November to April

The winter was characterized by persistently cold temperatures, rather than concentrated periods of cold.



Highest Hourly Ontario Demand per Day (MWh)

The cold temperatures resulted in higher than normal demand levels for most of the winter period.

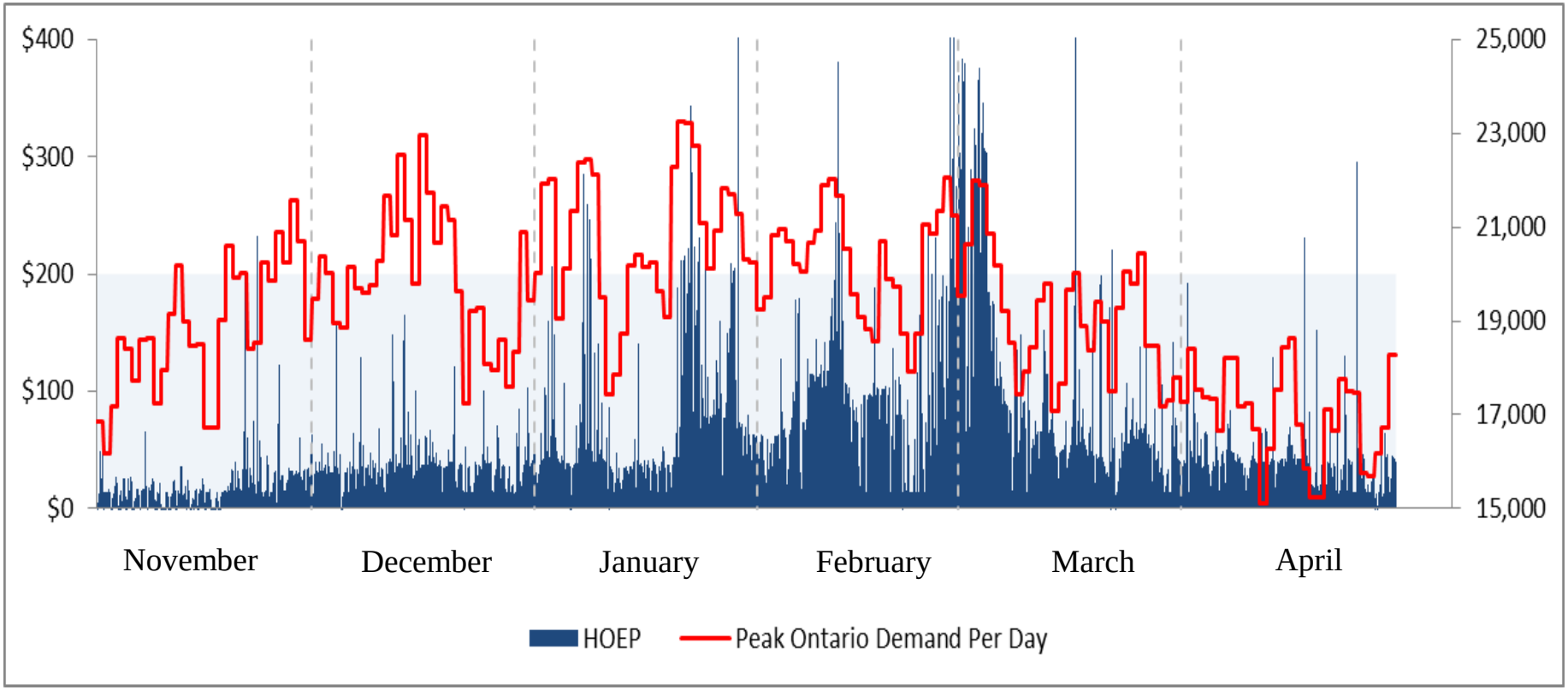


HOEP During Winter 2014

- The average HOEP during the winter was $48.78 vs $27.65 the previous winter
- Highest HOEP was $964.28 on February 27, 2014
- HOEP was greater than $200 during 133 hours during the winter (during the last 3 winters there were 1, 3 and 5 hours respectively with HOEP > $200)
- With almost 10,000 MW of installed gas capacity and gas facilities setting real time MCP almost 50% of the time, the cost of gas had a direct effect on electricity market prices during the 2014 winter period
- Dispatchable hydro offer prices based on opportunity cost and likely reflect costs of gas-fired generation in ON and elsewhere

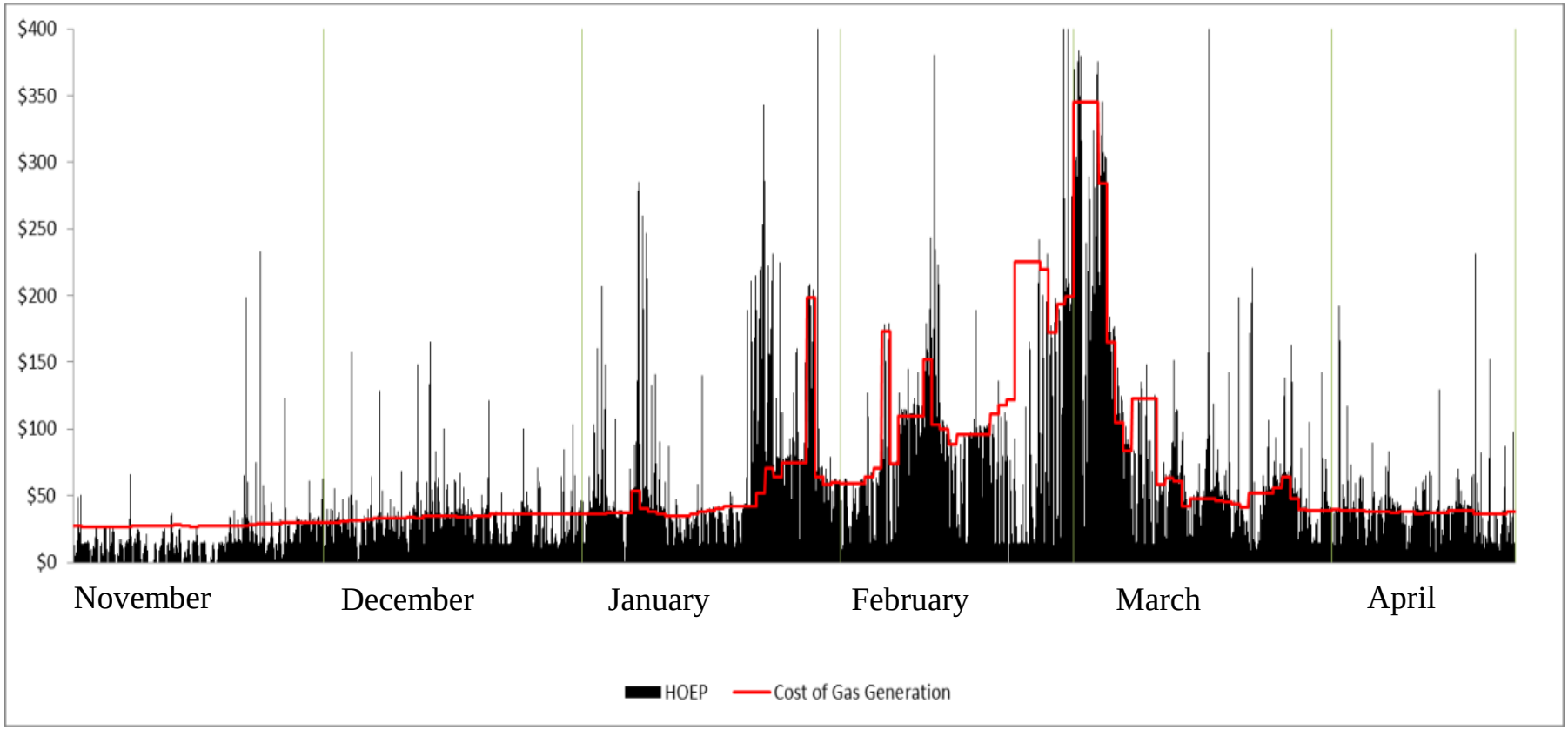
HOEP & Daily Highest Hourly Ontario Demand ($/MWh & MW)

Demand increased until peaking during January and February. HOEP trended upward during these same months, though high Ontario demand was not the primary driver of the price spikes in January, February and March.



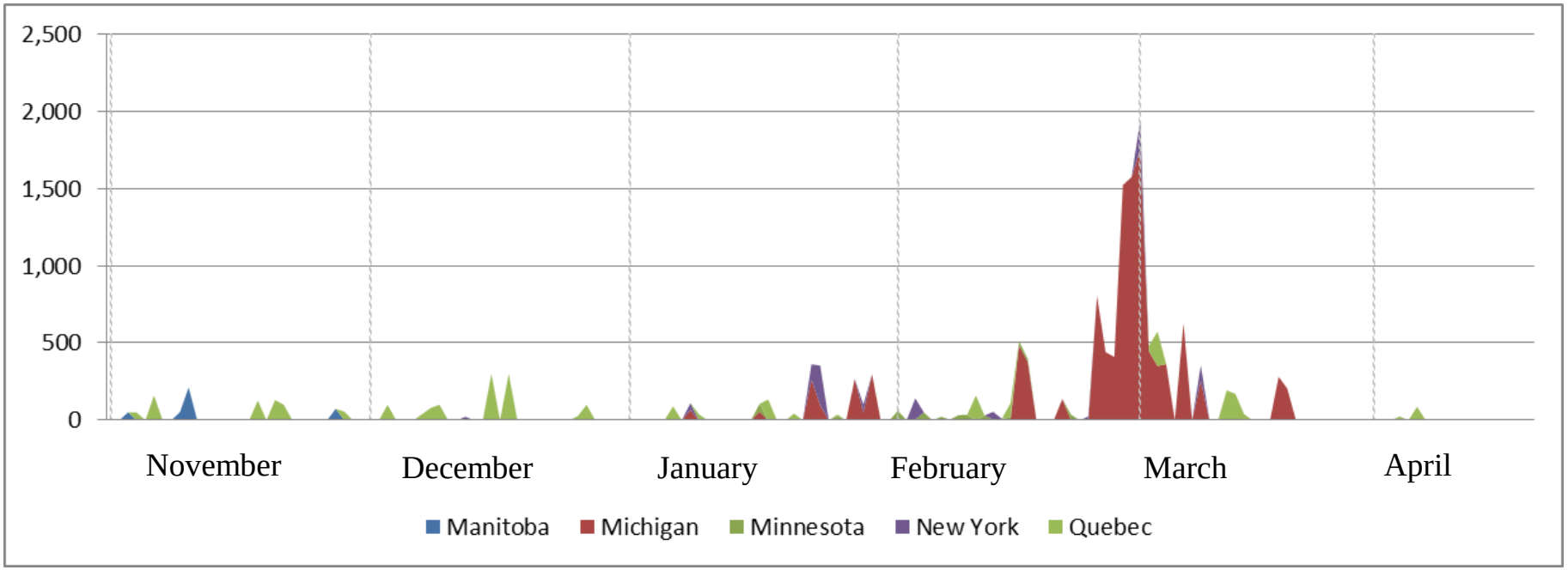
HOEP and Implied Cost of Combined-Cycle Gas Generation ($/MWh)

Ontario power prices broadly tracked gas price increases over last winter



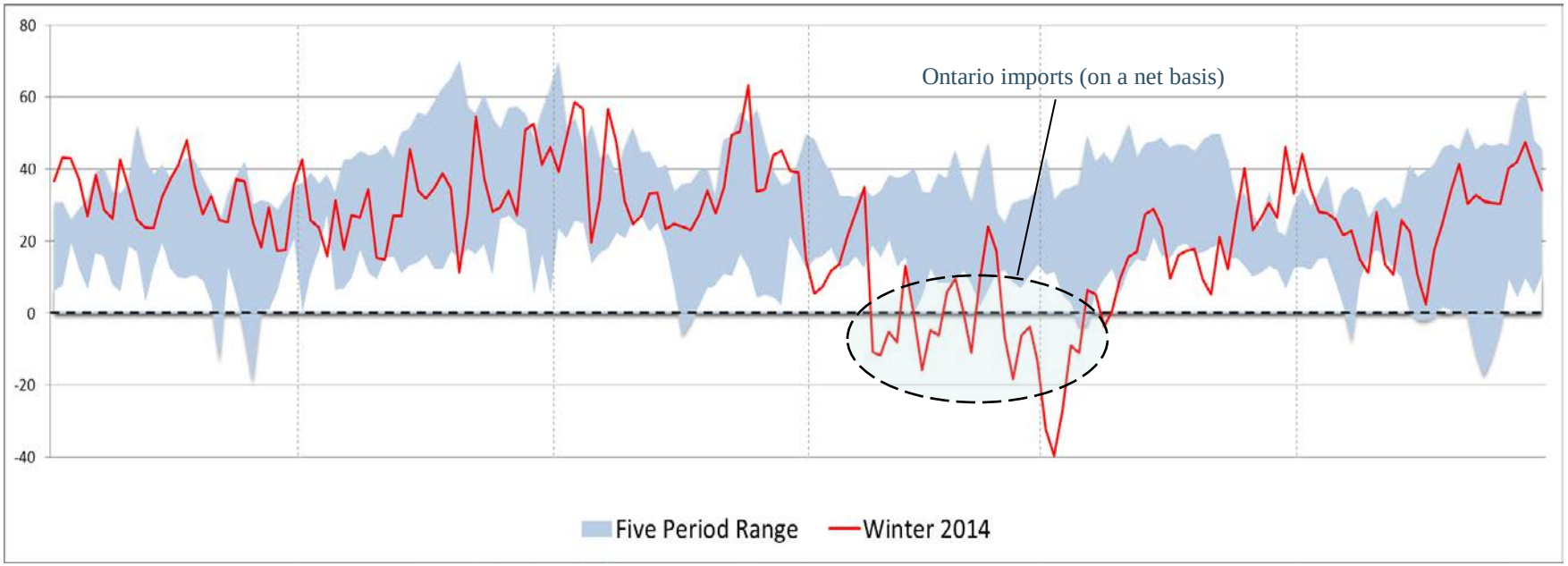
Import Transactions Curtailed for External Security or Adequacy Reasons (MW)

External actions can affect Ontario prices. When other jurisdictions prevented scheduled imports from being delivered into Ontario (frequently in response to weather-related issues), the system was forced to replace this supply with more expensive resources in real-time.



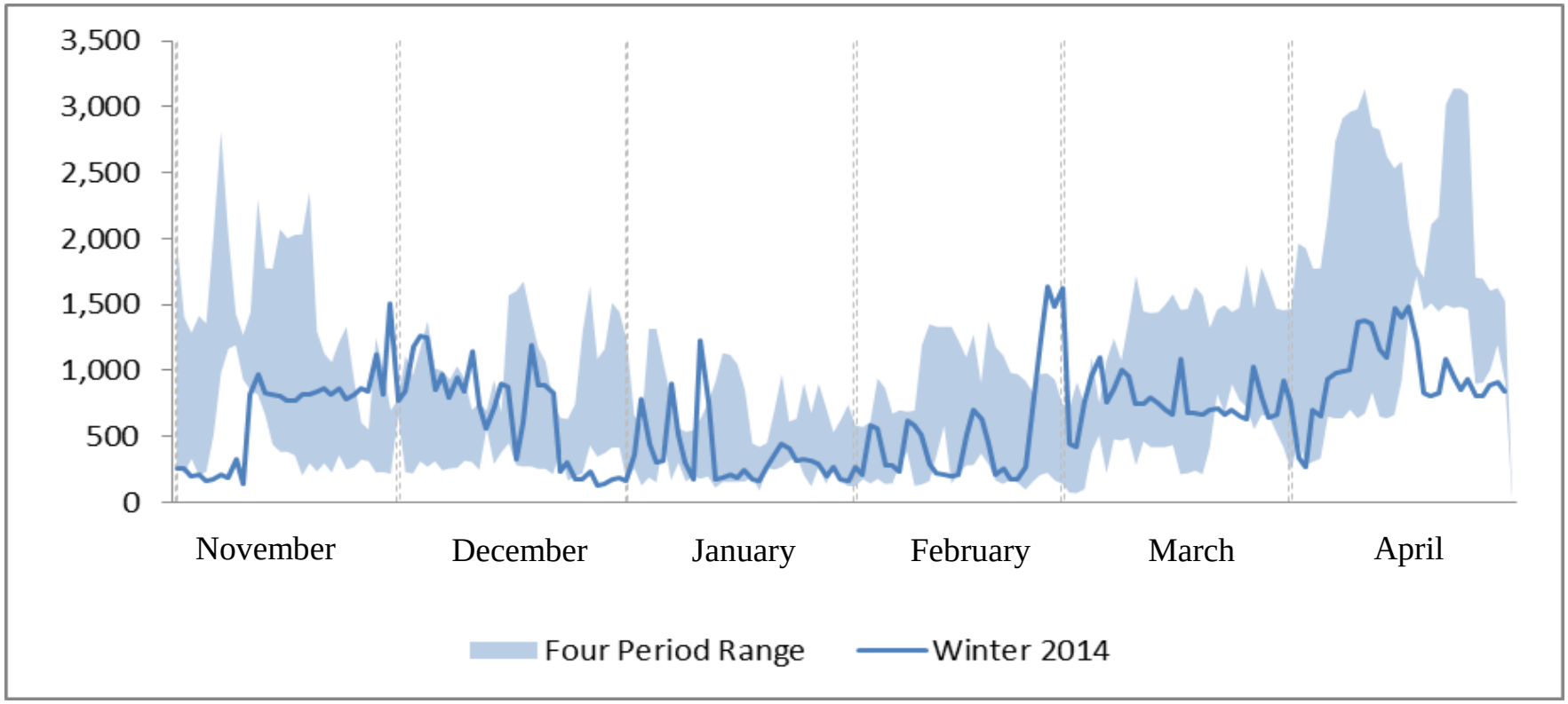
Ontario Daily Net Exports (Real-Time Constrained Scheduled GWhs/Day)

During late February and early March significant volumes of imports were curtailed. Even after accounting for these curtailments, for most of February and into March, Ontario was a net importer. This extended period of being a net-importer was unprecedented in recent history.



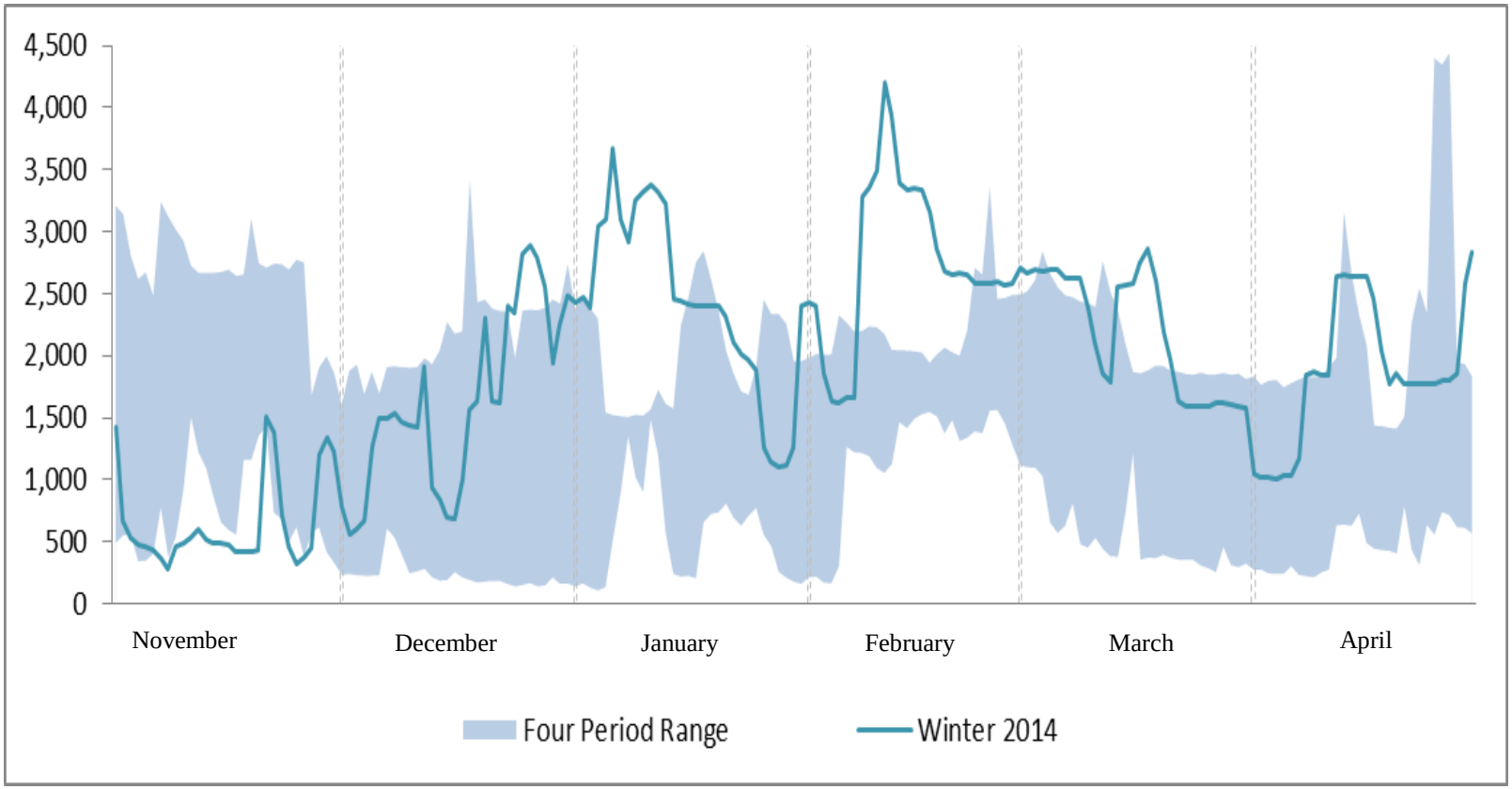
Forced Outages on Gas Capacity (MW)

Forced outages at natural gas facilities were generally within historic ranges.



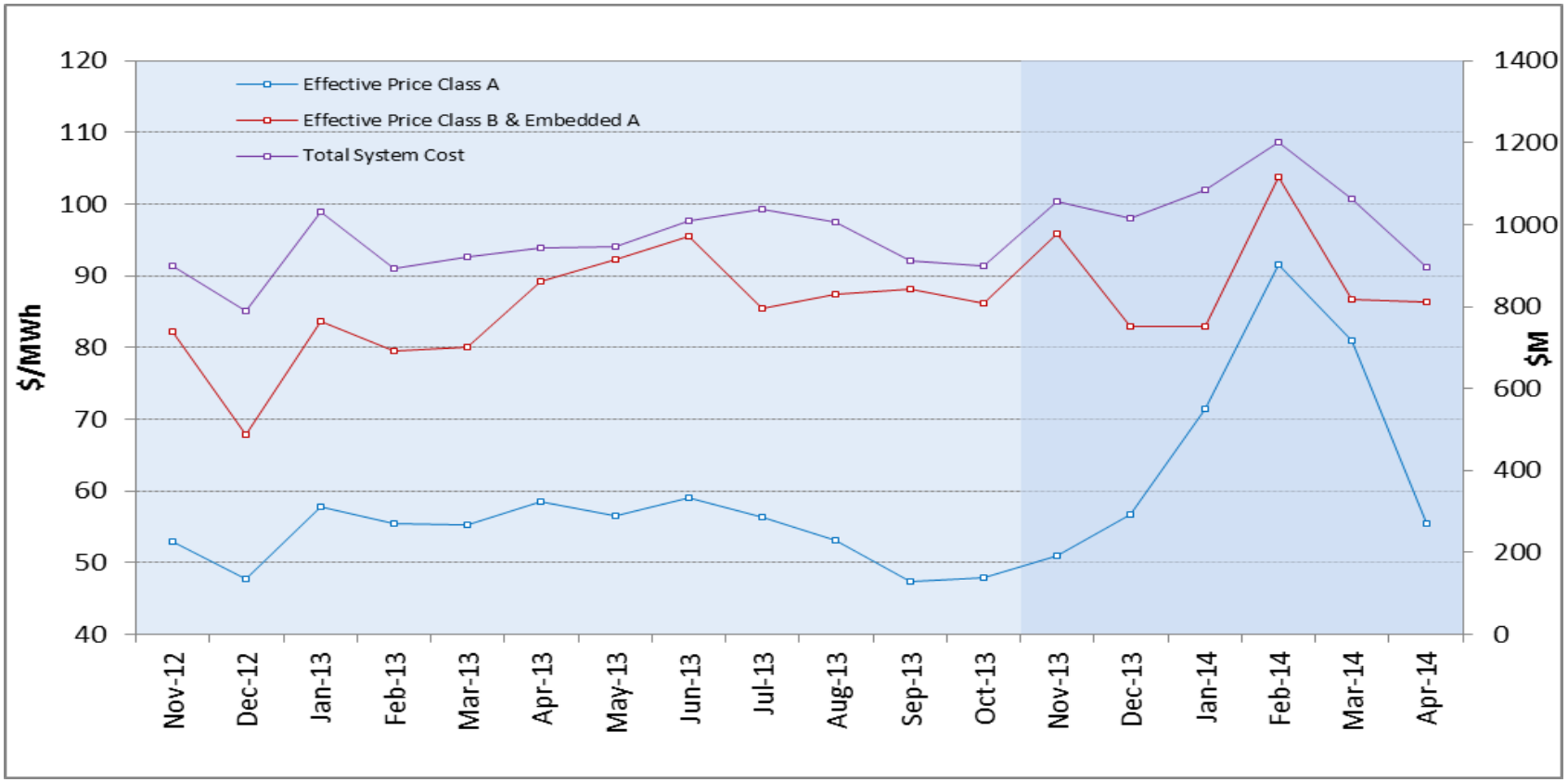
Forced Outages on Nuclear Capacity (MW)

During January and February forced outages at nuclear facilities were high relative to historic ranges.



Customer prices by Customer Class

While HOEP spiked during the winter, due to the inverse relationship between HOEP and GA, the increase to the effective commodity price of electricity was significantly less than the increase to the HOEP.



Lessons

- Forced outages at gas-fired facilities in ON generally within historic levels
- High demand was not solely responsible for price spikes
- Power prices affected by external factors: gas prices, intertie prices and import curtailments
- GA decline cushioned price impact for Class B ratepayers