



Energy East Pipeline Project: Impacts to Ontario's Natural Gas Market

PRESENTATION TO THE ONTARIO ENERGY
BOARD

January 29, 2015



Agenda

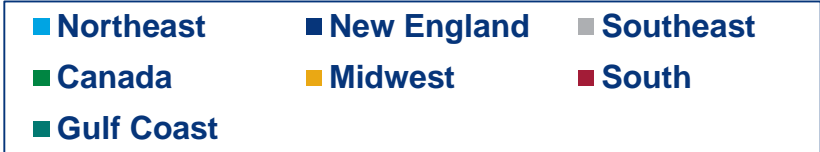
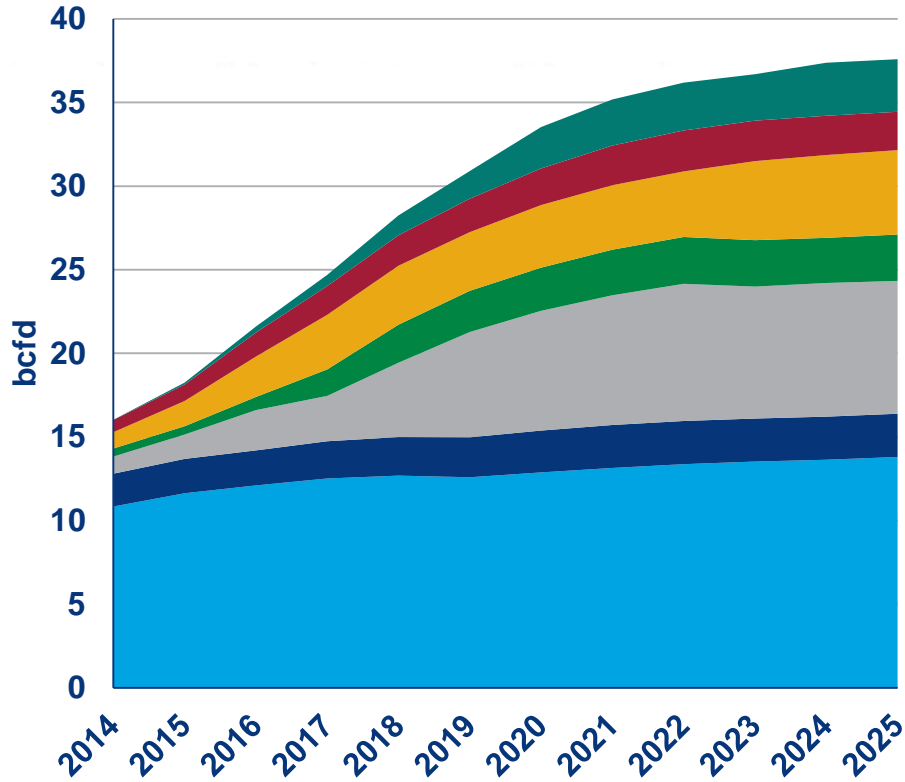
1. Eastern Ontario Markets

2. Impact of Energy East

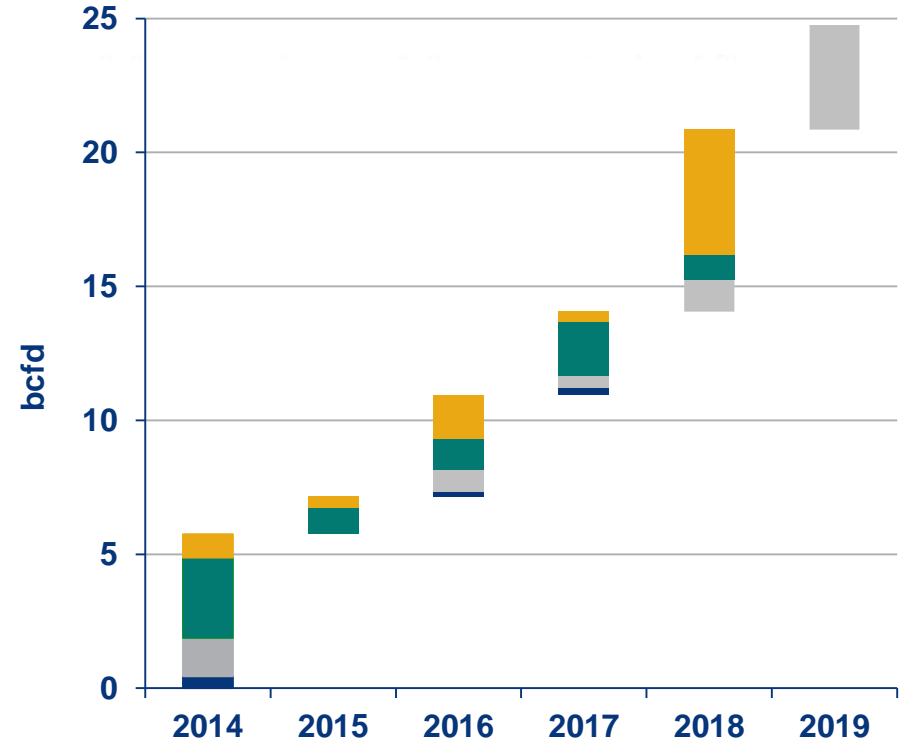
3. Key Conclusions

Pipeline infrastructure additions will enable U.S. Northeast supply (Marcellus/Utica) to reach new markets, including Ontario

U.S. Northeast Supply by Destination Market



Proposed Pipeline Projects for U.S. Northeast Supply

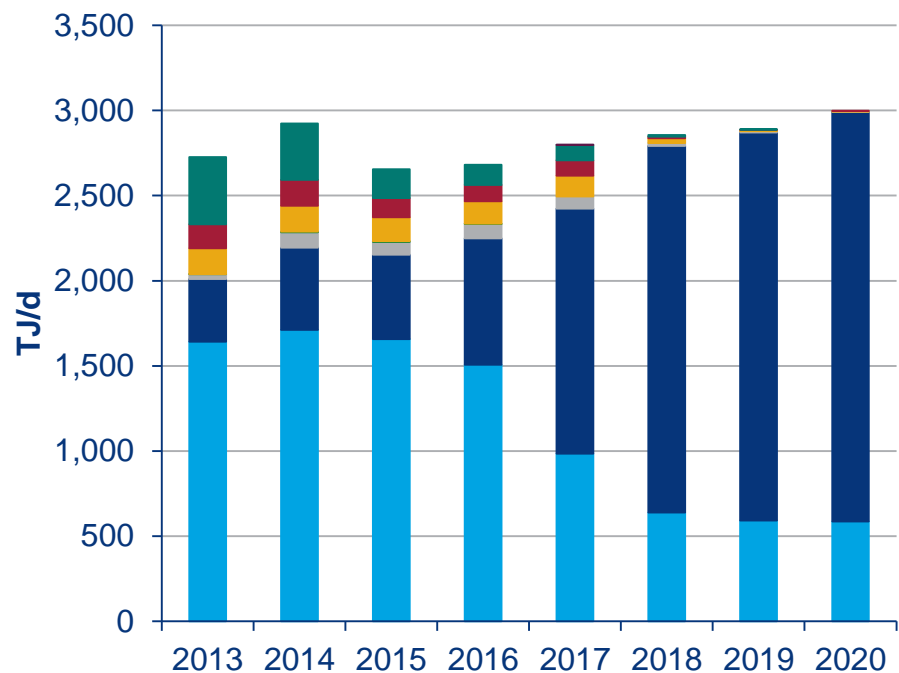


Source: Wood Mackenzie

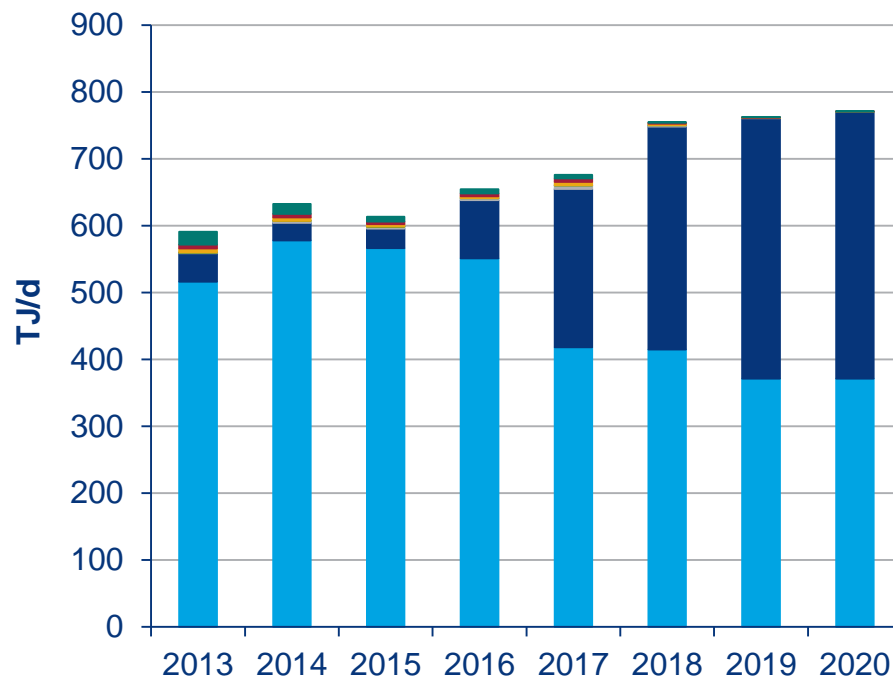
The sources of natural gas for both Ontario and Québec are expected to change as deliveries from the U.S. Northeast increase

New infrastructure within Ontario will increase access to supply from Marcellus and Utica production

Ontario Sources of Supply



Québec Sources of Supply

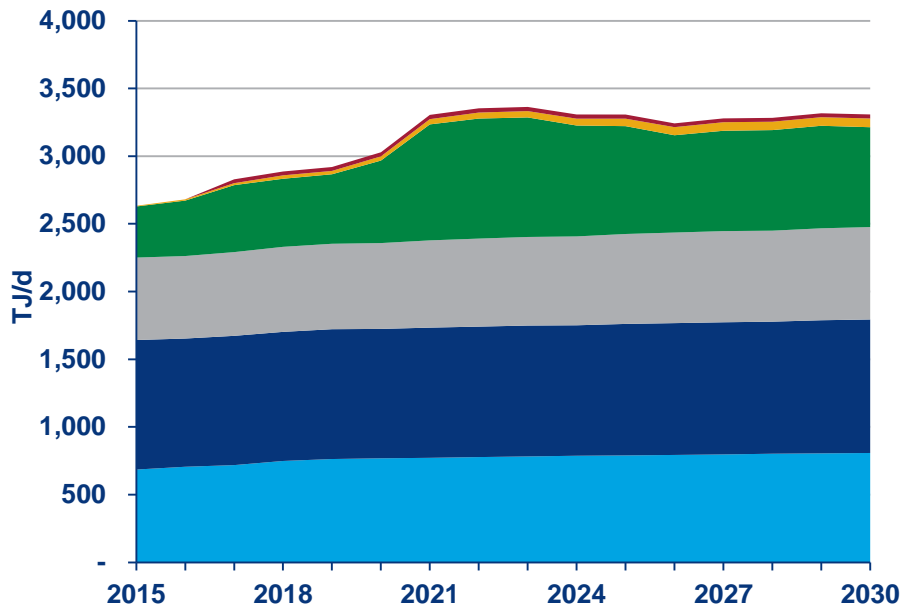


Source: Wood Mackenzie

Natural gas demand in Ontario and Québec is growing, driven primarily by the power and industrial sectors

Power and industrial demand will increase gas consumption by ~675 TJ/d in Ontario by 2030, while Quebec demand will grow by ~130 TJ/d by 2030

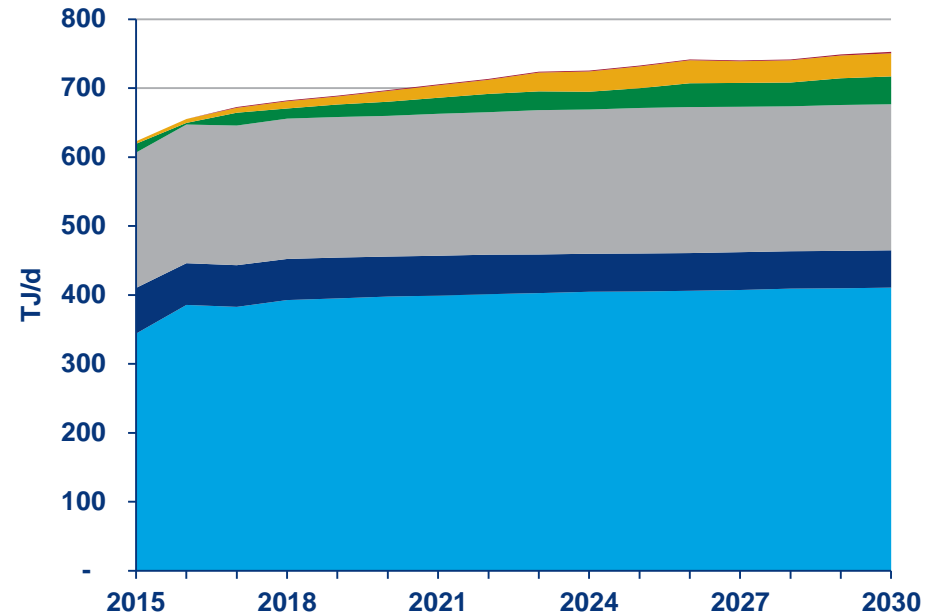
Ontario Gas Demand Outlook



■ Industrial ■ Residential ■ Commercial ■ Power ■ Transport ■ Other

Other includes pipe fuel & losses

Québec Gas Demand Outlook



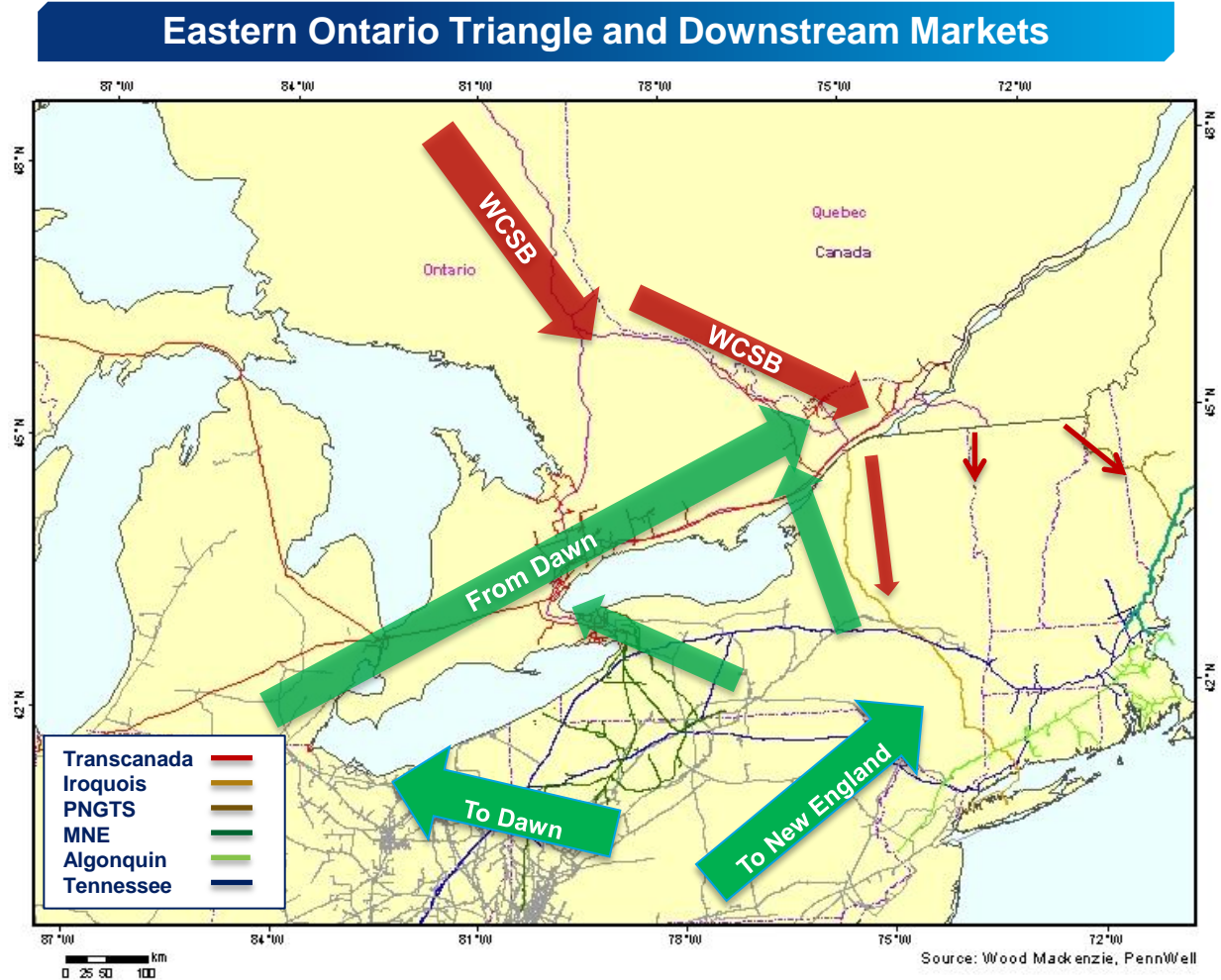
■ Industrial ■ Residential ■ Commercial ■ Power ■ Transport ■ Other

Source: Wood Mackenzie

In the past, supply from Western Canada was the primary source of natural gas for eastern markets, including Ontario and Québec

U.S. Northeast supplies will increasingly serve these markets, but Western Canadian gas will remain part of the supply mix and critical in the winter

- In 2009, Western Canada supplied the majority of Ontario and Québec requirements
- U.S. Northeast supply was directly connected to Ontario at Niagara in 2012
- New pipeline projects will increase deliveries from the U.S. Northeast to Ontario at Dawn, Niagara and Waddington
- New infrastructure is planned within Ontario to transport U.S. Northeast supply to eastern markets
- The U.S. Northeast will remain dependent on supply from Waddington to meet peak demand
- U.S. Northeast infrastructure delays impact flow through the Eastern Ontario Triangle



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The Energy East Project will reduce capacity within the Eastern Ontario Triangle by 0.6 PJ/d and over 1.0 PJ/d on the Prairies and Northern Ontario Lines

No material impact on the Prairies Line and Northern Ontario Line markets is expected

Changes in Eastern Ontario Triangle Capacity

Changes in EDA Capacity Effective March 2017	Capacity (TJ/d)
Existing EDA Capacity	3,180
Energy East Conversion	(1,210)
Eastern Mainline Project	575
EDA Capacity post Energy East	2,545
Net Capacity Loss	(635)

Changes in Prairies and Northern Ontario Capacity

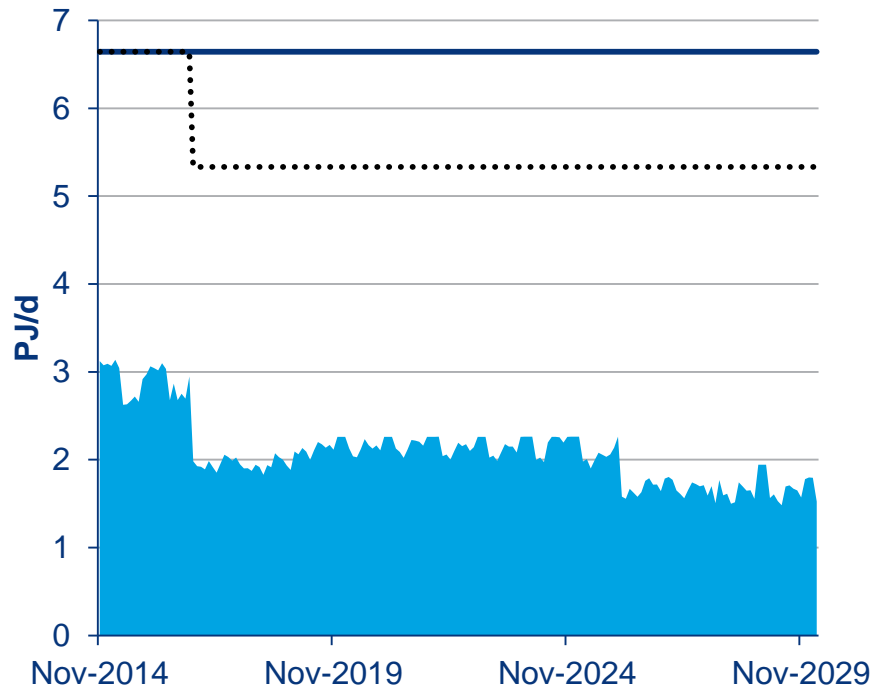
Changes in Capacity Effective November 2016	Prairies Line (TJ/d)	Northern Ontario Line (TJ/d)
Existing Capacity	6,642	3,600
Energy East Conversion	(1,311)	(1,474)
Capacity post Energy East	5,331	2,126*

* 2.1 PJ/d is the design capacity of the Northern Ontario Line post-Energy East. The actual capacity of the Northern Ontario Line will be dependent upon the amount of integrity work completed to meet demand, including the 1.1 PJ/d of expected firm contract level as of November 1, 2016.

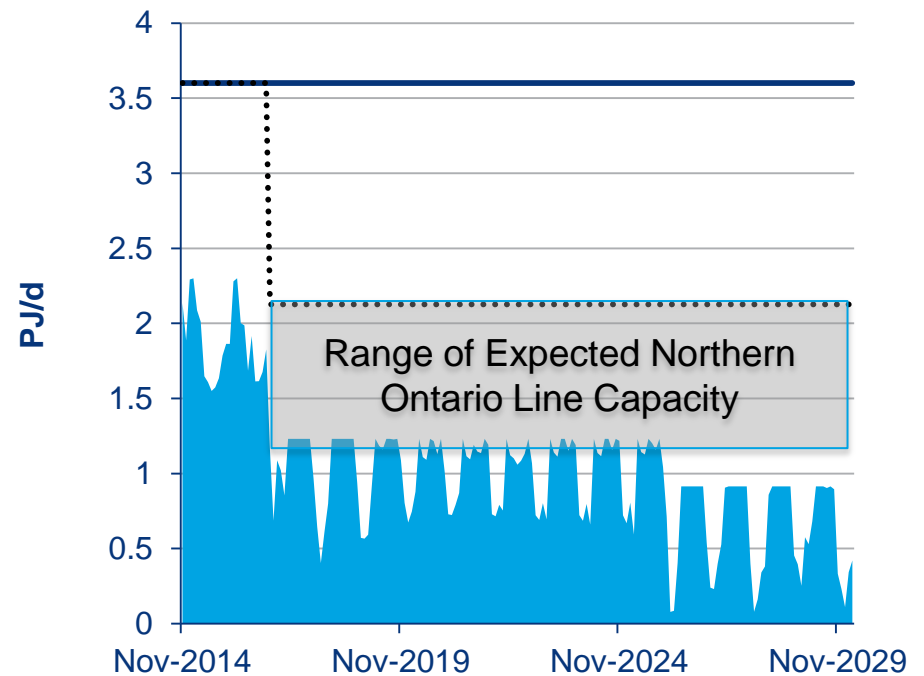
No material impact on the Prairies Line and Northern Ontario Line markets is expected

Northern Ontario Line capacity can be increased through integrity work on existing pipelines to meet firm service obligations

Capacity and Flows on Prairies Line



Capacity and Flows on Northern Ontario Line

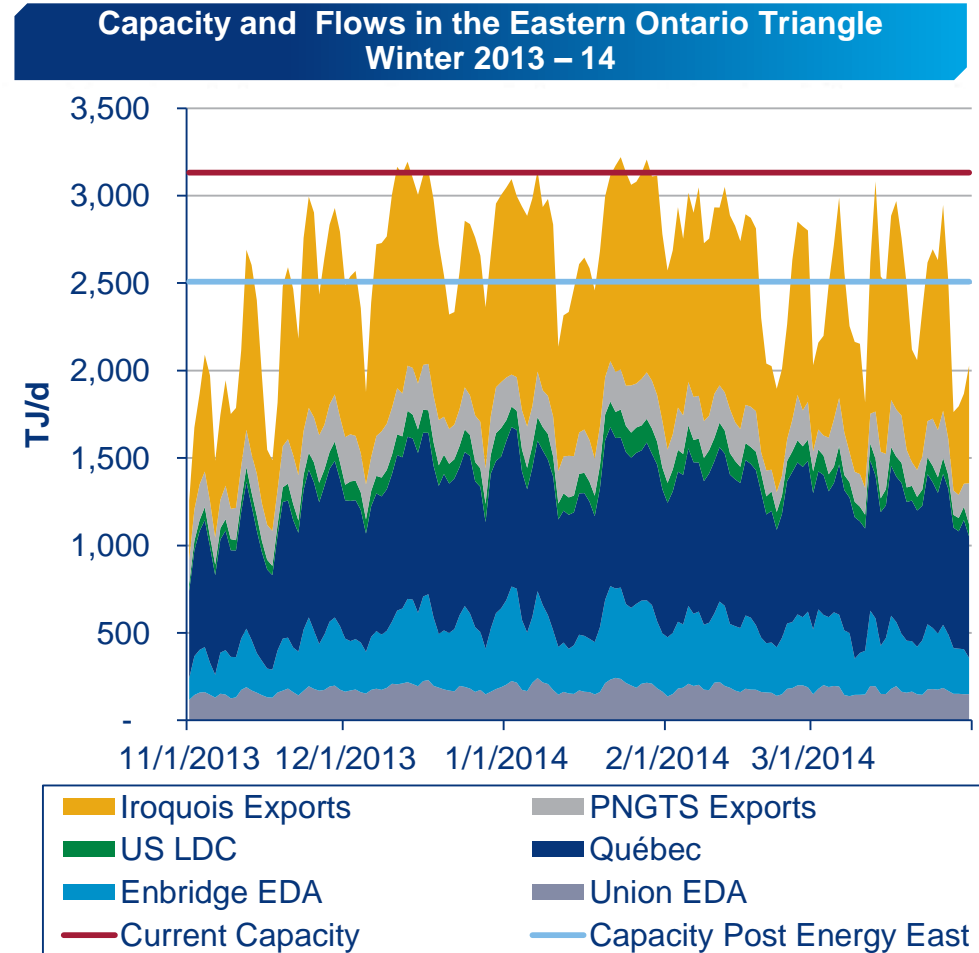


Source: Wood Mackenzie

The Winter of 2013 – 14 illustrates the impact of pipeline constraints on reliability in the Eastern Ontario Triangle

The reduction in capacity through the Energy East Project will exacerbate existing constraints

- Peak demand in the region is nearly concurrent: Cold days in Ontario and Québec are cold days in New England
- On cold winter days, New England power plants served with non-firm supply compete with Ontario and Québec customers for supply, driving up prices
- Extremely high prices in the Eastern Ontario Triangle reflect high utilization and strong demand in New England
- Utilization exceeds the proposed capacity as a result of the Energy East project: this trend is expected to continue
- The Energy East capacity reduction will increase competitive pressure on pricing in the Eastern Ontario Triangle

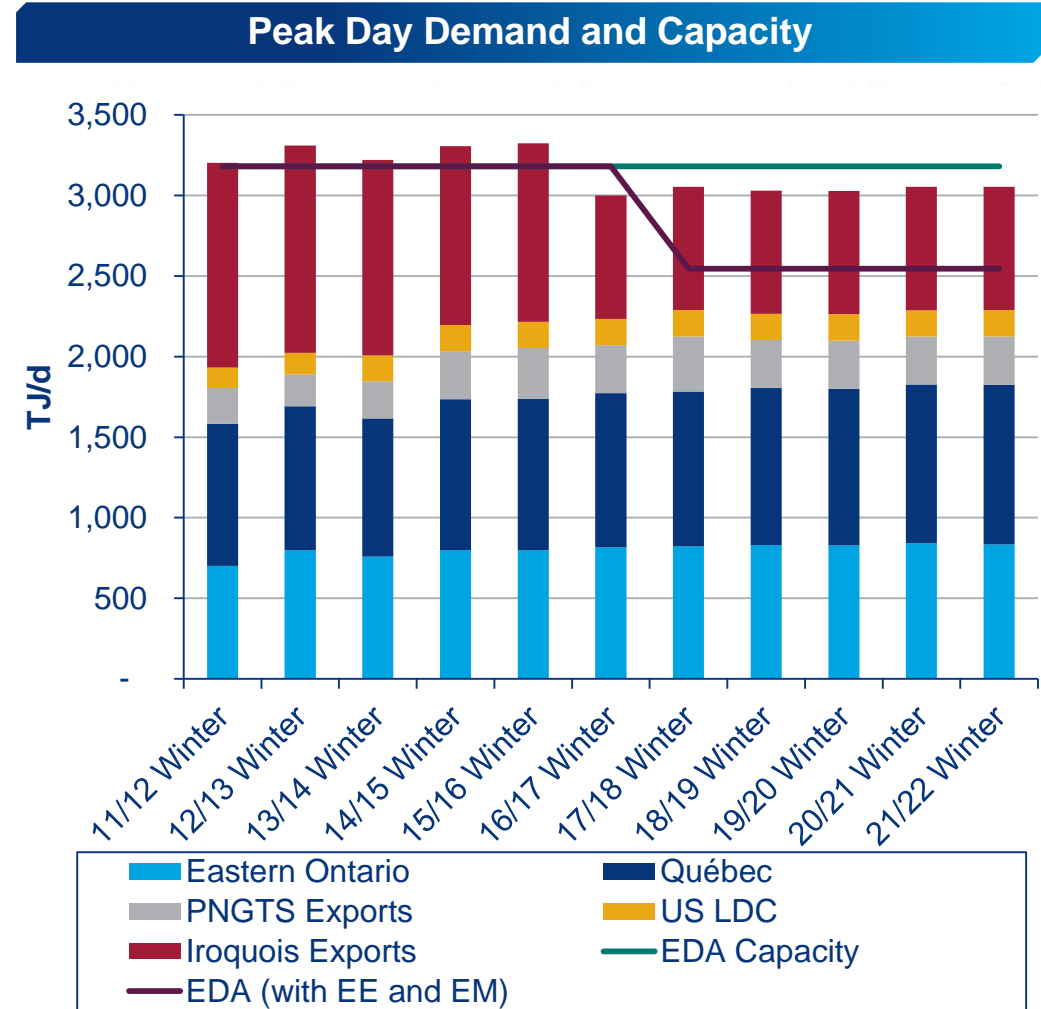


Source: Wood Mackenzie

Peak day demand for Eastern Ontario Triangle capacity is projected to exceed proposed Energy East capacity

Deliverability falls below expected peak day demand

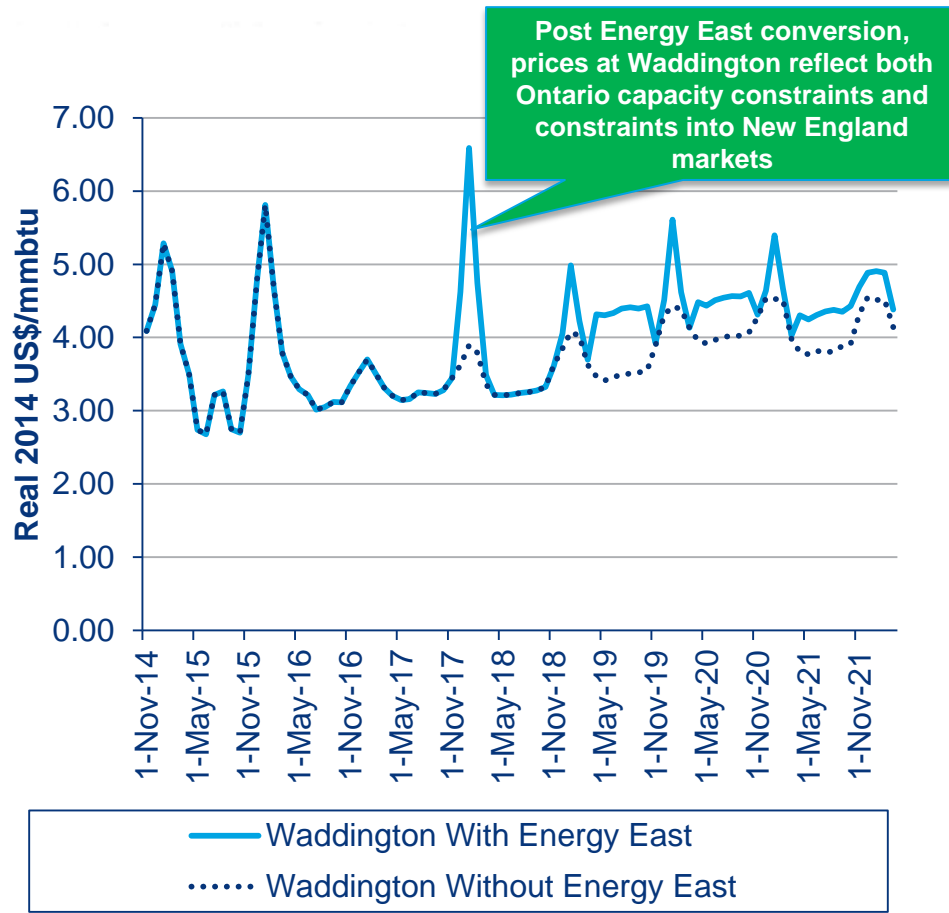
- Without the Energy East conversion, capacity is adequate to meet existing and near-term new markets, including growth of Ontario and Quebec natural gas consumption for power generation and industry
- With Energy East and the Eastern Mainline Project not all peak day markets using the Eastern Ontario Triangle can be served
- Reliability of supply will decline relative to today's level
- With infrastructure additions into the U.S. Northeast, peak flow from Canada in the U.S. Northeast will be approximately 800 TJ/d



Source: Wood Mackenzie

The Energy East Project is expected to contribute to higher winter natural gas prices – peak day impacts will be even greater

Forecast Monthly Average Prices at Waddington with and without Energy East Project



Comparison of Prices at Waddington with and without Energy East Project (Winter average real 2014 US\$/mmbtu)

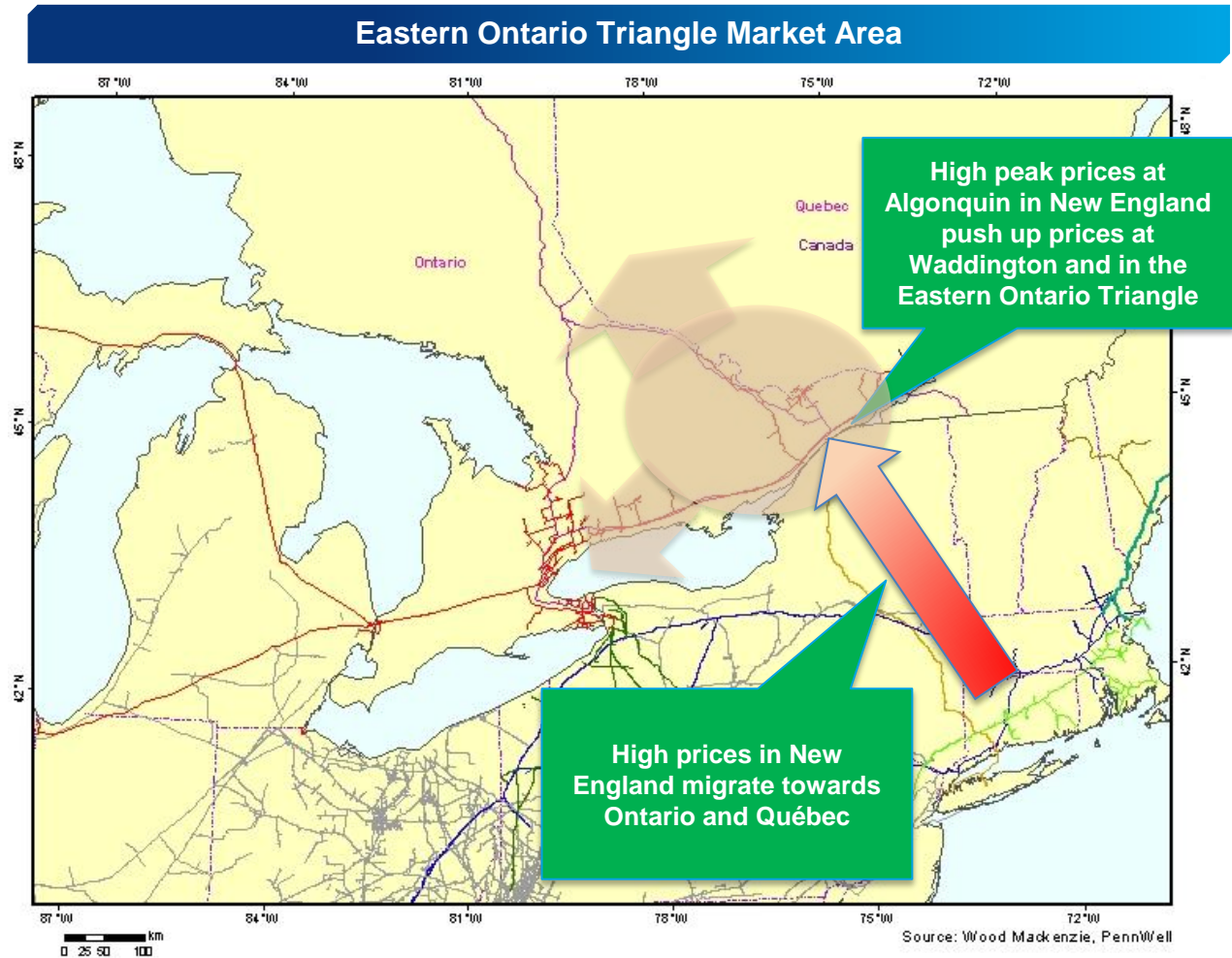
Period	Waddington Without Energy East	Waddington With Energy East	Difference	Peak Month Difference
Winter 2016 – 17	\$3.48	\$3.48	\$0.00	\$0.00
Winter 2017 – 18	\$3.62	\$4.58	\$0.96	\$2.70
Winter 2018 – 19	\$3.84	\$4.11	\$0.28	\$0.91
Winter 2019 – 20	\$4.23	\$4.56	\$0.33	\$0.91
Winter 2020 – 21	\$4.37	\$4.61	\$0.24	\$0.87
Winter 2021 – 22	\$4.41	\$4.75	\$0.34	\$0.40

Winter Average: Average of November through March
 Maximum difference occurs in January

Source: Wood Mackenzie

Who will be most impacted? Customers without firm capacity or firm supply will be most at risk.

- Eastern Ontario consumers, such as industrial, institutional and large commercial customers, without firm capacity from AECO, Niagara or Dawn or who rely on discretionary services or the secondary market to contract for supply will face an increased risk of higher prices and curtailments during winter peak periods
- Dawn is expected to be adequately supplied with Marcellus and Utica supply via new infrastructure and prices at Dawn are expected to be more stable



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In Conclusion

Maintaining reliable and economic supplies requires more capacity than planned through the Energy East Project

- Pipeline infrastructure expansions are being built in Ontario to increase access to Dawn and Marcellus/Utica supply
- Demand for natural gas in Ontario is expected to grow, driven by power generation and industry
- Utilization of Eastern Ontario Triangle capacity will remain extremely high during the winter; Ontario and Québec will continue to compete with New England for supply
- Capacity post Energy East is forecast to be insufficient to meet demand for the Eastern Ontario Triangle capacity
- During peak periods, New England markets will continue to rely on Canadian gas at Waddington, pushing prices even higher in the Eastern Ontario Triangle
- New pipeline capacity into southern New England will not simply displace the need for supplies from Canada; New England markets are growing
- Industrial, institutional and large commercial customers that rely on discretionary services and secondary capacity will be most impacted

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