

NAVIGANT

ENERGY

Ontario Energy Board

2014 Natural Gas Market Review

Stakeholder Conference

Emerging Trends and Outlook for the North American Natural Gas Market – Session 4 / Panel 1

Ontario Energy Board

2300 Yonge Street, 25th Floor

Toronto, Ontario M4P 1E4

West Hearing Room / ADR Room

December 3-4, 2014

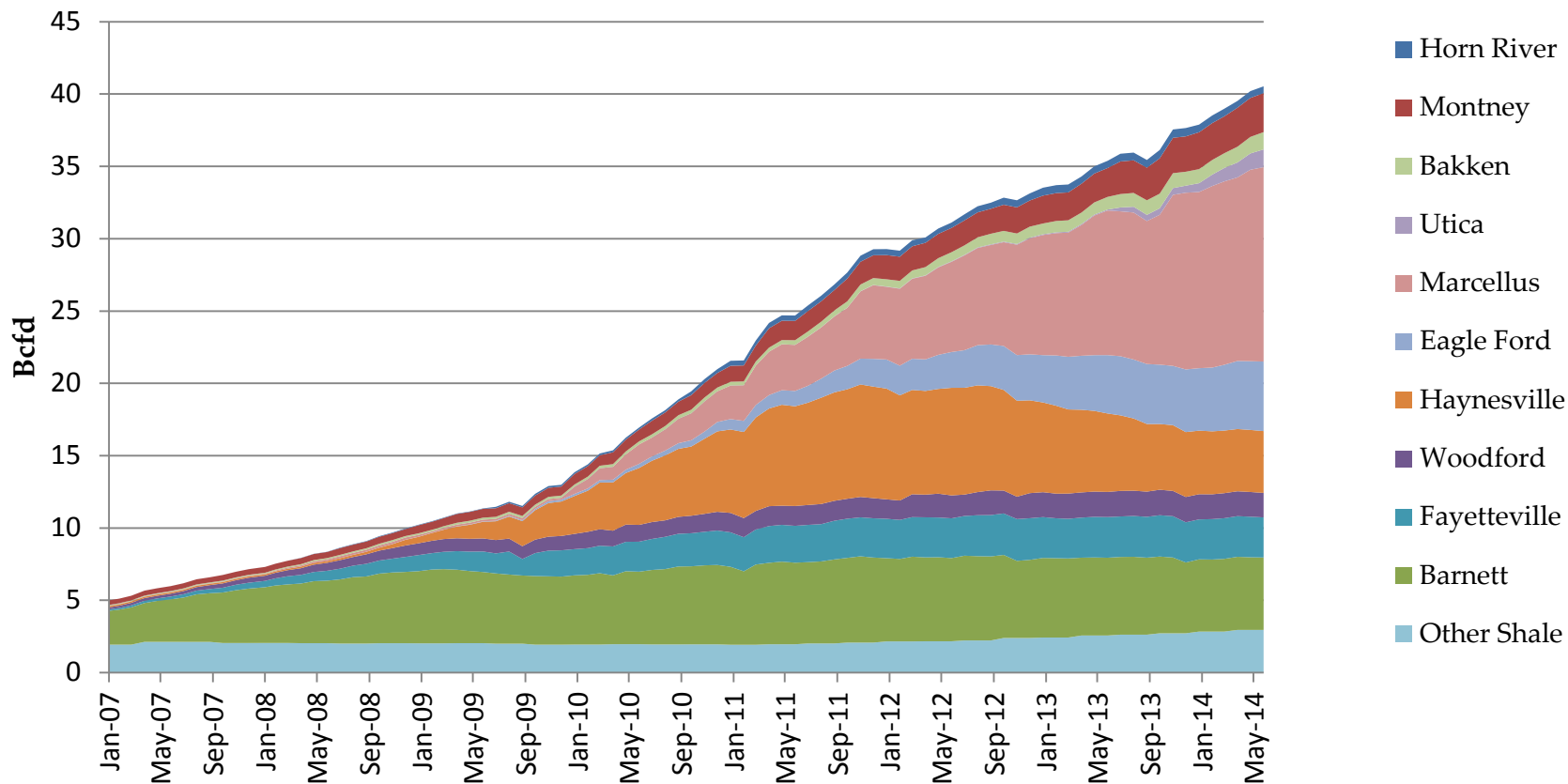


©2014 Navigant Consulting, Inc.
Confidential and proprietary. Do not distribute or copy.

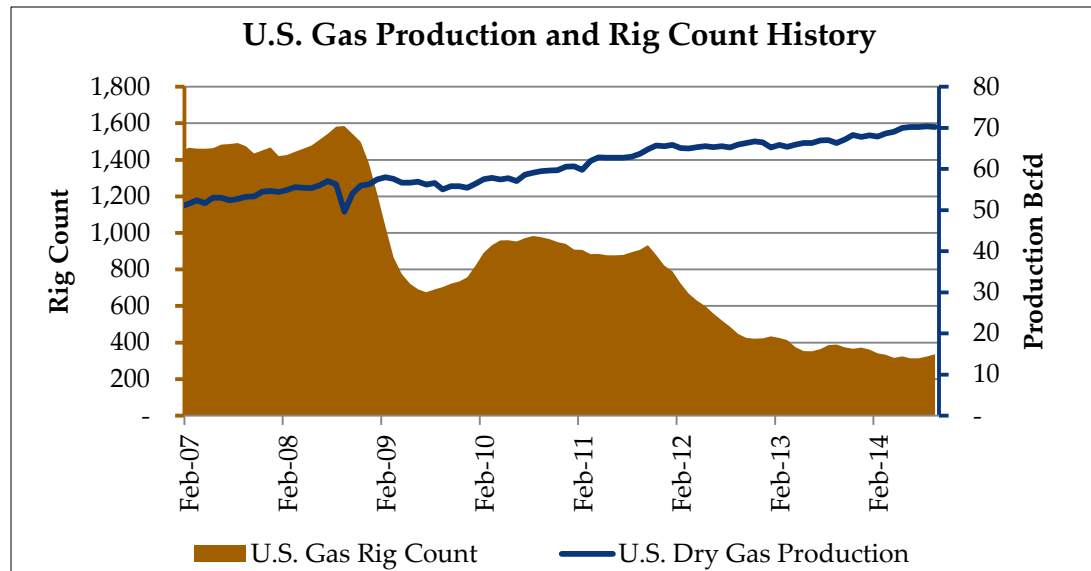
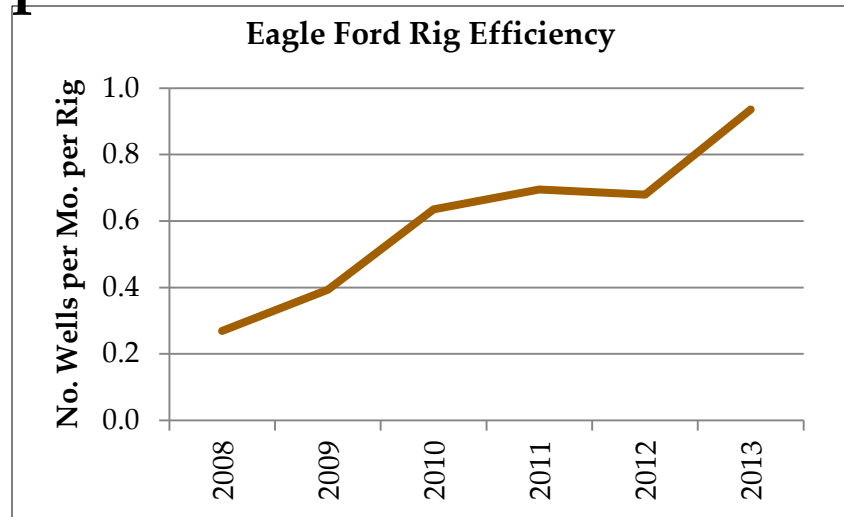
DISPUTES & INVESTIGATIONS • ECONOMICS • FINANCIAL ADVISORY • MANAGEMENT CONSULTING

The key current trend in the natural gas market is the continuing growth in shale gas production...

North American Wellhead Shale Production



Which has occurred in tandem with increasing efficiency in shale gas development...



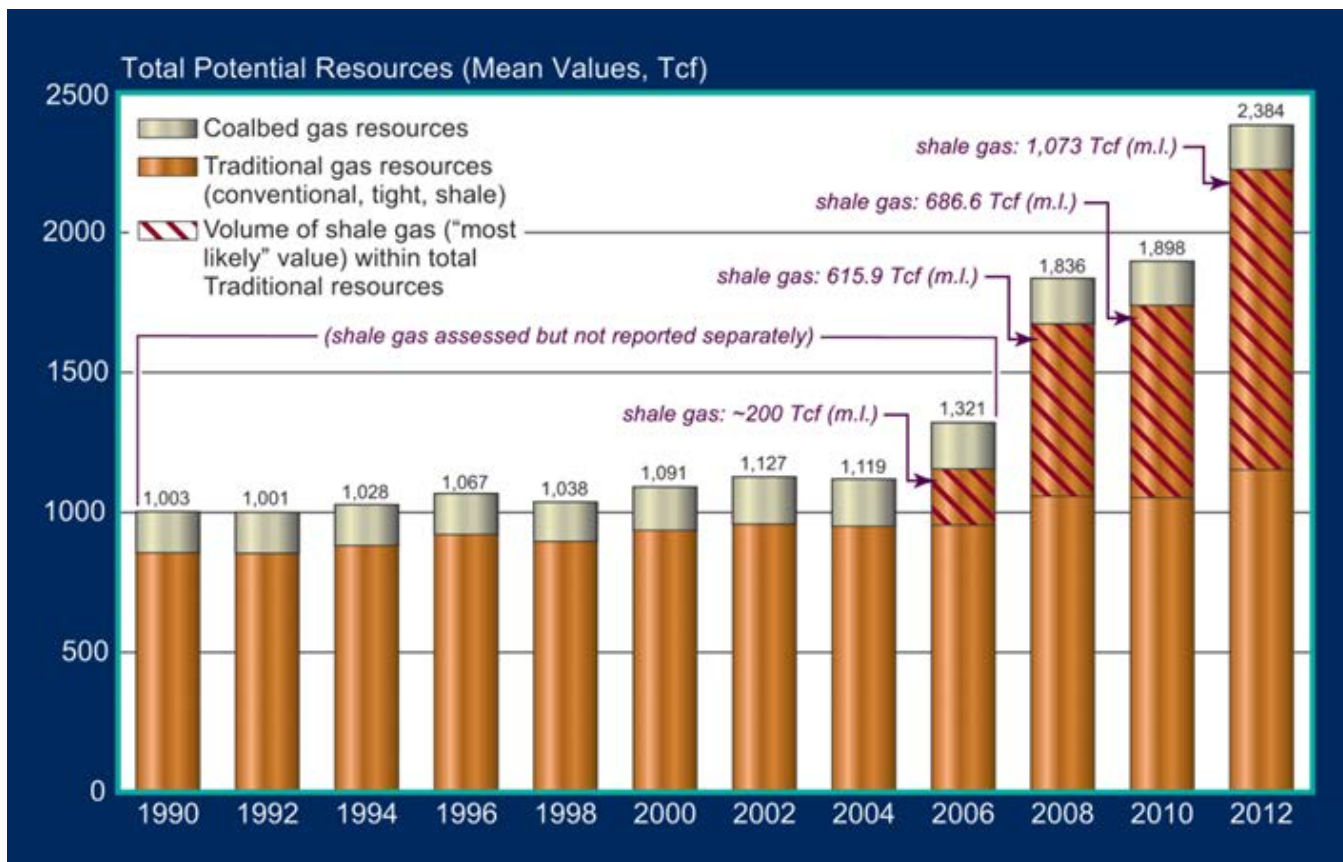
Shale Production Has Increased On Cost Improvements Primarily from Horizontal Drilling

Key Factors to Lower Unit Costs of Production Have Been:

- Proliferation of pad drilling
- Longer laterals
- More efficient 'walkable' rigs
- Advanced completion techniques
- Better fracking 'recipes'
- Better 'geo' intelligence of the resource base

As well as increasing estimates of shale gas resources.

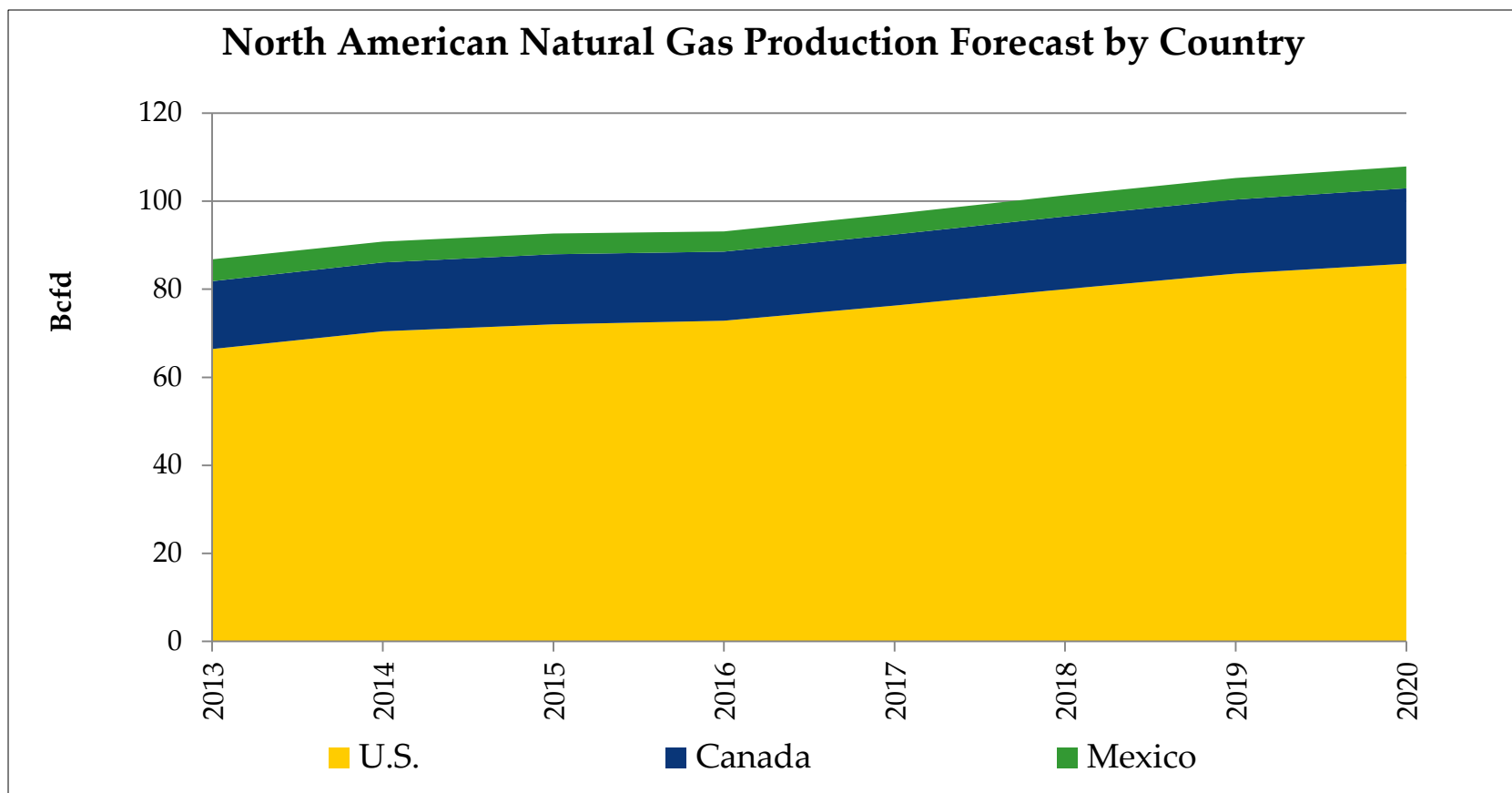
U.S. Natural Gas Resource Estimates by the U.S. Potential Gas Committee



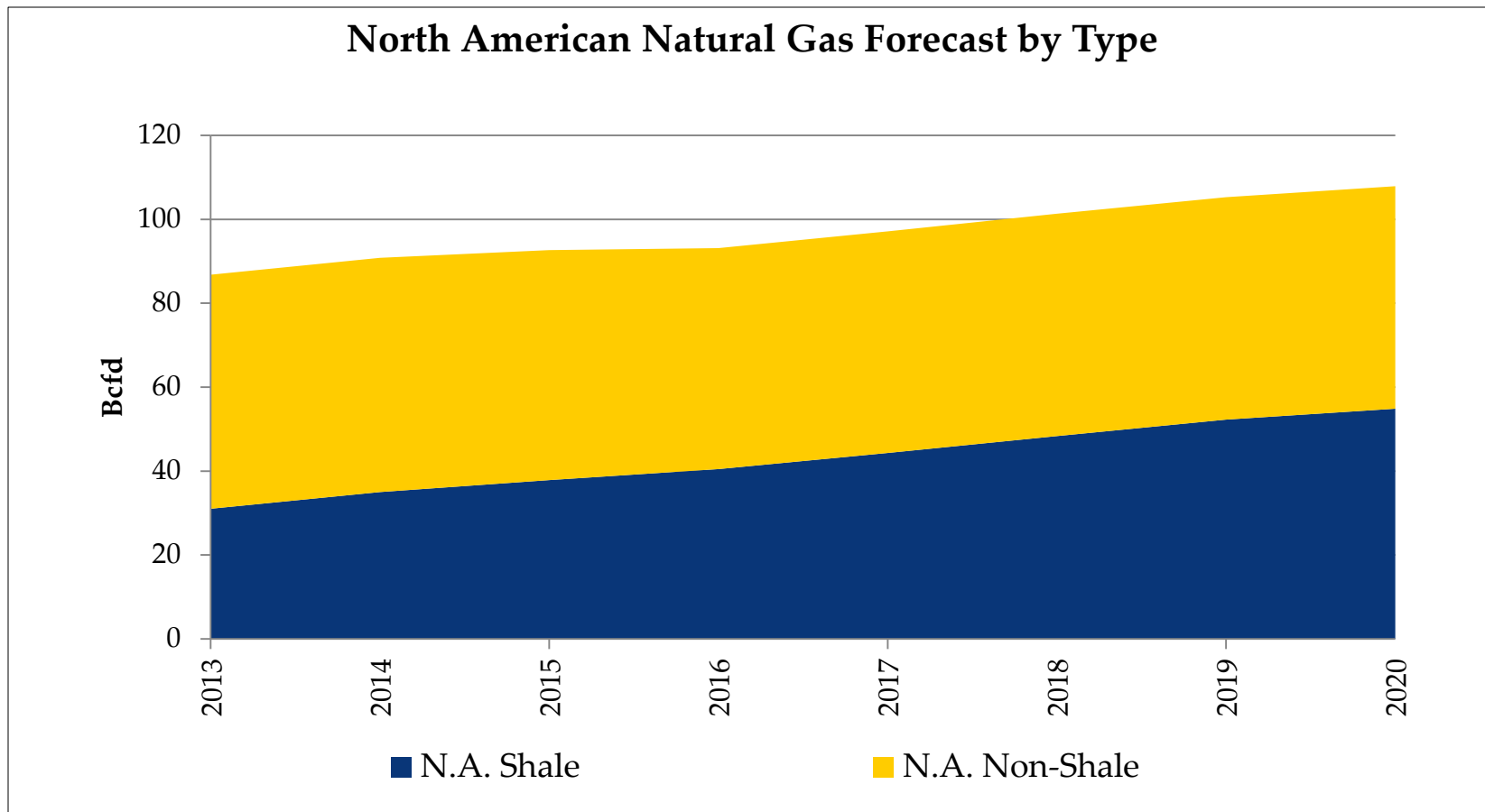
These increasing estimates of natural gas resources support an estimated North American resource life of almost 150 years. Almost 400 years in Canada.

	Natural Gas Resource			Demand	Resource Life
	Conventional	Unconvent'l	Total		
	(Tcf)	(Tcf)	(Tcf)		
Canada	422	1,022	1,444	3.7	392
U.S.	<u>1,458</u>	1,231	2,689	26.1	103
<u>Mexico</u>	-	<u>545</u>	<u>545</u>	<u>2.3</u>	<u>242</u>
North America	1,880	2,798	4,678	32.1	146
Sources: U.S. E.I.A. Assessment; NEB Energy Future 2013; Navigant forecast; Potential Gas Committee					

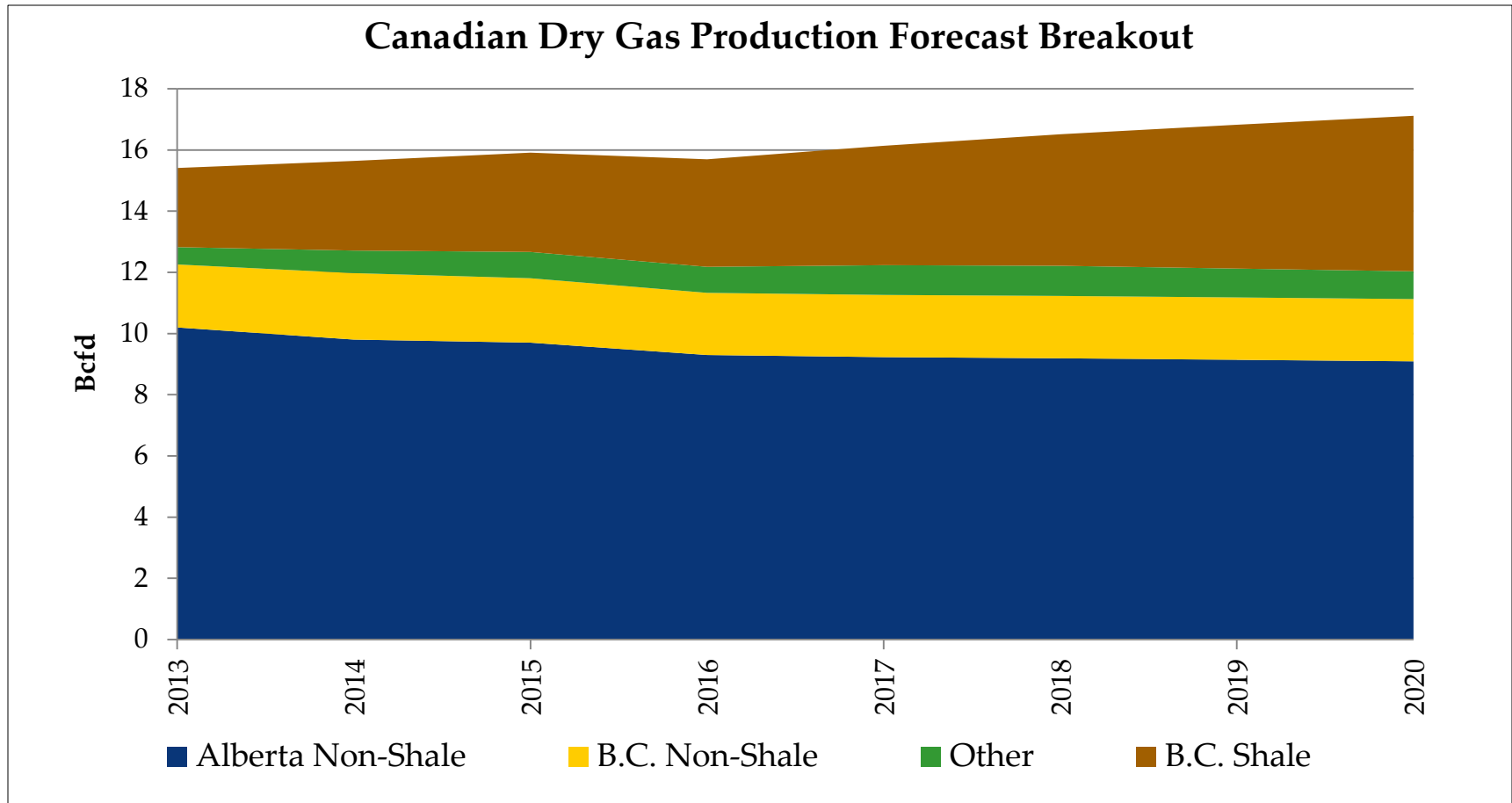
The ample North American gas resource base supports Navigant's outlook of strong production growth in North America.



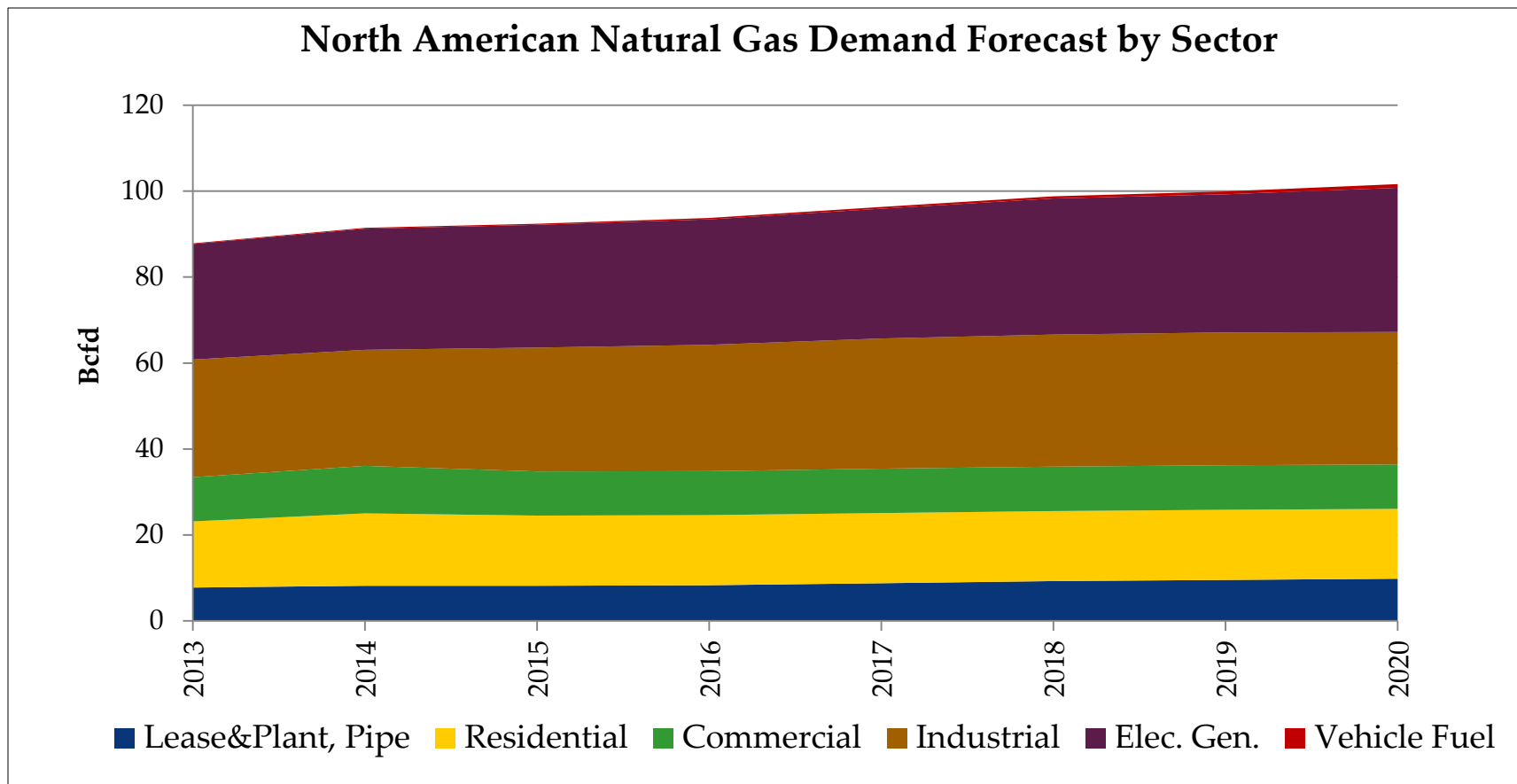
North American gas production growth is driven by shale gas. Ample resource + low costs to produce = increasing production



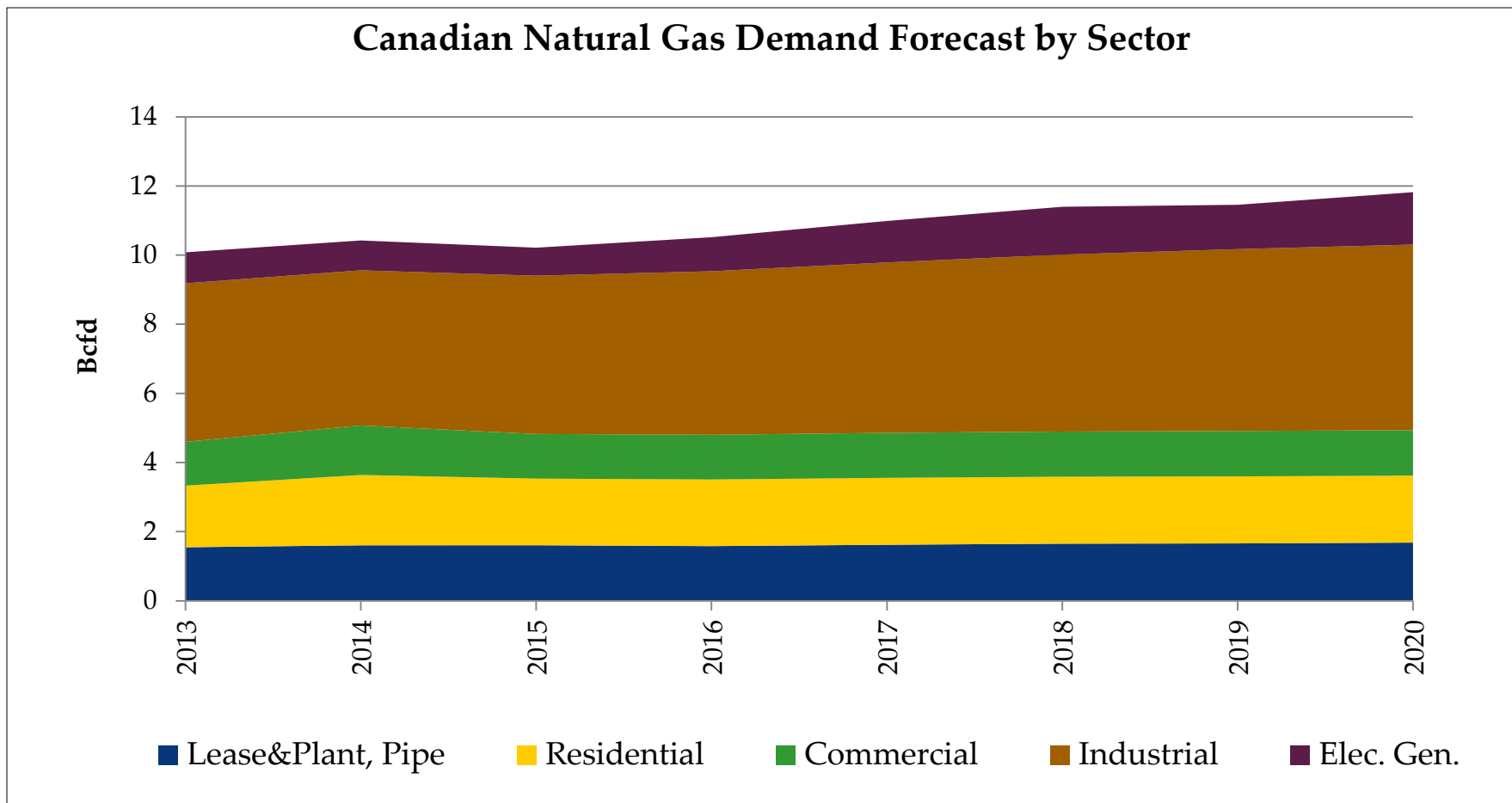
Canadian natural gas production will increase, with B.C. shale production outpacing non-shale declines in Alberta.



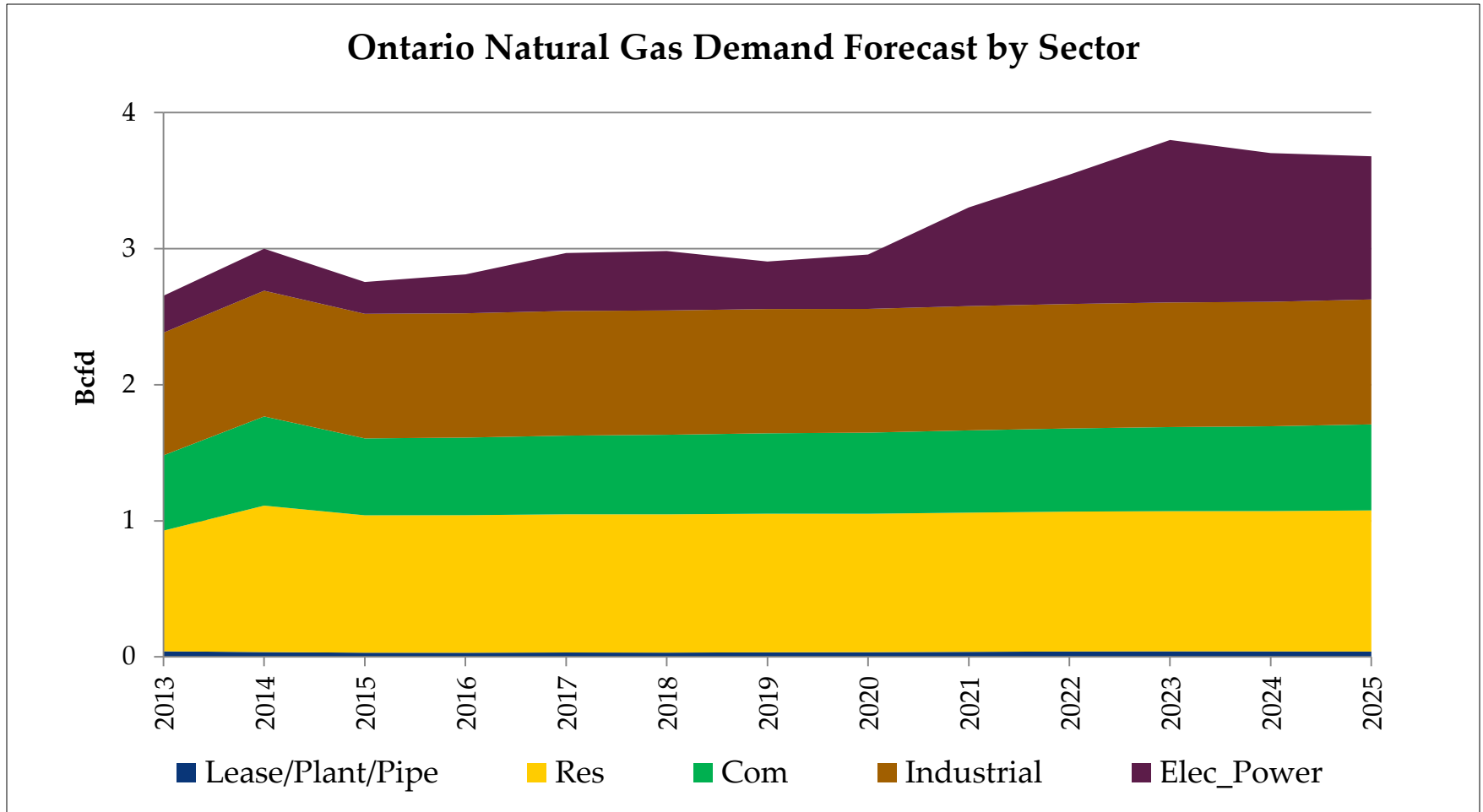
North American natural gas demand growth will be driven by the electric generation and industrial sectors.



Canadian natural gas demand growth will be driven primarily by the industrial sector (AB oilsands)

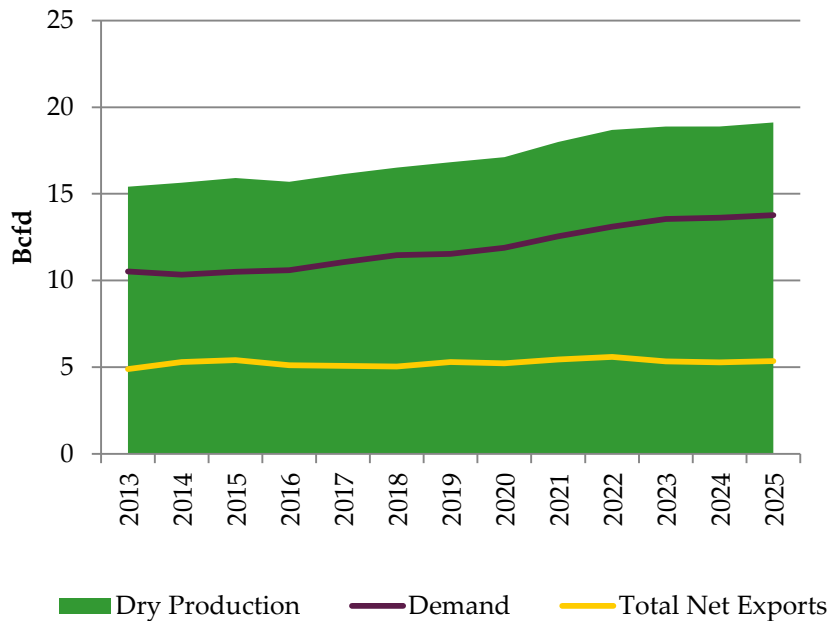


Ontario natural gas demand growth will be driven by increases in gas-fired electric generation.

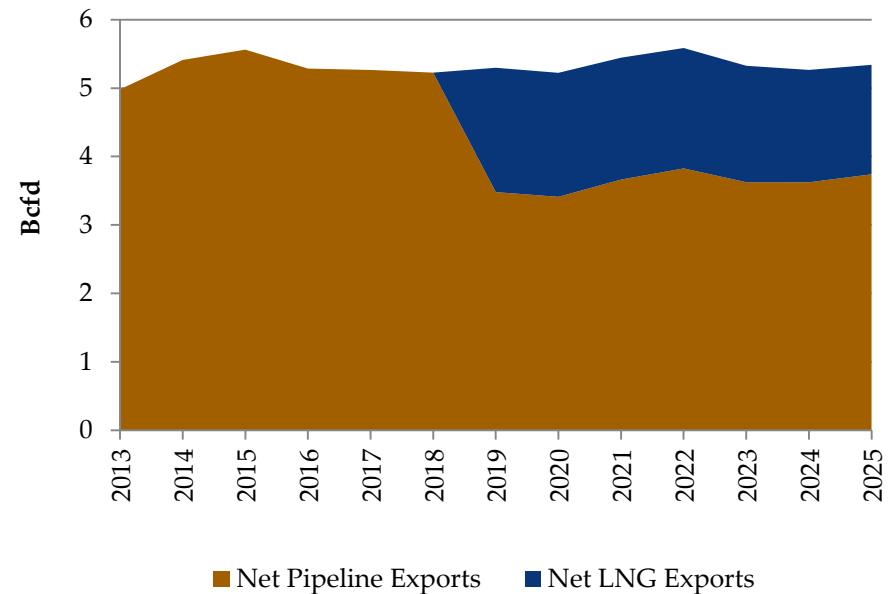


The forecast supply-demand balance for Canada reflects over 5 Bcfd of pipe or LNG exports, an average of about 30 percent of production for export – pipe and LNG export.

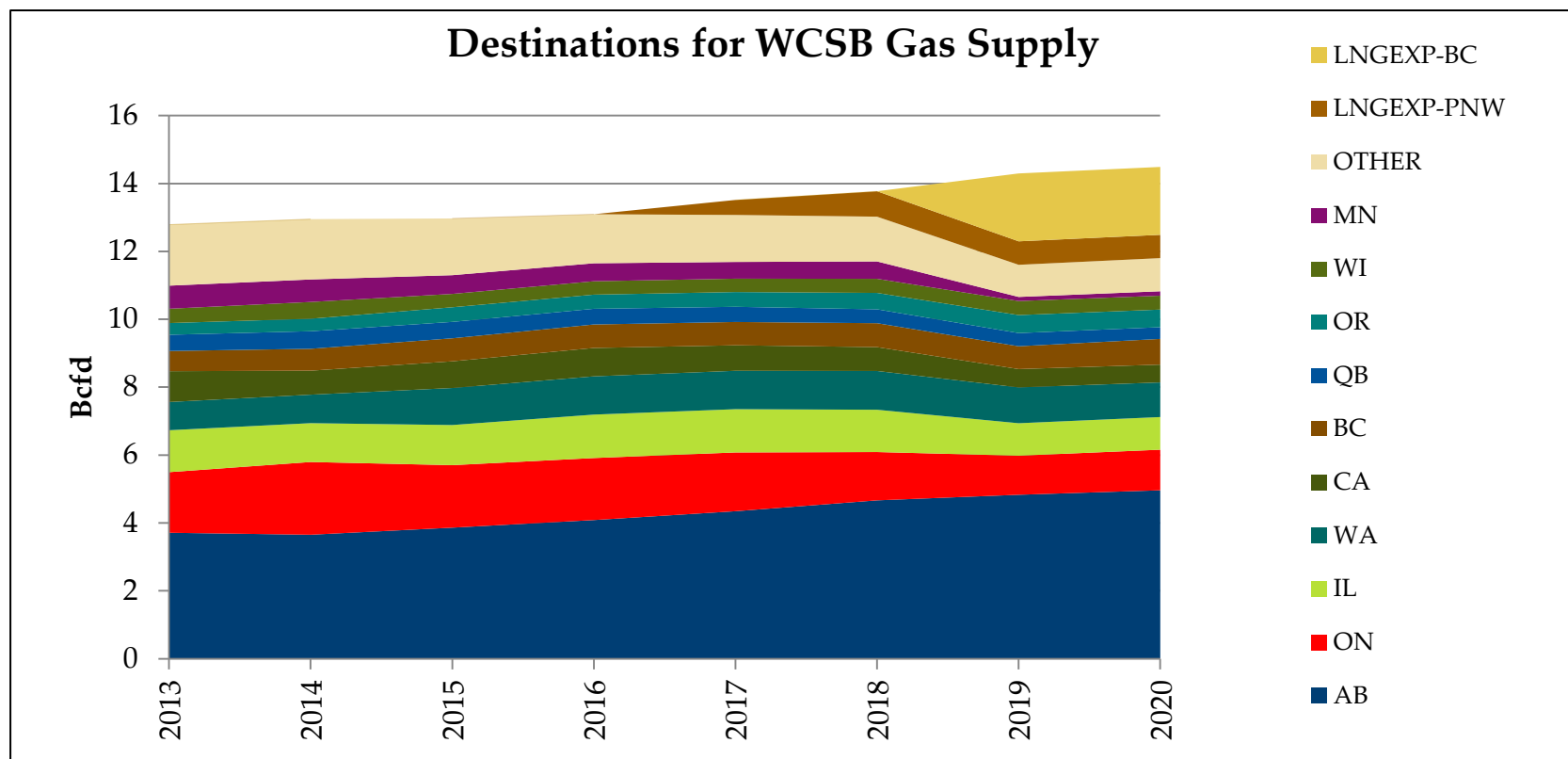
Canadian Supply-Demand Balance



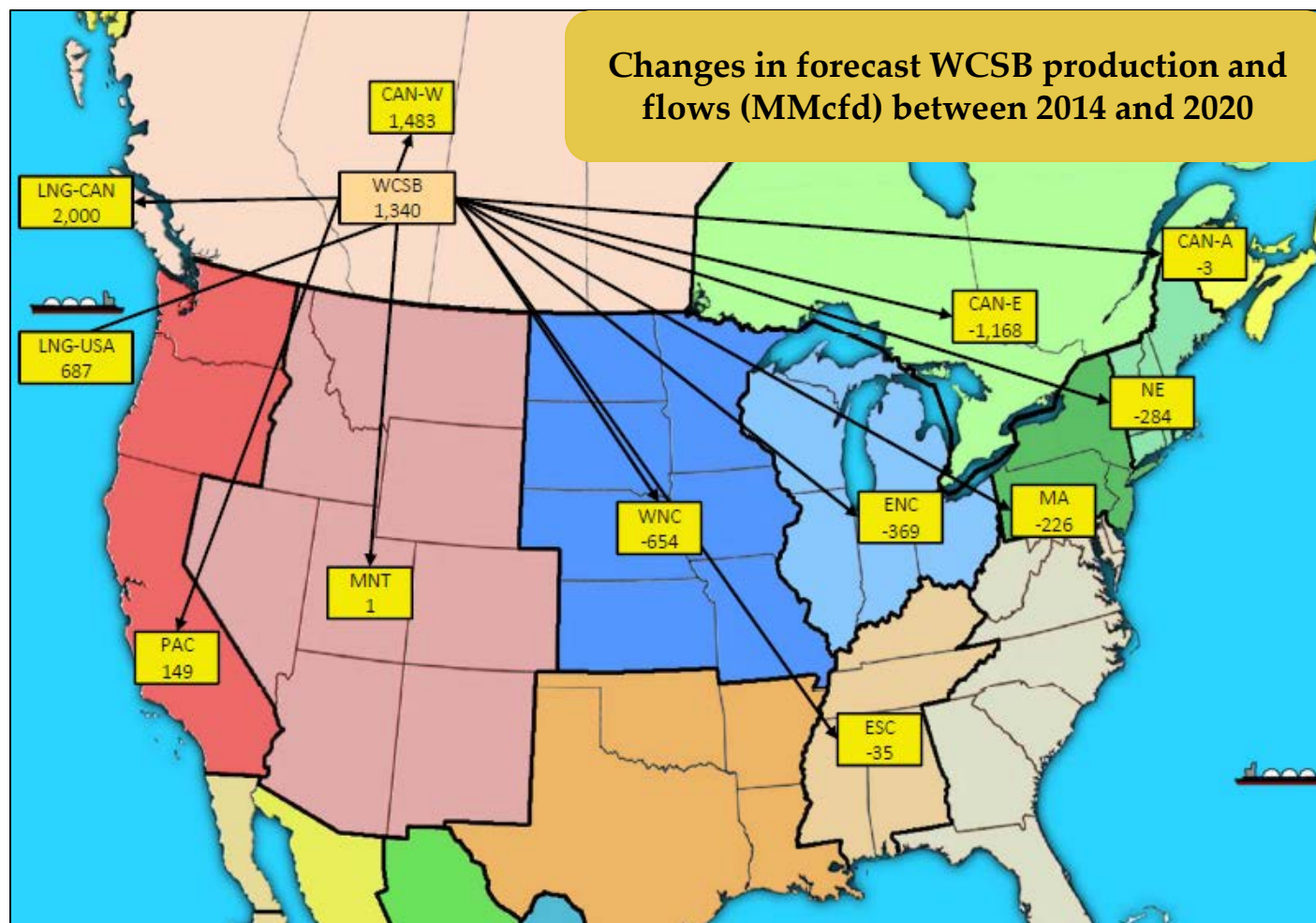
Net Canadian Pipe and LNG Export Forecast



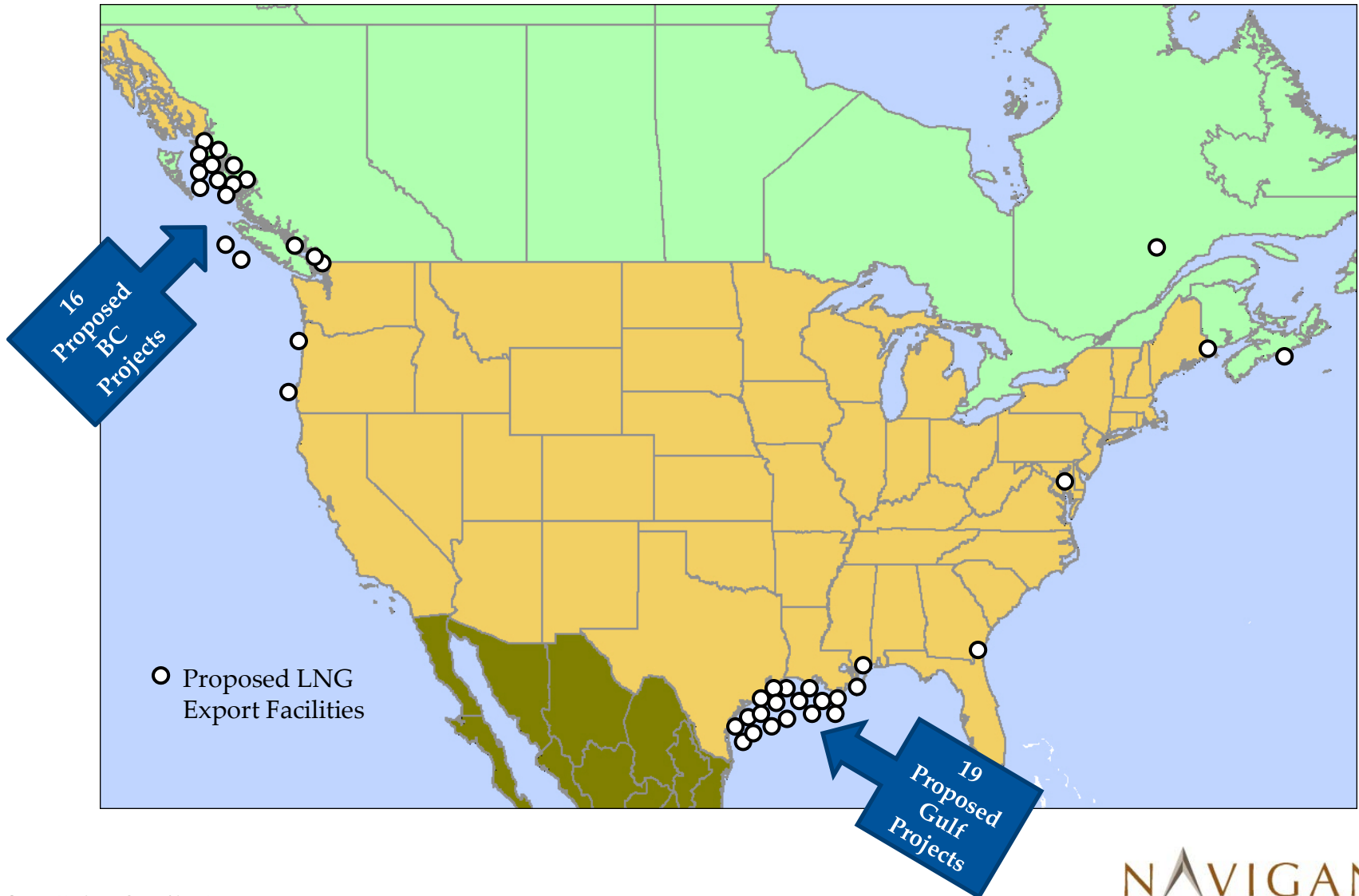
Navigant's outlook for WCSB supplies includes a decrease in shipments to meet Ontario demand, as well as new shipments to a new market in LNG exports from the west coast of North America.



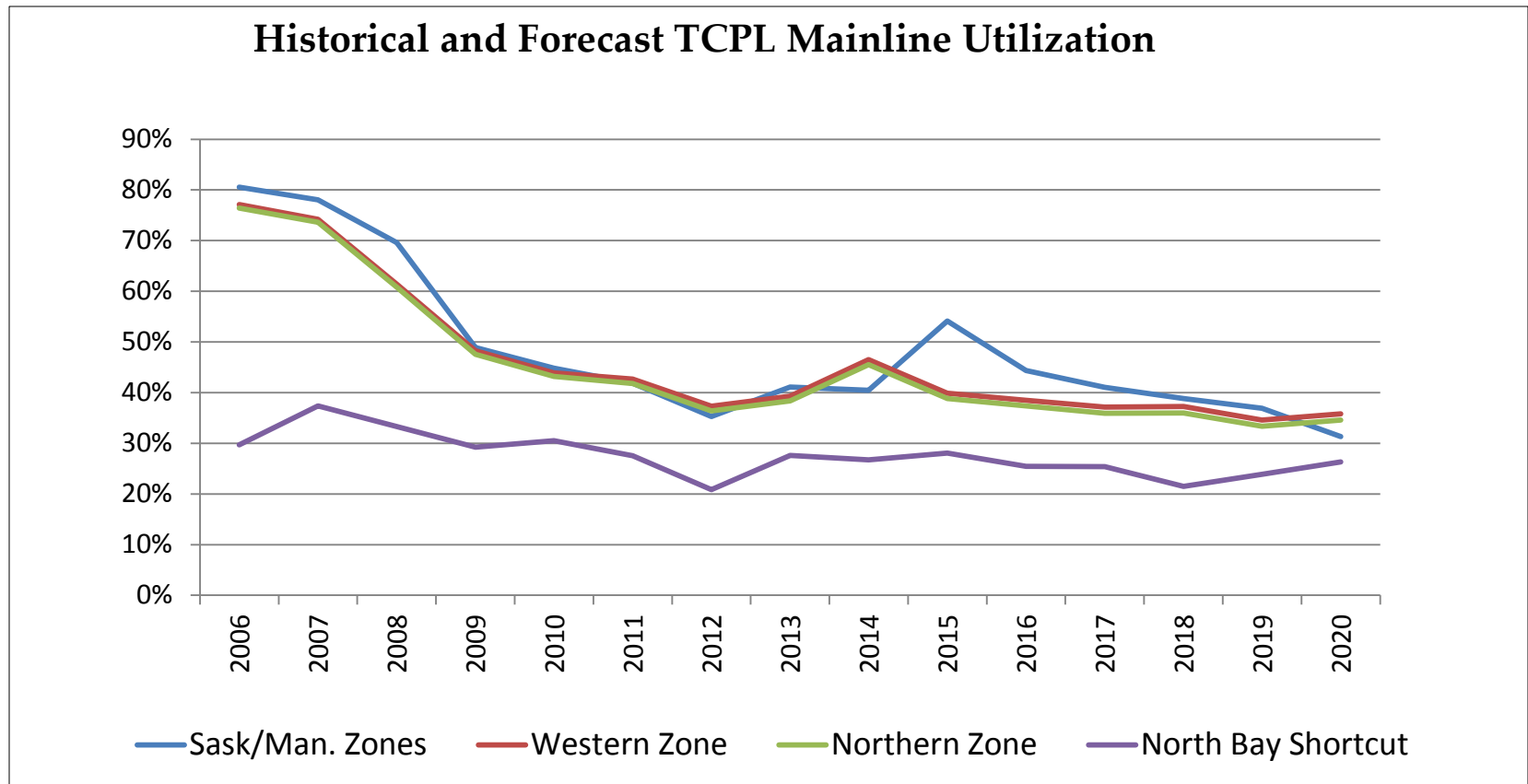
As expected increases in WCSB production occur, they will be increasingly meeting western Canadian demand increases, western U.S. demand, and potential LNG exports.



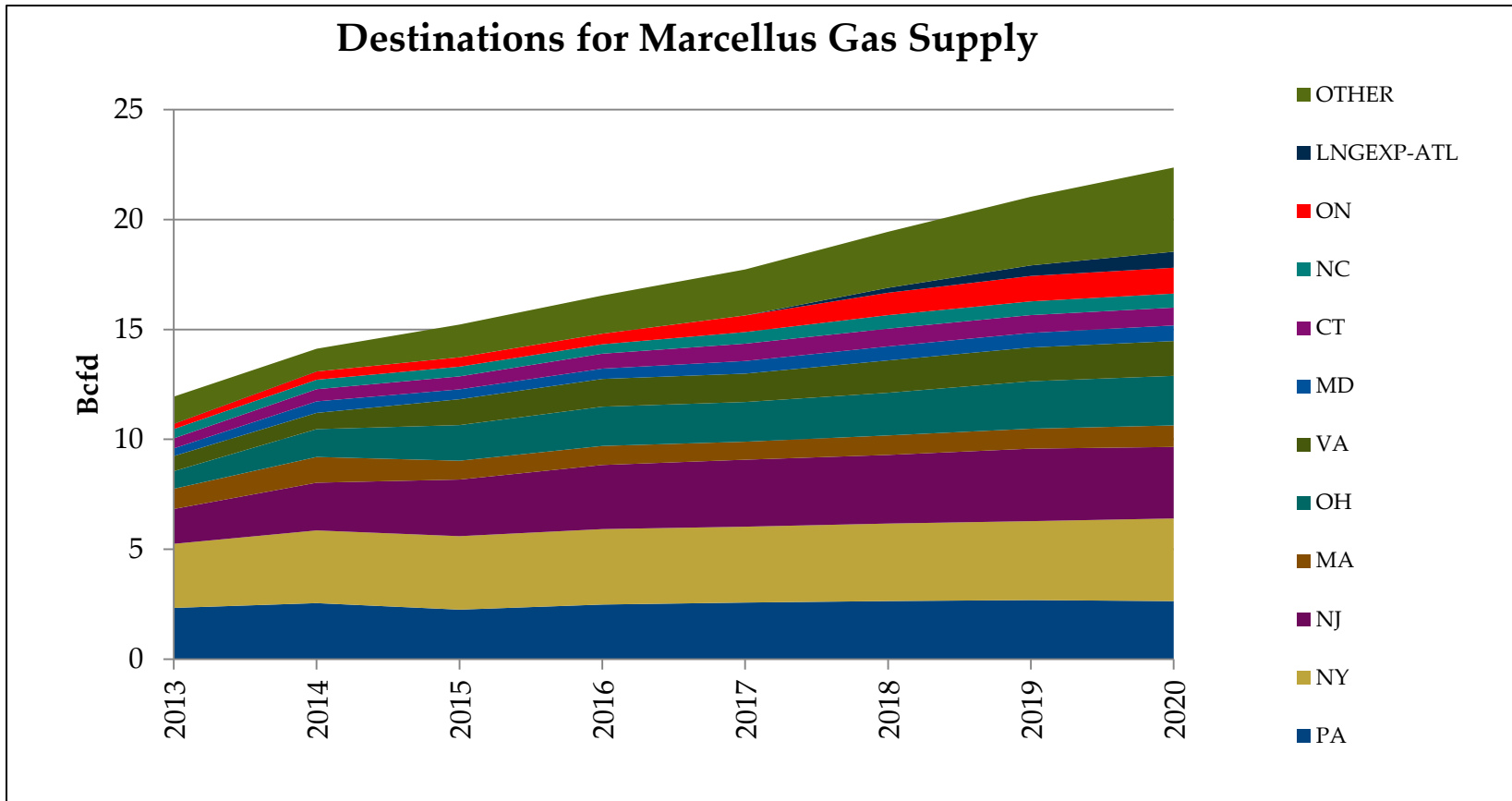
While there are many proposed LNG export projects, Navigant expects that a realistic build-out will be about 10 Bcfd from North America.



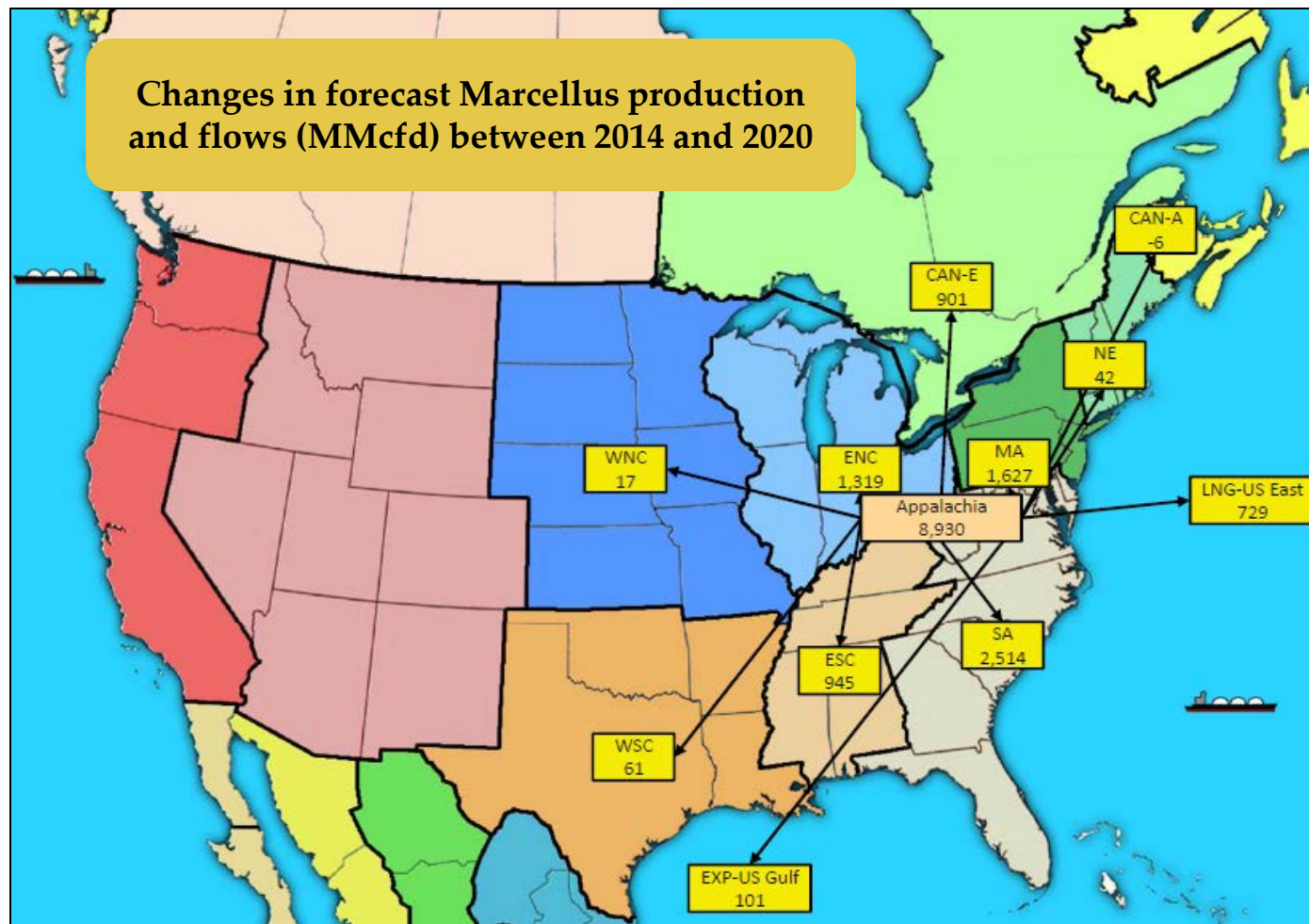
The decreased eastward deliveries from the WCSB are reflective of expected continued decreased flows on the TCPL Mainline – all zones



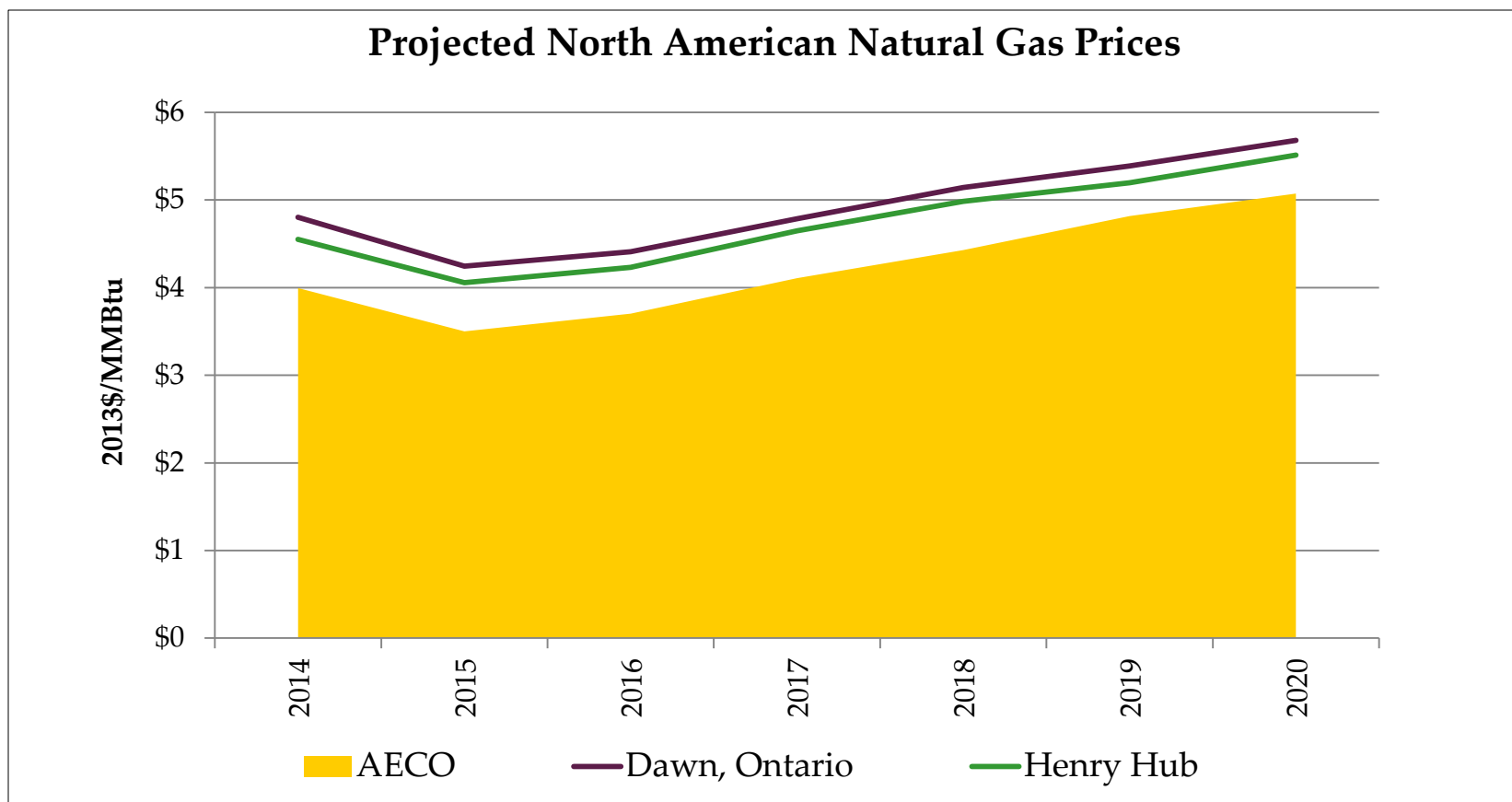
And the increasing importance of Marcellus production to the North American gas market...



Where Marcellus supplies are forecast to become an important part of supplies across eastern North America by 2020 (and westward thereafter).



North American gas prices are forecast to be reasonable and competitive over the forecast period



Canadian Regulatory - Infrastructure

- » **TCPL Mainline Rate Restructuring (RH-003-2011)** – while the key tenets of the TCPL ‘restructuring proposal’ were denied by the NEB, in the decision the NEB set tolls for firm service through 2017 at lower rates but allowed TCPL discretion for IT and short-term service. In Winter 2013-14, the result was some IT and short term rates were sold at high market prices by TCPL as demand increased.
- » **TCPL Mainline - Energy East Conversion** – a proposal by TCPL to convert mainline gas transport capacity to ‘oil’ transport service. As planned the \$11.3 Billion project (\$380 million in Ontario) would have a capacity of 1.1 million Barrels per day of oil transport capacity for delivery to refineries in Quebec and New Brunswick beginning in 2017. Given existing and forecast capacity on the ‘mainline’ and other market developments, it is Navigant’s view that the project will have minimal impact on Ontario. Additional modeling to be done, will attempt to confirm this for the OEB.
- » **TCPL Eastern Mainline Project** – TCPL in May 2014 filed a proposal to add up to 250 kms of new 36” pipeline and compression on the mainline as a result of the Energy East project from Markham, Ontario to South Dundas in Eastern Ontario. Project cost – C\$1.5 Billion and will have a capacity of 600 MMcfd.
- » **NEB Approved TCPL Tolls and Tariff Decision** (November 28/14) – as established in the Mainline Restructuring Decision, the NEB approved the settlement by Enbridge, Union and Gaz Metro and TCPL for tolls between 2015-2020.

Key CONTACTS



Gordon Pickering

Director

Folsom, CA

(916) 631-3249

gpickering@navigant.com

Jeff Van Horne

Managing Consultant

Folsom, CA

(916) 631-4002

jvanhorne@navigant.com

Todd Williams

Managing Director

Toronto, Canada

(647) 288-5204

twilliams@navigant.com