January 15, 2016

Ms. Kirsten Walli
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto, ON
M4P 1E4

Dear Ms. Walli:

Re: EB-2015-0237 – Union Gas Limited ("Union") – Presentations for 2015 Natural Gas Market Review

Enclosed please find two copies of presentations to be made by Union and by Union's consultant (ICF) related to the above noted proceeding.

If you have any questions, please contact me at 519-436-5473.

Yours truly,

[*Original Signed by*]

Karen Hockin
Manager, Regulatory Initiatives

Encl.

cc: Mark Kitchen, Union Gas
Crawford Smith, Torys

2015 Natural Gas Market Review

Ontario Infrastructure Development to 2020

Jim Redford,

Director, Business Development and Upstream Regulation

Ontario Market to 2020
Key Observations

- Appalachian production continues to outperform expectations providing Ontario the opportunity to access abundant and cost effective supply located nearby
  - New pipeline infrastructure proposed to move natural gas from Appalachia to Dawn (such as ETP Rover, NEXUS and expansion to Niagara/Chippawa)
  - Balance expected between Appalachian imports at Dawn and at Niagara/Chippawa by 2017
- Western Canadian supply expected to continue to decline into Ontario but remains available for supply diversity
- Ontario market adjusting to the changing North American supply dynamics:
  - LDC and TransCanada Settlement Agreement provides framework to ensure market has supply choice (such as Dawn, Niagara, Chippawa)
  - New infrastructure developed or in development within Ontario to meet growing demand for access to Appalachian and Dawn supply (2015-2017 Union Gas, Enbridge and TransCanada projects)
  - Gas supply portfolios repositioned to increase diversity and cost competitiveness
- Robust and reliable Dawn Parkway System provides a critical link between Ontario markets and natural gas supply sources

Natural Gas Market

Appalachian Natural Gas Production
Outperforming Expectations

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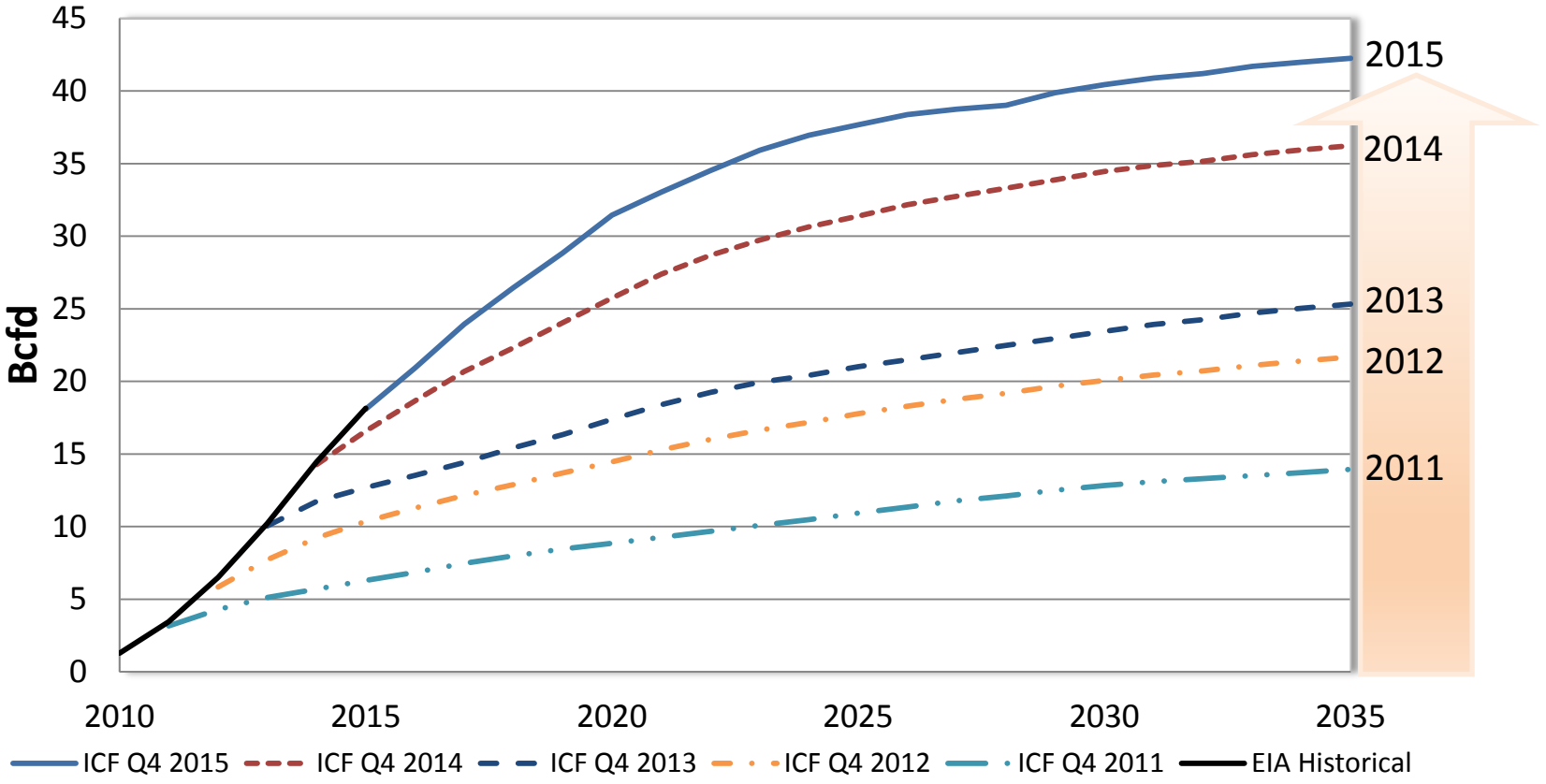
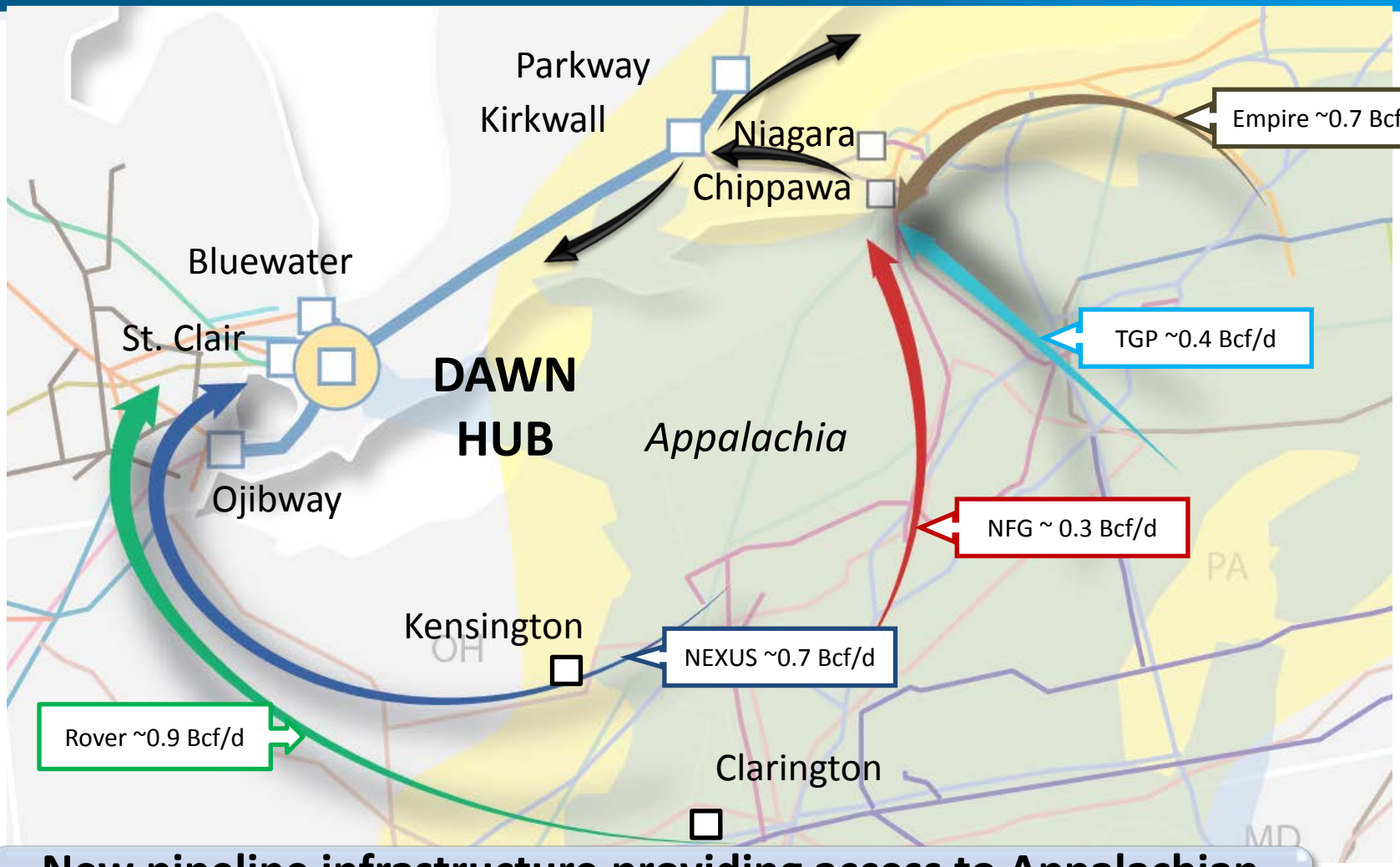
Marcellus and Utica Shale Gas Production



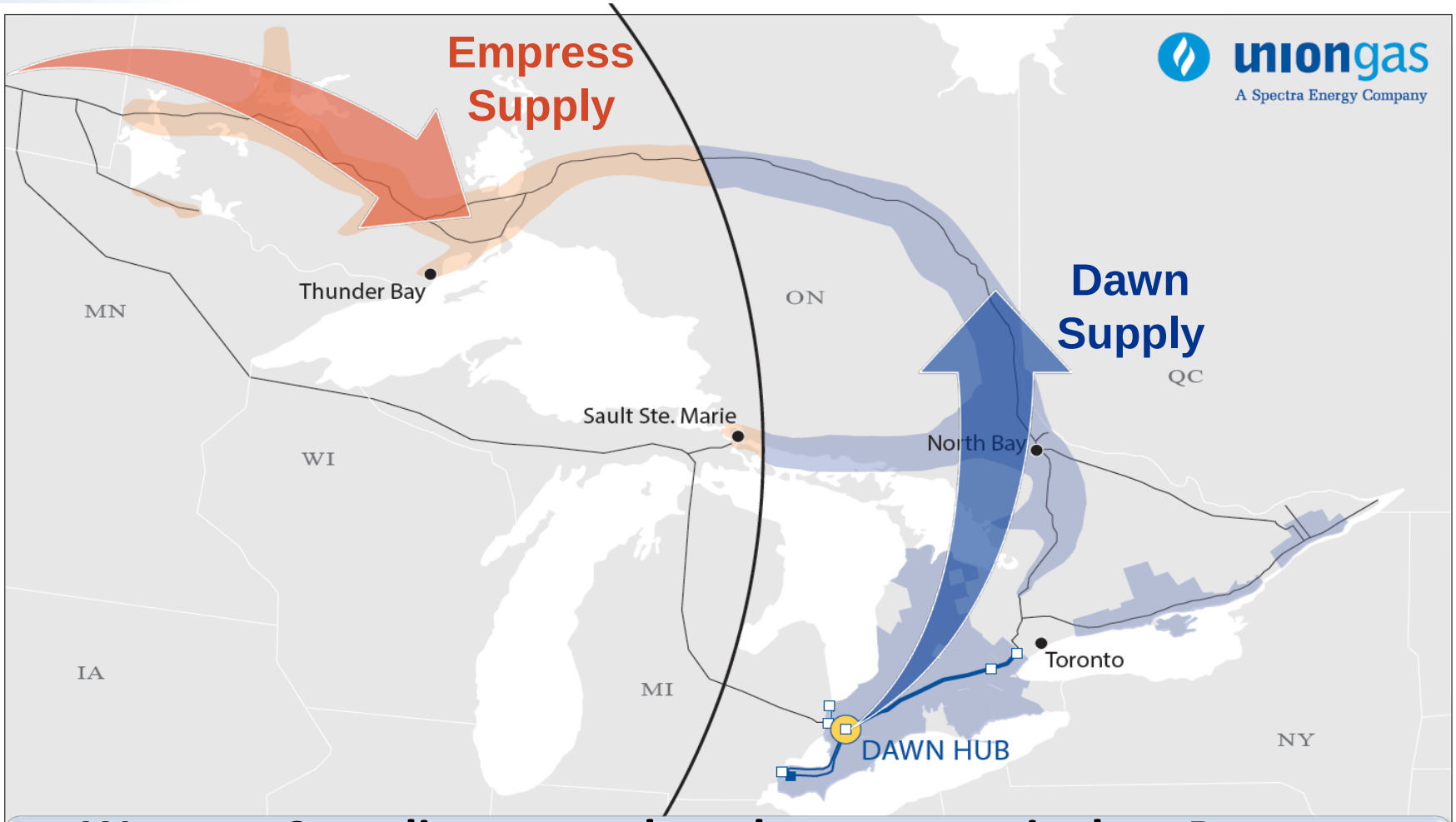
Appalachian production provides Ontario with an opportunity to diversify supply and lower natural gas costs

Ontario Natural Gas Supply
Appalachia to Ontario Infrastructure



New pipeline infrastructure providing access to Appalachian supply at Dawn and Niagara/Chippawa

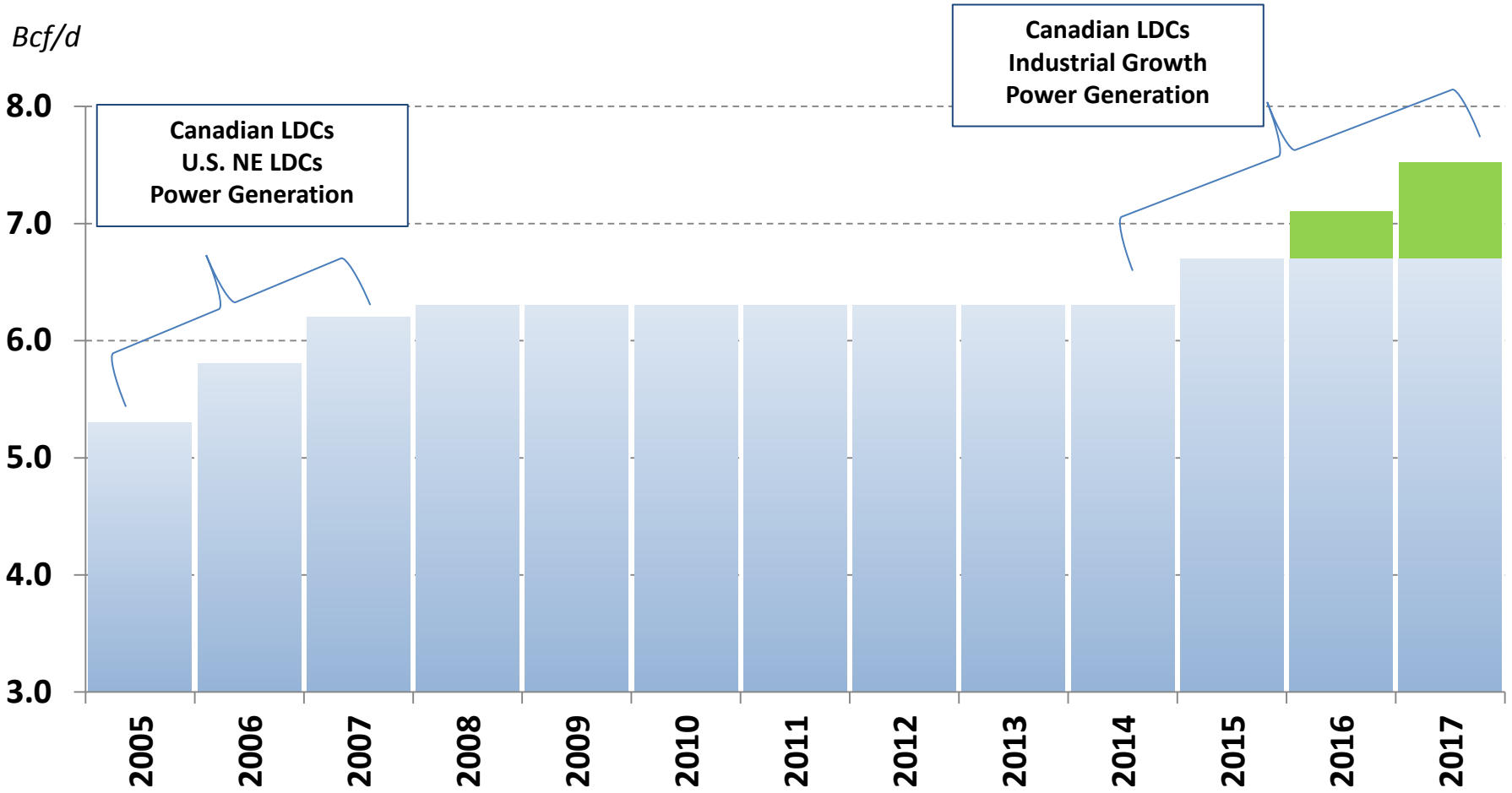
Ontario Natural Gas Supply
Western Canadian Supply Expectations



Western Canadian natural gas less economic than Dawn or Appalachian supply for most of the Ontario market

Infrastructure Expansion

Dawn to Parkway Expansion
Three Year Expansion Program



Union Gas investing approximately $1.5 billion in infrastructure expansion between 2015 and 2017 to grow take away capacity 1.3 Bcfd

Dawn to Parkway Expansion
Driven by LDC Commitments

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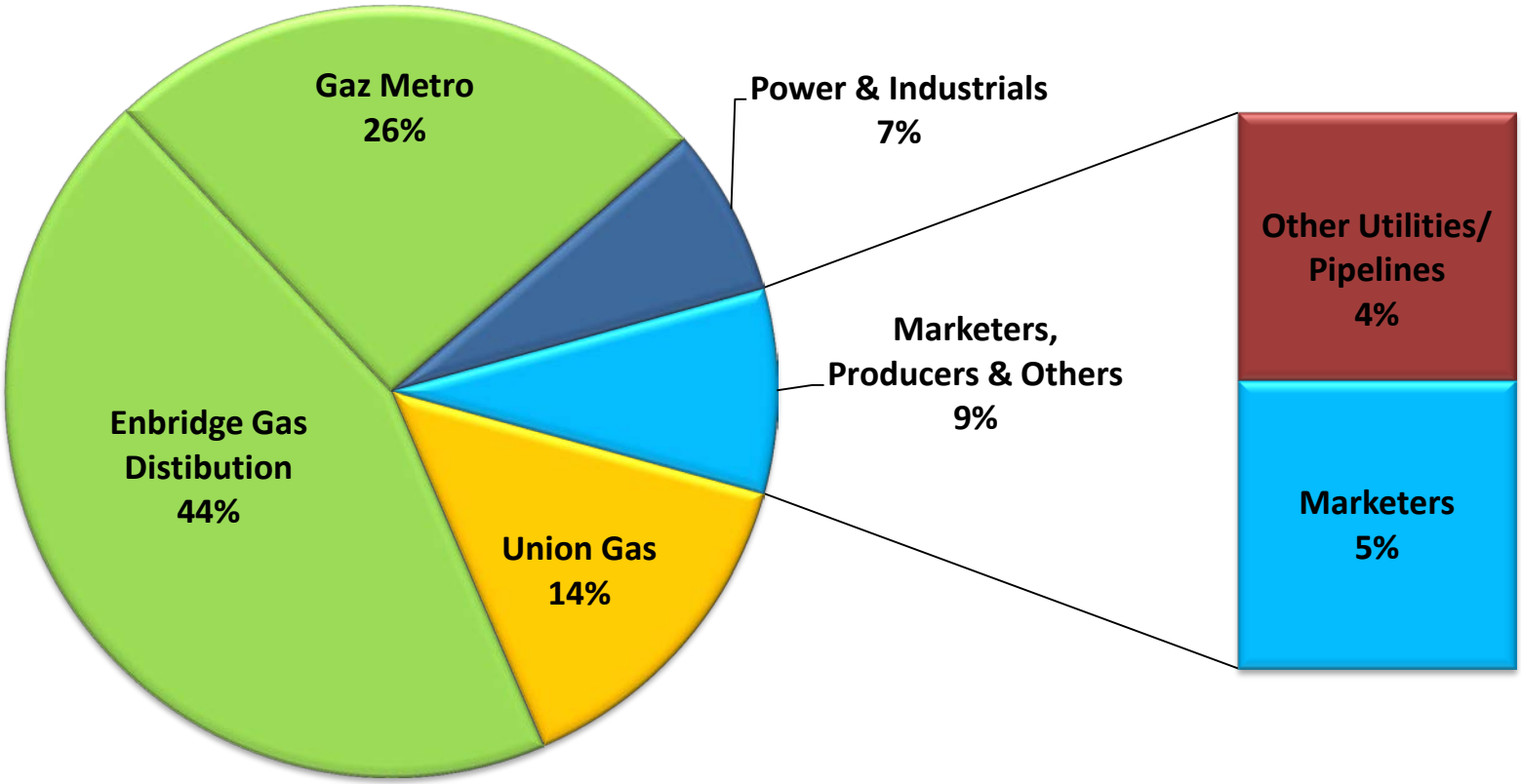
2015-2017 Expansion Capacity



~85% of incremental 2015-2017 Dawn Parkway System capacity contracted by Ontario/Québec LDCs with a 15 year term

Dawn to Parkway Expansion
Supply Closer to the Market

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- Eastern markets seeking access to Dawn and other eastern receipt points, such as Niagara and Chippawa
  - Continued conversion from long haul (WCSB, Gulf Coast) to short haul transportation (Dawn, Appalachia, Niagara/Chippawa)
  - New Ontario power generation
  - Enbridge and Gaz Métro in-franchise growth
  - Union's Direct Purchase customers seeking access to Dawn
  - Enbridge and Gaz Métro Direct Purchase customers choosing to access supply at Dawn
  - Union's customers seeking to eliminate Parkway Delivery Obligation
- U.S. Northeast shippers termed up capacity on TransCanada to 2022
- Change in Union's reference price to Dawn for the market primarily served from or through Dawn

Dawn to Parkway Expansion
Future Opportunities (2018 to 2020)

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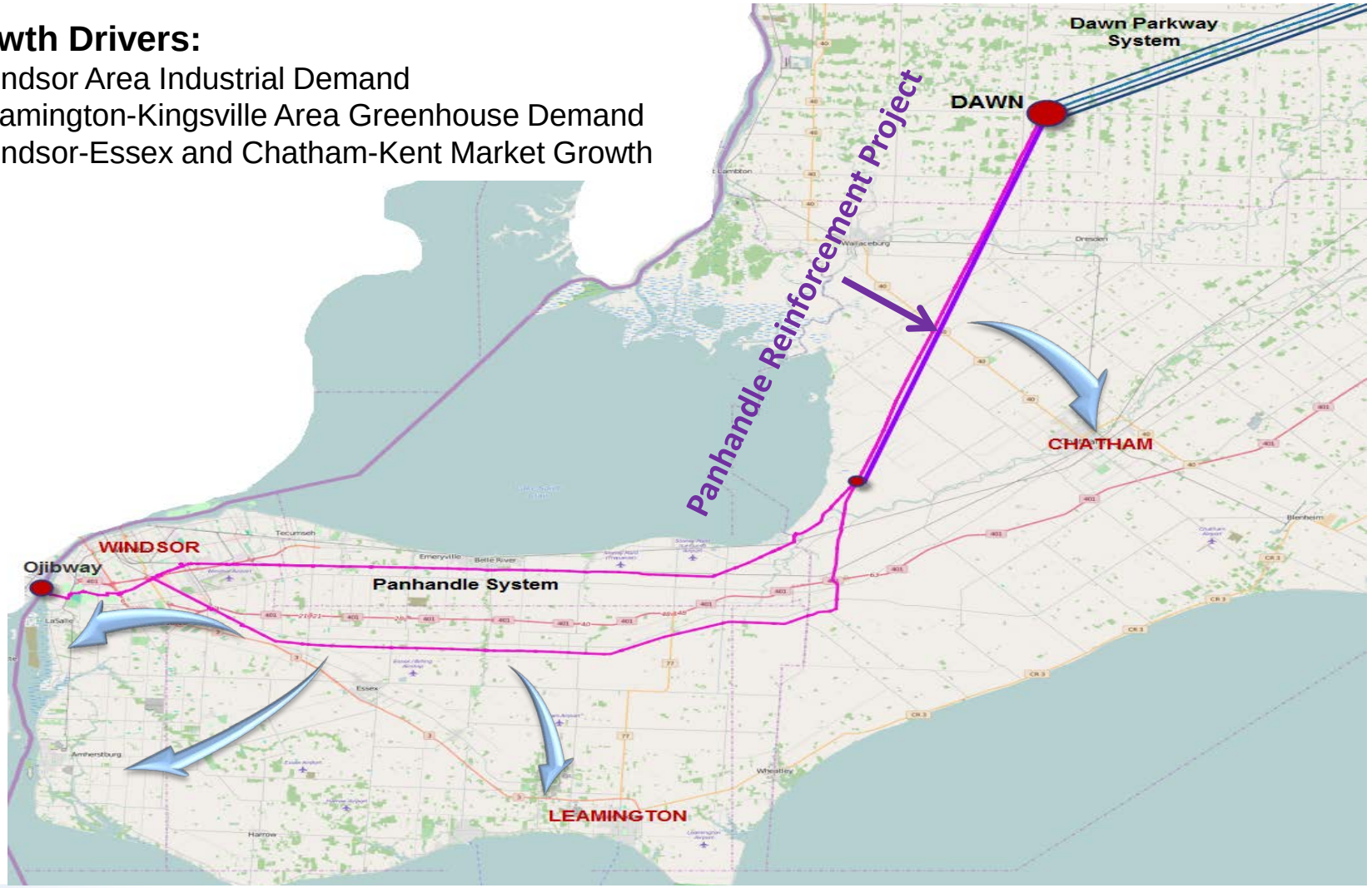
- Potential demand for Dawn Parkway System transportation:
  - Additional long haul to short haul conversion
  - Industrial growth
  - LNG/CNG development
  - U.S. Northeast growth
  - Market growth including connecting new communities and Maritimes LDCs/industry
- Union conducting open season for Dawn Parkway System transportation capacity
  - Up to 350 TJ/d of contracted capacity in 2018
  - Up to 600 TJ/d of contracted capacity in 2019
  - Coordinated with TransCanada 2018 New Capacity Open Season
  - Closes January 22, 2016

In-franchise Reinforcement Projects
Panhandle System Market Growth

Growth Drivers:

- Windsor Area Industrial Demand
- Leamington-Kingsville Area Greenhouse Demand
- Windsor-Essex and Chatham-Kent Market Growth



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Dawn Parkway System Reliability

Dawn Parkway System
Supply Reliability for Ontario Consumers

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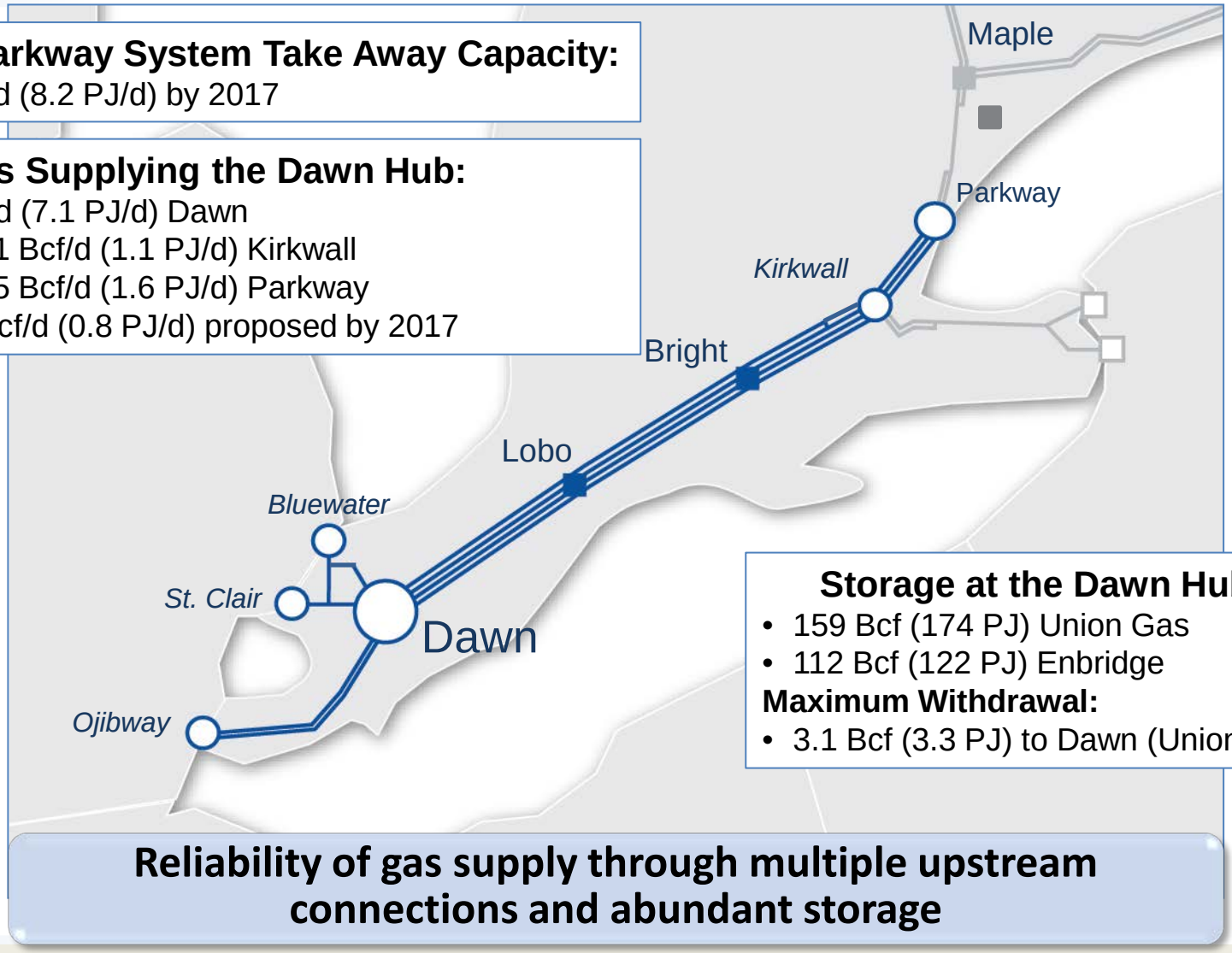
Dawn Parkway System Take Away Capacity:
- 7.5 Bcf/d (8.2 PJ/d) by 2017

Pipelines Supplying the Dawn Hub:
- 6.5 Bcf/d (7.1 PJ/d) Dawn
- up to 1.1 Bcf/d (1.1 PJ/d) Kirkwall
- up to 1.5 Bcf/d (1.6 PJ/d) Parkway
- +~0.7 Bcf/d (0.8 PJ/d) proposed by 2017



Storage at the Dawn Hub:
- 159 Bcf (174 PJ) Union Gas
- 112 Bcf (122 PJ) Enbridge

Maximum Withdrawal:
- 3.1 Bcf (3.3 PJ) to Dawn (Union Gas)

Reliability of gas supply through multiple upstream connections and abundant storage

Dawn Parkway System
Reliability through System Design

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- 225 km of interconnected pipelines from Dawn to Parkway
  - 200 km in Class 1 locations (rural / farmland)
  - >90% four pipelines; <10% three pipelines
  - In-line inspection capability on 100%
  - Spaced to minimize risk of interaction between pipelines in event of rupture
  - Crossovers at valve nests located every 15 to 20 km connect the parallel pipelines allowing short sections of one pipe to be isolated, minimizing outage impacts
  - All mainline valves can be operated remotely to quickly isolate and flow around a problem
- 4 mainline compressor stations (>700,000 horsepower by 2017)
  - Loss of Critical Unit protection for all compressor sites
  - Critical spare parts available, such as RB-211 and Avon engines

Reliability through robust Dawn Parkway System design

Dawn Parkway System
Reliability through Operations Management

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- Inspections, patrols and surveys to detect third party activity
- Regular surveys (leaks, class location, easement encroachment, depth of cover)
- Annual communication with Landowners and Stakeholders
- Public education to prevent damage and provide early warning of issues
- Continuous remote monitoring through the Supervisory Control and Data Acquisition (SCADA) system
- Comprehensive Operations Management System and risk management processes ensure safe and compliant operations
- Robust Emergency Response and Security Management Programs
- Corrosion protection monitoring
- Comprehensive Geographic Information System (GIS) and other asset records and data management systems
- Mature Integrity Management Program ensures pipelines risks are identified and mitigated
- Active participants in local emergency response and utility coordinating groups
- Established Emergency Planning Zones
- Immediate 24/7 response in the event of any emergency
- Competent, well-trained work force
- Work with Enbridge and TransCanada to optimize operations to ensure integrity and reliability of respective systems

Reliability through comprehensive Operations Management Systems

Ontario Market to 2020
Key Observations

- Appalachian production continues to outperform expectations providing Ontario the opportunity to access abundant and cost effective supply located nearby
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Appendix:
Energy East Settlement Agreement

Energy East Settlement
Benefits for Ontario Natural Gas Consumers

- Stakeholders throughout Ontario heard the concerns of Ontarians through the OEB process and Ontarians were concerned about natural gas supply and price impacts associated with the Energy East Project
- TransCanada and the Eastern LDCs:
  - Reached an agreement that addresses capacity, cost and concerns associated with Energy East Project and the Eastern Mainline Project
- Eastern LDCs have agreed to not oppose or seek to delay the Energy East Project
- Positive and efficient outcome that allows TransCanada and the LDCs to focus on other issues

Energy East Settlement Agreement provides protection and certainty to consumers and shippers in Ontario

Energy East Settlement
Capacity that Meets Ontario's Needs

OEB Report: Ontario needs to be assured that the pipeline capacity and the supply of natural gas in eastern Ontario will meet Ontario's medium and long term needs

Energy East Settlement:

- ✓ Includes uncontracted additional capacity of 50 TJ/d (enough to heat approximately 150,000 homes on a cold winter day
- ✓ Includes capacity procured by Ontario LDCs on behalf of direct purchase customers, including industrials
  - ~ 25 TJ/d of industrial purchase load in EDA not contracted for FT transportation capacity
- ✓ Includes results of requested open seasons (2017 open season) for a total of 2,714 TJ/d in the "Affected Area"
- ✓ Mainline Settlement Agreement (RH-001-2014) provides the framework for future expansion to meet Ontario demand

Energy East Settlement Agreement facilitates pipeline capacity that meets Ontario's firm transportation needs

Energy East Settlement
Costs that Meets Ontario's Needs

OEB Report: Ontario needs to be assured that natural gas consumers will not subsidize the costs of Energy East

Energy East Settlement:

- ✓ One-time calculation providing $100 Million EOT revenue requirement NPV benefit to 2050 ($400 million benefit to 2030)
- ✓ NPV benefit not impacted by project delay
- ✓ Reduction in 2018-2030 Revenue Requirement of 5% on average
- ✓ Eastern Mainline Project rate base capped at $2.1 Billion
- ✓ Over entire depreciable life of the EOT, costs to Ontario are lower
- ✓ TransCanada's 2016 and 2017 new capacity open season shippers do not bear development cost risk of Eastern Mainline Project
- ✓ Eastern LDCs have termination right if EOT asset transfer not completed by December 31, 2020

Energy East Settlement Agreement facilitates a cost framework that mitigates impacts to Ontario customers

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2015 Ontario Natural Gas Market Review: Assessing Ontario Natural Gas Market Requirements

Prepared for:
Union Gas Limited
January 15, 2016

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Introduction

- The purpose of this presentation is to update ICF's assessment of the Ontario natural gas market completed for last year's OEB Natural Gas Market Review.
- Over the past year, there have been significant changes in the North American gas market that have had a material impact on ICF's projections.
  - Throughout this presentation, ICF highlights the differences between this year's market projection (based on ICF's November 2015 Base Case) and last year's market projection (based on ICF's November 2014 Base Case)
- Unless otherwise noted, all prices in this presentation are in U.S. dollars.

Major Changes to the ICF Forecast Since 2014

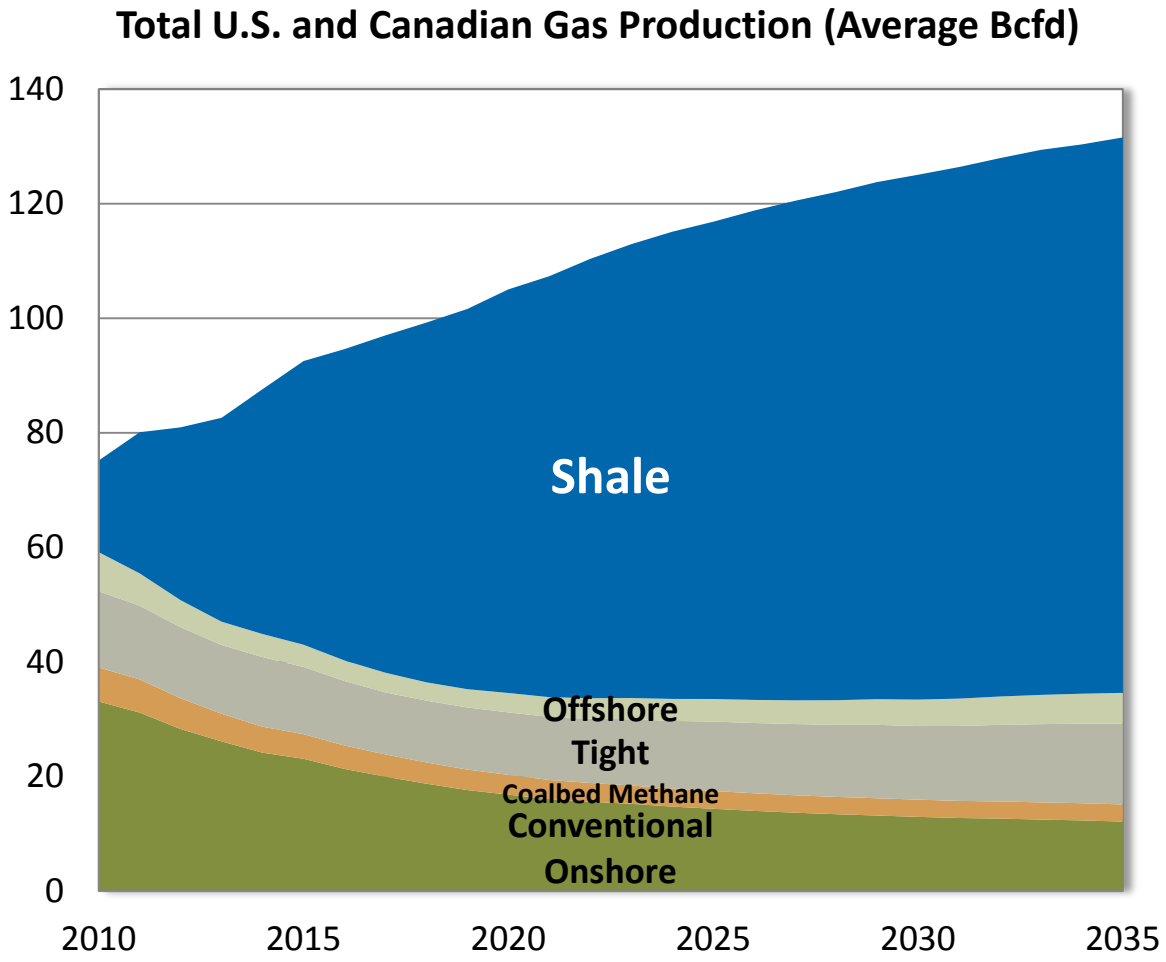
1. Higher shale gas production from Appalachia and the WCSB
   - ICF's projection for Appalachian shale gas production (including Marcellus and Utica) is now projected to reach nearly 43 Bcfd by 2035, an increase of over 6 Bcfd versus the 2014 projection.
   - Canadian gas production grows to 22 Bcfd by 2035 in the current projection (versus 19 Bcfd in last year's projection), with Western Canada shale plays increasing to 18 Bcfd (versus 14 Bcfd last year).
2. Lower natural gas price outlook to 2025
   - Henry Hub prices now are forecast to average under $4/MMBtu (2014$), versus $5/MMBtu last year.
   - Dawn prices now are forecast to average about $4/MMBtu (2014$), versus over $5/MMBtu last year.
3. Modest increase in North American demand
   - The lower projected gas prices result in an increase in total U.S. and Canadian gas consumption, 114 Bcfd by 2035 in the current forecast, versus 110 Bcfd in the 2014 projection.
   - Total Ontario gas consumption remains about the same.
4. Lower oil price outlook: Crude oil prices are now projected to stabilize at $75/bbl by 2025, versus over $100/bbl by 2017 in the 2014 projection.
5. Announced Ontario infrastructure expansions are progressing
   - Union Gas, TransCanada, and Enbridge 2015-17 projects are constructed, approved/under construction, or seeing approval.
6. The Energy East Settlement Agreement better defines future Ontario capacity and costs for TransCanada's system.

Key Observations on Ontario 2020 Natural Gas Markets

1. Rapid growth in shale gas production will continue to drive change in Ontario gas markets.
   - Natural gas infrastructure expansions provide additional supply choice for the Ontario market.
   - Dawn prices will average about $4/Mmbtu (2014$) as new supply from Appalachia becomes available.
   - The low gas cost environment is positive for Ontario gas and electricity consumers, and the overall economy.
2. ICF projects the Appalachian Basin to be the lowest cost major source of delivered natural gas supply for Ontario.
   - Natural gas production in the Marcellus and Utica plays in the Appalachian Basin is expected to account for more than 60% of incremental North America gas production through 2035.
3. Additional infrastructure through Michigan and New York to Ontario, and within Ontario, will be needed to ensure that Ontario has reliable, economic access to the growth in Appalachian Basin gas.
   - Ontario has already taken significant steps to expand infrastructure to provide greater access to Dawn and Appalachian supplies.
   - Without new infrastructure, Ontario will have to rely on supplies from Western Canada, which have a higher delivered cost. Ontario will also be exposed to more seasonal price volatility.
4. Western Canadian natural gas supply delivered to Ontario will continue to decline through 2020. Western Canadian supplies will continue to be available to contribute to supply diversity within Ontario.
5. Ontario and the U.S. Northeast markets will continue to be linked.
   - Appalachian Basin production will rely on Michigan and Ontario storage to serve seasonal markets.
   - Growth in New York and New England peak winter demand is expected to be greater than pipeline capacity additions from the Appalachian Basin. As a result, flows from Ontario and Québec into the Northeastern U.S. on Iroquois, PNGTS and other pipes will remain a critical component of peak period supply in the U.S. Northeast.

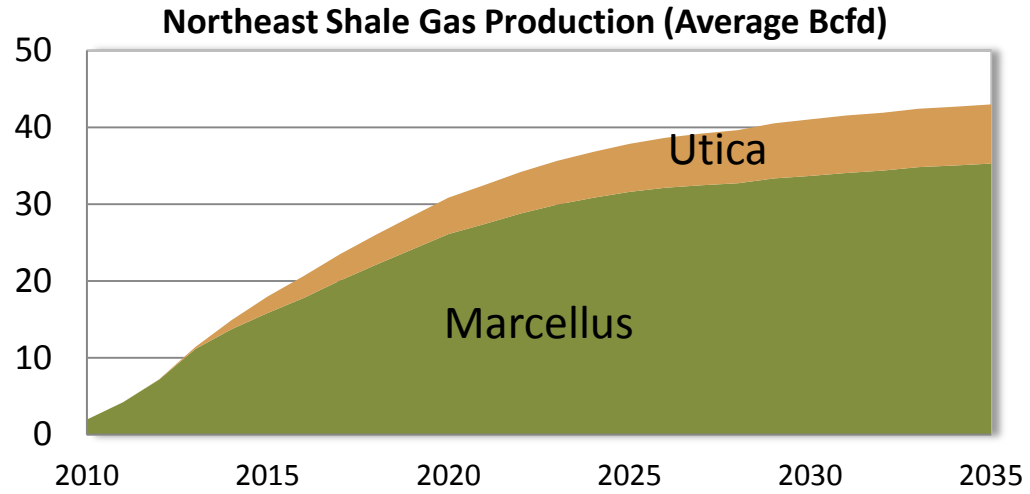
Growth in Shale Gas Production will Continue to Drive Change in North American Gas Markets

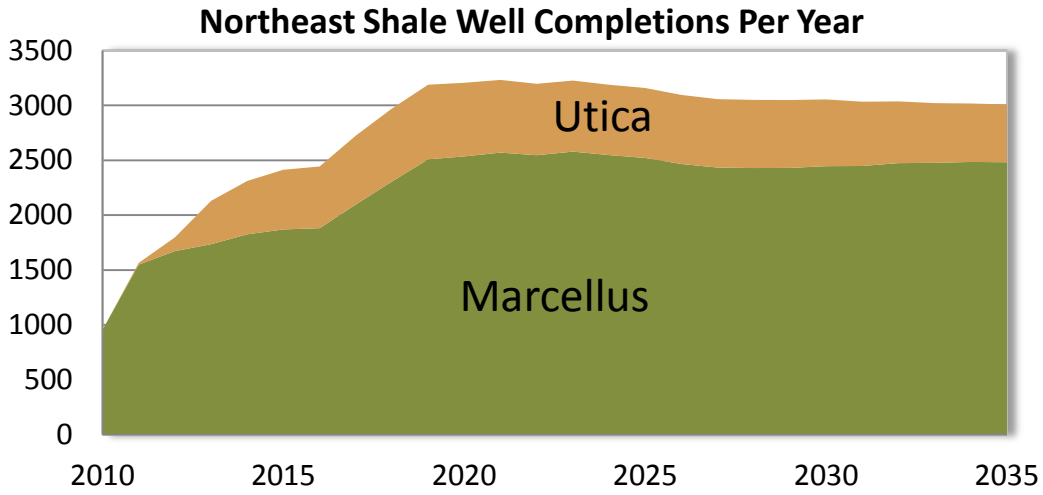
- Total gas production is projected to increase by nearly 2% per year.
- Shale production provides incremental supplies for market growth and replaces declining conventional production.
- By 2020, shale gas is expected to account for about two-thirds of all U.S. and Canada gas production.



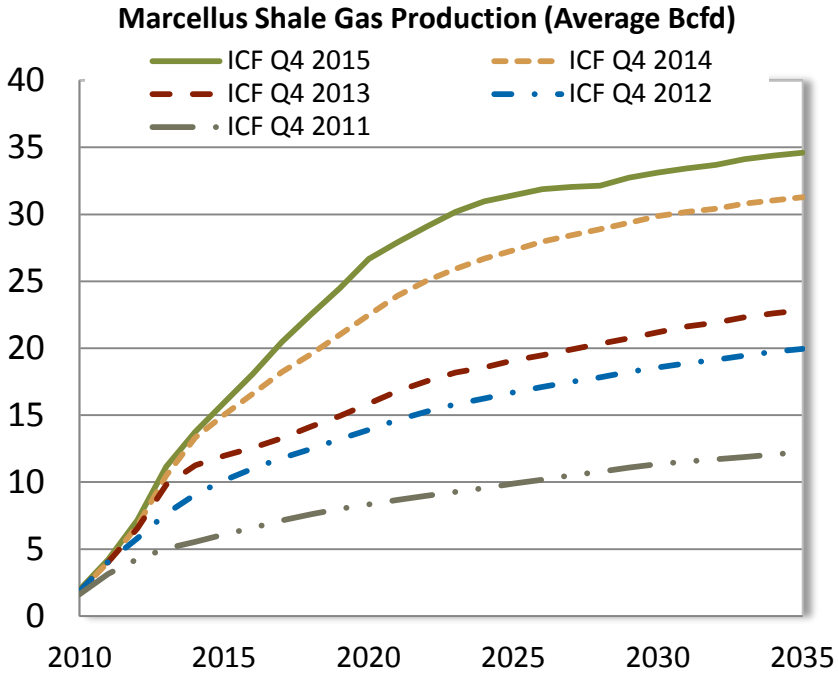
The Northeast Shale Plays Will Account for the Majority of Incremental Gas Supplies

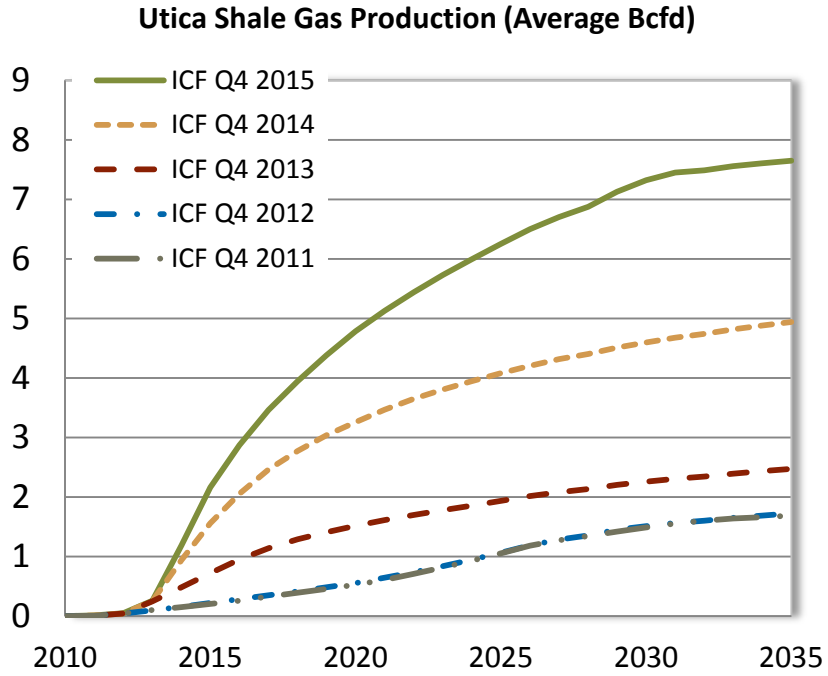
- Production has continued to increase despite a decline in drilling activity.
  - More wells are being drilled per active rig, and production per well has continued to increase.
  - Wells in the Utica Shale have had higher gas-to-oil production ratio than expected.
- Total Appalachian shale gas production projected to reach 20 Bcfd in 2016, 38 Bcfd by 2025, and 43 Bcfd by 2035.





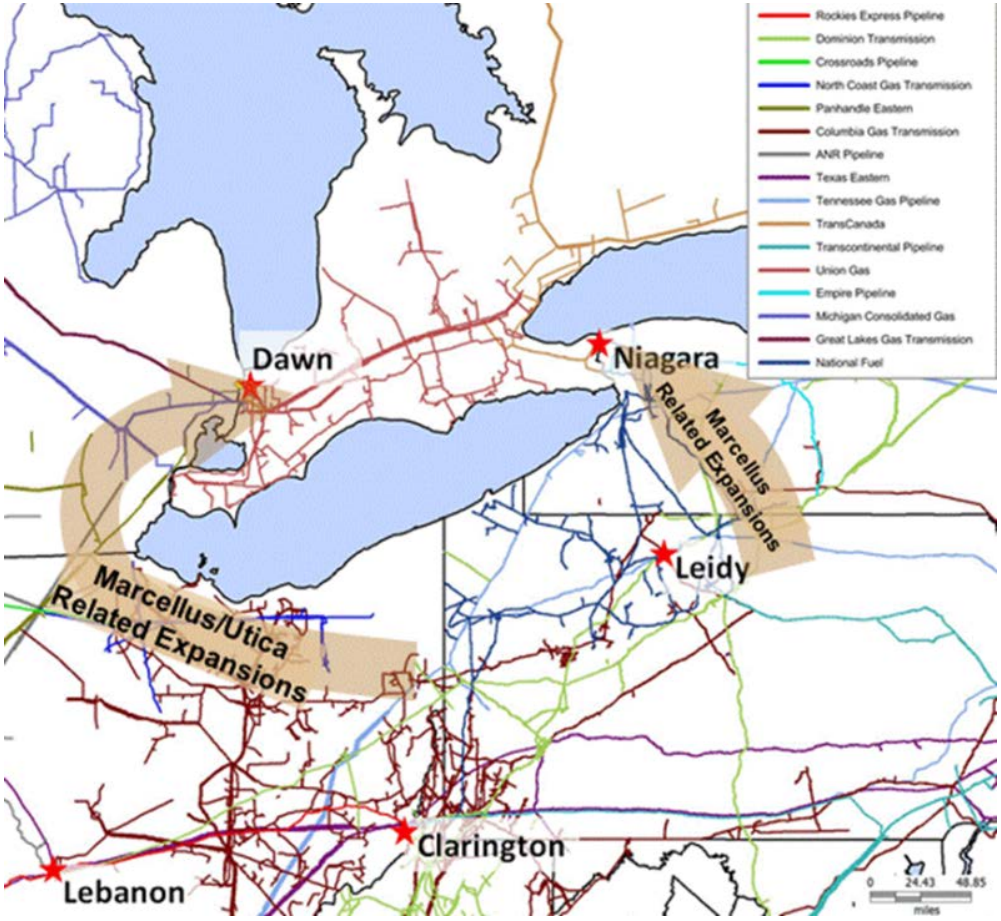
Natural Gas Production from Appalachia has Consistently Exceeded Analyst Projections





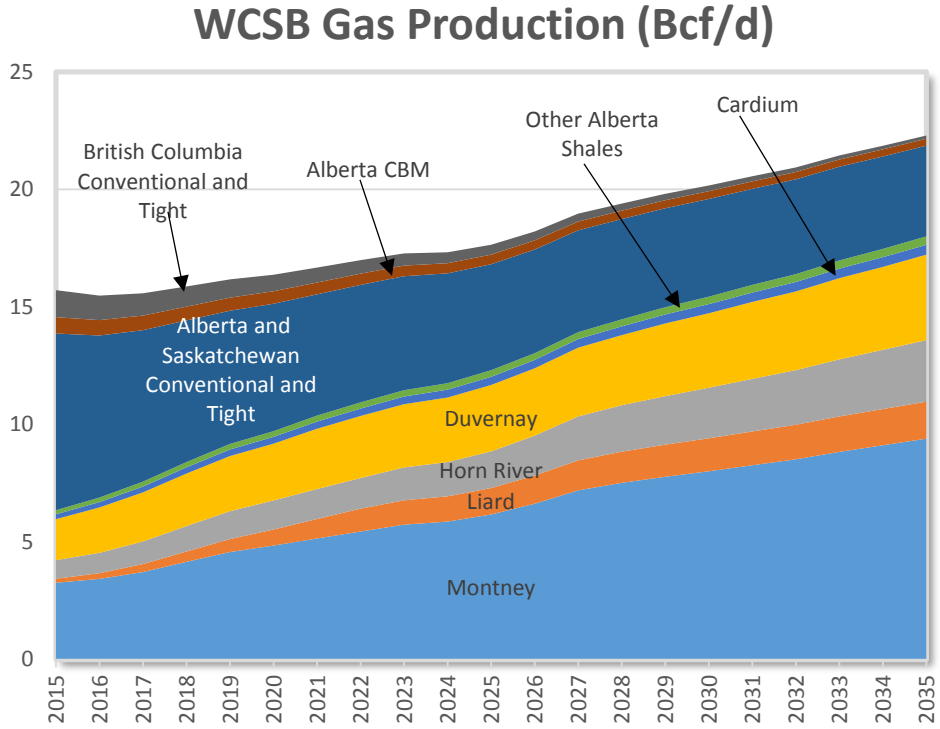
- Since 2011, ICF has increased its 2035 projection for Marcellus production by 180% and for Utica production by 350%.
- Growth in production expectations drives growth in infrastructure, including additional capacity from Appalachia to Ontario.

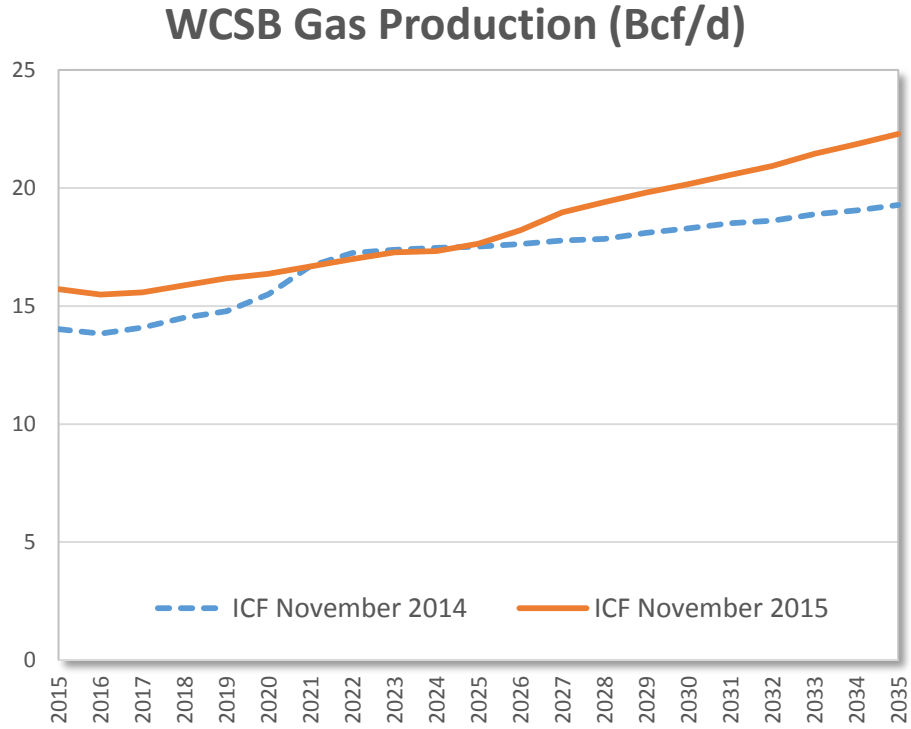
Appalachia Leads Supply Growth, and New Pipeline Capacity will be Needed to Get These Supplies to Market Areas



- By 2035, one-third of total U.S and Canada production is projected to come from the Appalachia shale.
- As Appalachian production continues to grow, more pipeline capacity will be needed to carry these supplies to market to ensure continued development of Utica and Marcellus resources.
  - New pipeline infrastructure to and within Ontario, such as the 2015-17 Union Gas, TransCanada, and Enbridge expansions.
  - Access to the low cost, reliable gas supplies from Appalachia will benefit Ontario consumers.
- More than 20 pipeline projects are currently planned out of the Appalachian Basin, including several designed to move supplies to the Midwest U.S. and Ontario (e.g., ETP Rover and NEXUS).
- Future infrastructure expansions are expected to be required to meet market demand growth.

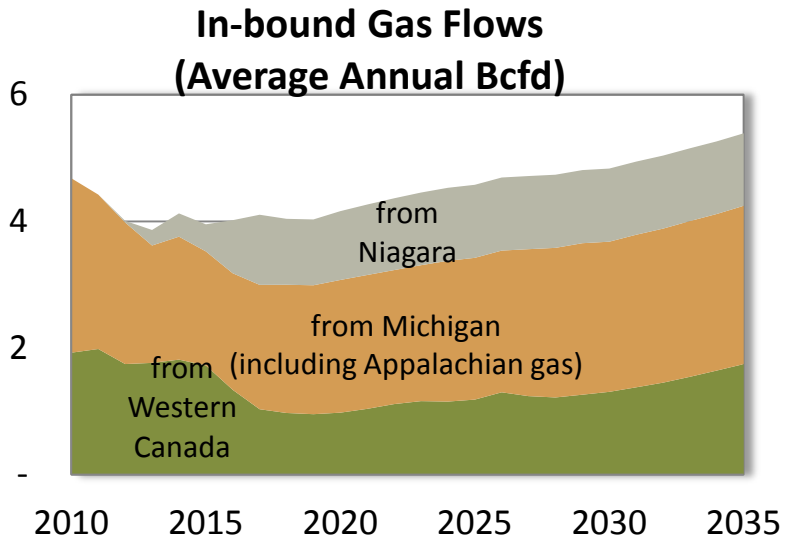
Gas Production from Western Canada Sedimentary Basin Plays

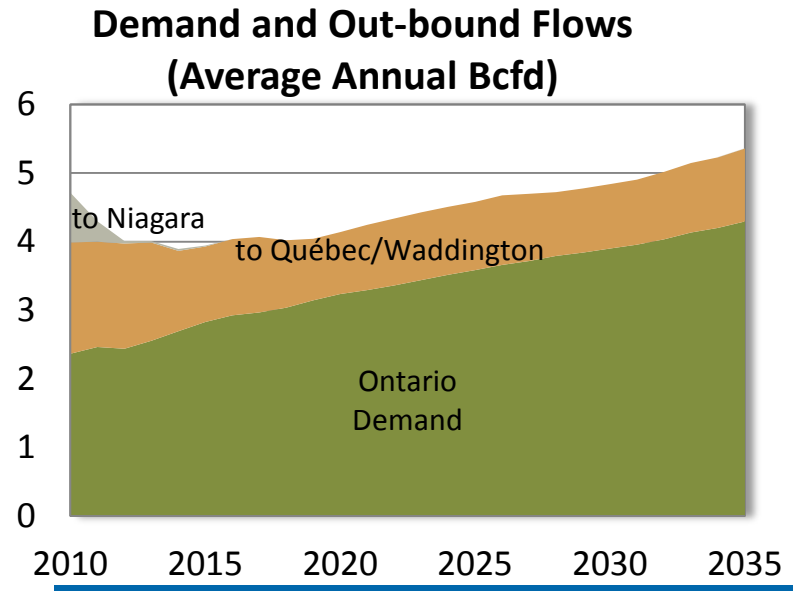




- Total gas production from the WCSB is projected to reach 22.3 Bcfd by 2035.
  - Shale gas production is projected to increase to 18 Bcfd.
- WCSB shale production growth increases exports to the Western U.S. and Midwest, meets demand growth in Western Canada, and after 2025, supplies British Columbia LNG exports.

Ontario Will Become Increasingly Reliant on Gas Supplies from the Appalachian Basin

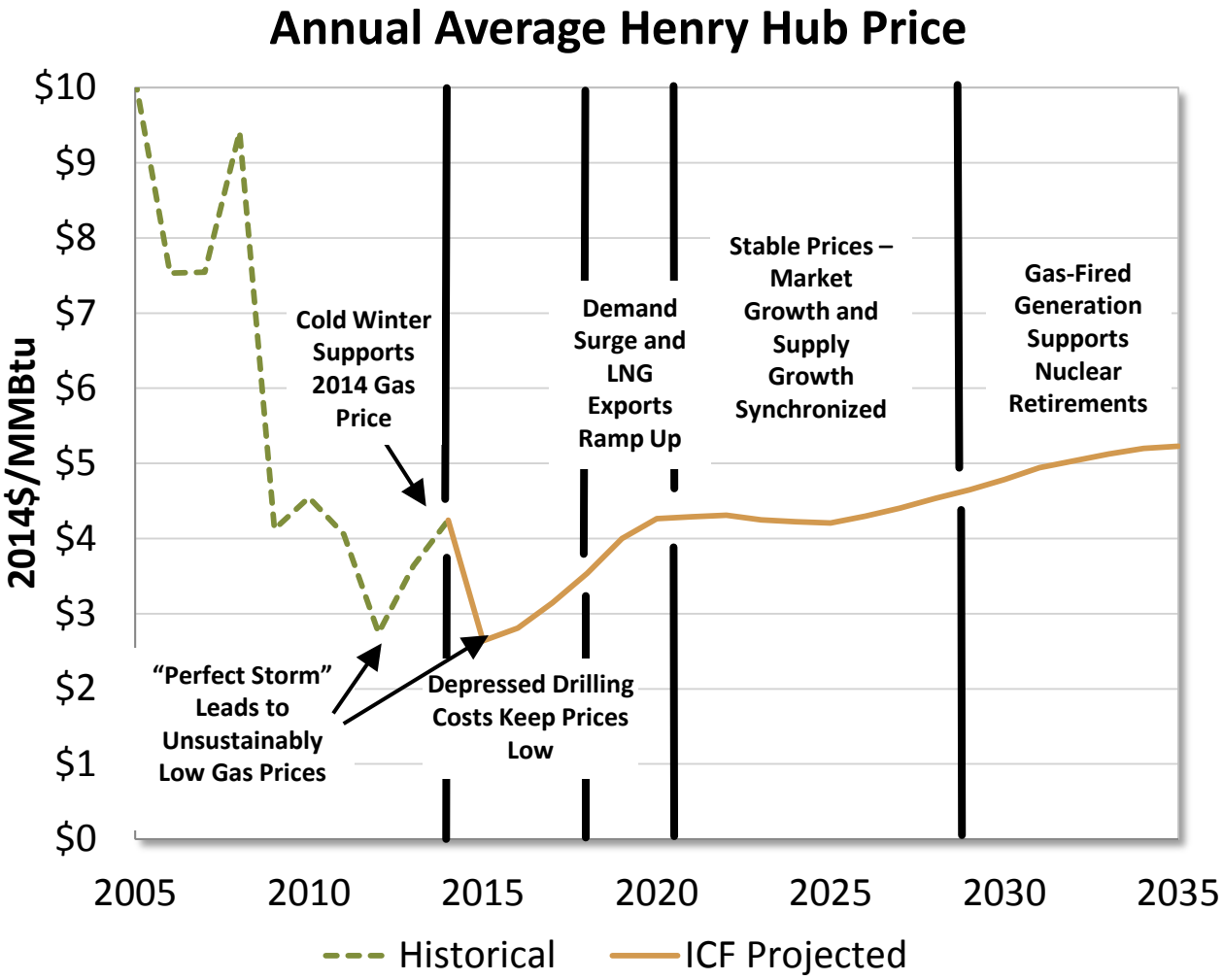




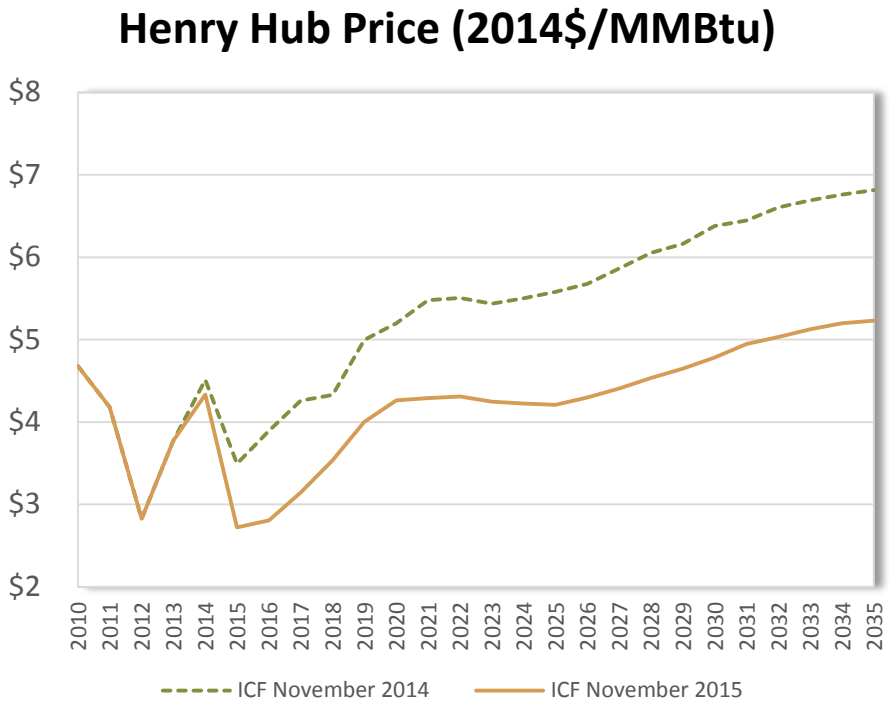
- ICF projects that flows from Western Canada into Ontario will decline through 2020.
- The decline in Western Canadian supply will be replaced by growth in Ontario supply from the Appalachian Basin through Michigan and New York.
- Growth in New York and New England peak winter demand is expected to be greater than pipeline capacity additions from the Appalachian Basin.
- Flows from Ontario and Québec into the Northeastern U.S. will remain a critical component of peak period supply in the U.S. Northeast.
- Development of new pipeline infrastructure from the Appalachian Basin to Ontario, and within Ontario from receipt points to consumer market centers, will facilitate the shift in supply.

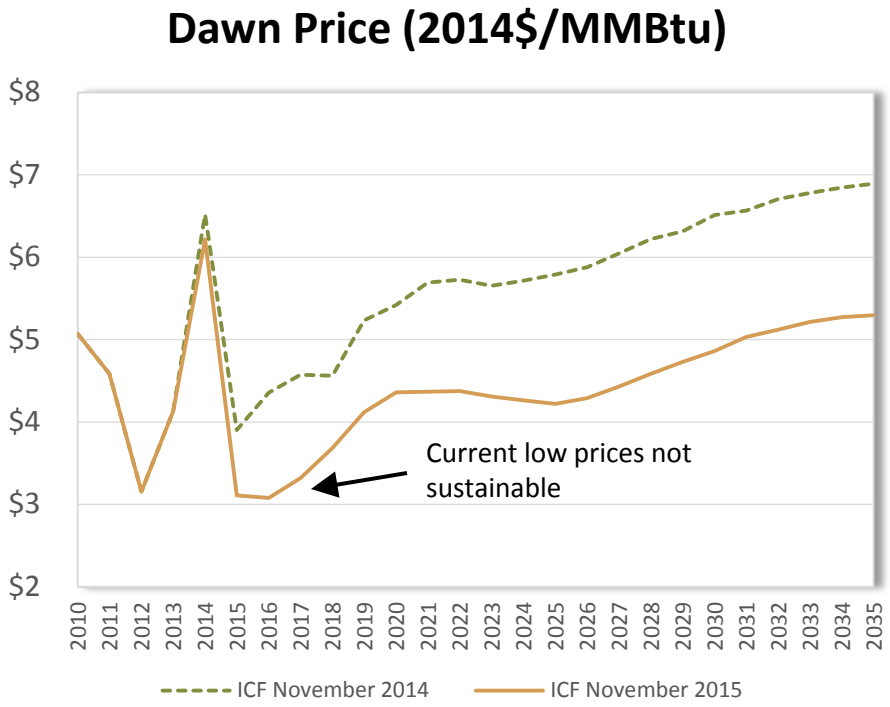
ICF's Natural Gas Price Projection

- Low drilling costs will keep price below $4 per MMBtu until 2019.
- Long-term prices are expected to range between $4.25 and $5.25 per MMBtu.
- Price growth after 2030 reflects incremental power generation demand due to North American nuclear capacity replacement.



Henry Hub and Dawn Prices (2014$) - ICF November 2014 vs ICF November 2015





- Low gas price environment is positive for Ontario gas consumers, Ontario electric consumers, and the Ontario economy in general.
- Natural gas prices are currently at “low tide”, and are expected to start increasing again in 2017.

Basis Trends are Influenced by Regional Supply and Demand Shifts, but Also Reflect Added Gas Infrastructure

Average Basis (2014$/MMBtu)

	Historical				Projection	
	2012	2013	2014	2015*	2016 to 2025	2026 to 2035
Henry Hub to Dominion South Point	0.10	-0.07	-0.99	-1.13	-0.71	-0.78
Henry Hub to Chicago	0.10	0.13	1.24	0.15	-0.07	-0.17
Henry Hub to AECO	-0.36	-0.66	-0.27	-0.58	-0.76	-0.83
Henry Hub to Dawn	0.33	0.35	1.88	0.39	0.11	0.06
AECO to Dawn	0.69	1.01	2.16	0.97	0.87	0.90
Dominion South Point to Dawn	0.23	0.43	2.87	1.52	0.81	0.84

* Includes both historical and forecast data.

- Basis from Henry Hub to Dawn is falling over time as Dawn access to Appalachian supply increases, and as exports from the Gulf Coast (NGL and pipeline exports to Mexico) increase, putting upward pressure on Henry Hub prices.
  - Appalachian gas is increasingly transported to the Gulf Coast for export.

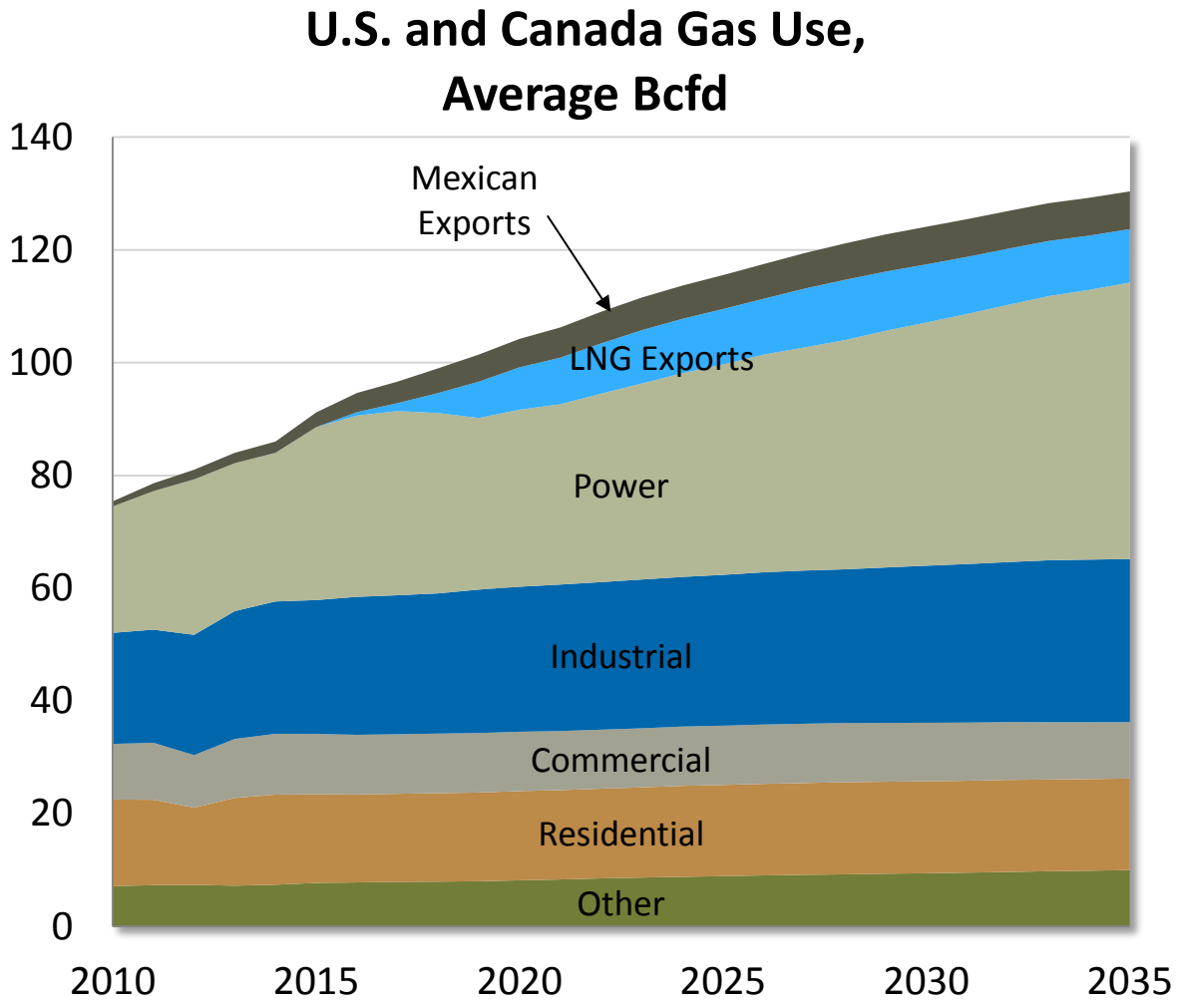
Summary and Conclusions

1. The North American natural gas market is undergoing dramatic changes, and these changes are expected to continue.
2. The Ontario market has responded appropriately to these changes by shifting sources of gas supply toward Appalachia and Dawn.
3. Planned near-term infrastructure changes will provide greater access to low-cost Dawn and Appalachian gas supplies.
4. The low natural gas price environment is positive for the Ontario Economy, although prices are not expected to remain at today's levels.
5. Additional infrastructure may be required to support future Ontario market growth and the continuing shift in gas supplies.

Appendix:
North American Market Outlook

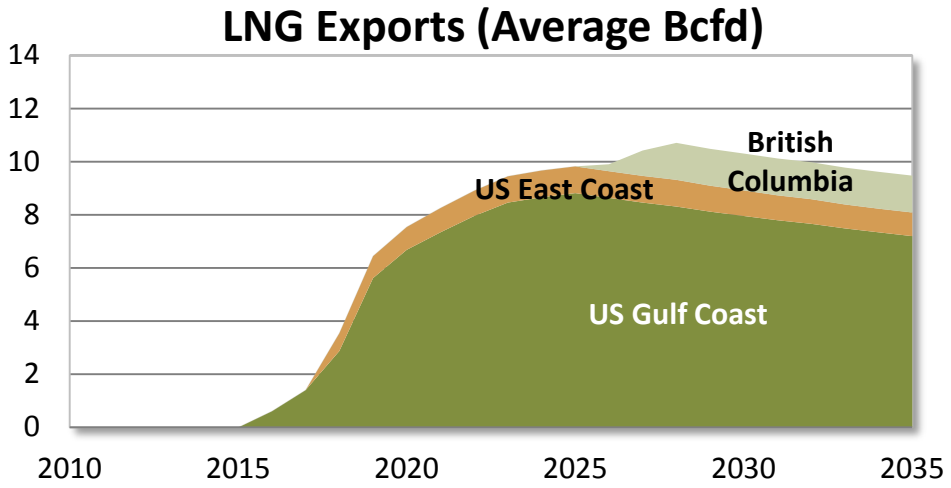
Through 2035, the U.S. and Canadian Gas Demand is Projected to Grow by Over 40%

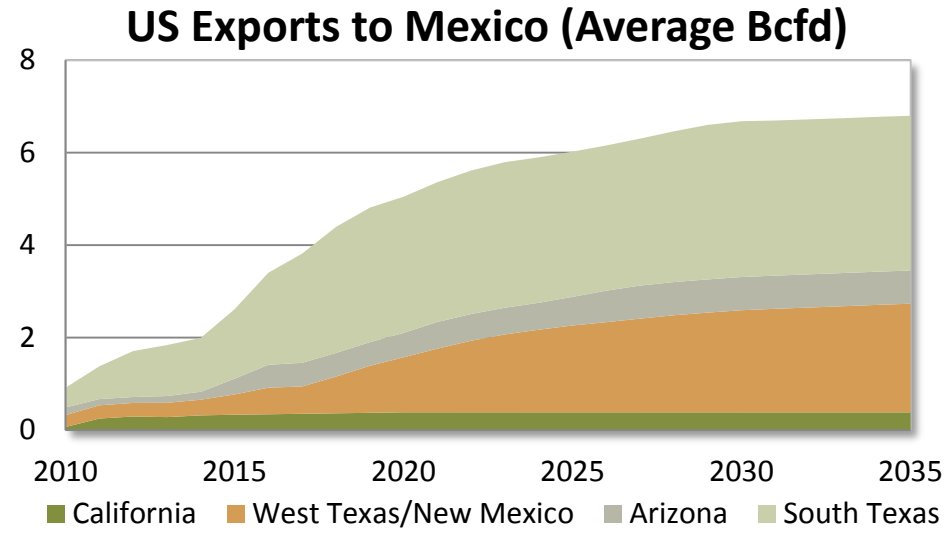
- Through 2020, natural gas demand growth is driven primarily by growth in export markets (LNG and Mexican exports)
- After 2020, the power sector is the largest single source of incremental domestic gas consumption in the long-term.
  - Between 2015 and 2020, growth is primarily driven by gas-fired plants replacing coal plants.
  - Accelerated growth is expected after 2020 when carbon regulation is assumed to be initiated.
  - After 2030, nuclear plant retirements drive a significant portion of the incremental demand growth.



Exports are Expected to be Major Drivers of Near-Term U.S. and Canadian Market Growth

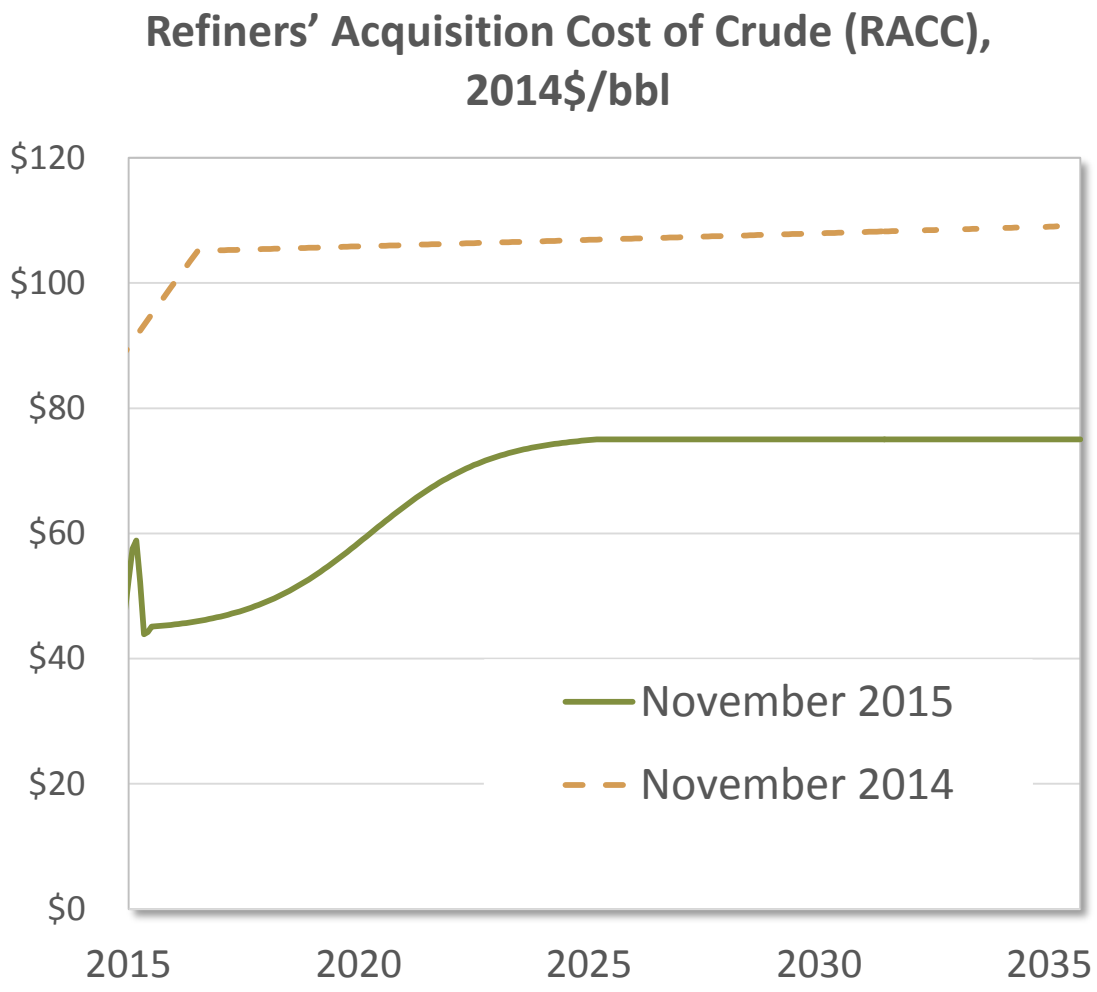
- Since 2012, DOE has approved non-FTA exports for 10 U.S. LNG terminals. Based on current market conditions, ICF assumes LNG Exports only from 6 LNG facilities currently under construction: Sabine Pass, Freeport, Cove Point, Cameron LNG, Corpus Christi and Elba Island.
  - ICF's current projection assumes U.S. LNG exports to peak at about 9.8 Bcfd by 2025, and reduce to about 8.1 Bcfd by 2035.
  - U.S. LNG exports are expected to decline after 2025 primarily as North American gas prices firm and US LNG facilities compete against oil and other LNG sources in global spot markets.
- LNG exports from British Columbia delayed until 2026, reaching 1.4 Bcfd by 2028.
- U.S. exports to Mexico will continue to grow, driven by increases in U.S. production and growth in Mexican gas use.
  - Mexican gas demand is being driven by replacement of oil-fired generation.





Outlook for Oil Prices Remains Low

- ICF has reduced its near-term oil price projections and expects a slower recovery to the long-term equilibrium marginal production cost of $75/BBL by 2025.
  - Global oil inventory is increasing.
  - Short-term global demand recovery remains pessimistic.
  - U.S. oil inventories are rising to unprecedented levels.
  - Oil production from Iran might also add to the already over supplied market in the near term.

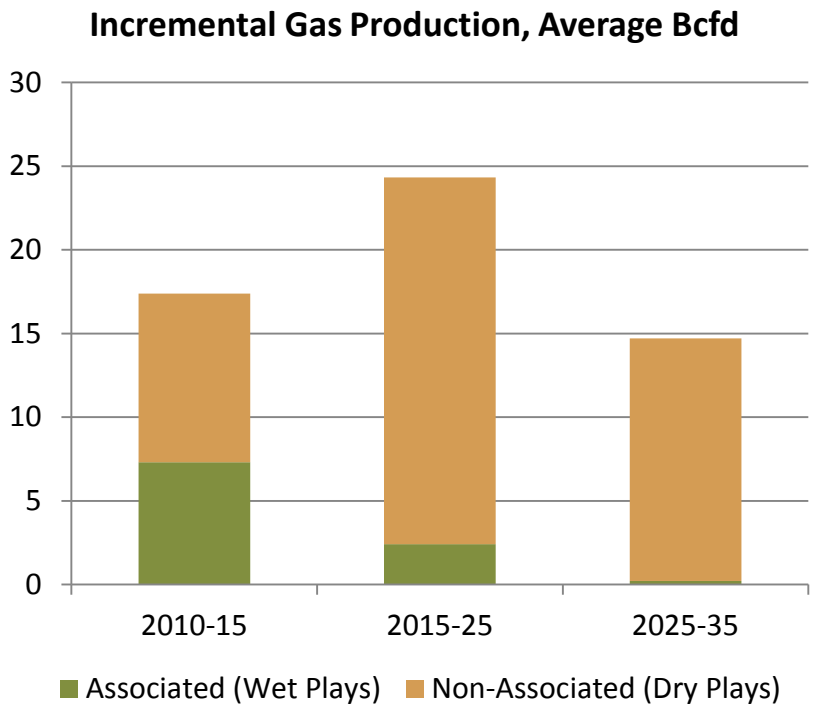


Low Oil Price Impacts

- At the assumed oil prices, long-term growth of gas production from oil plays, commonly referred to as associated gas production, is reduced though the total gas production remains relatively constant.
  - Associated gas production in US and Canada reaches 19 Bcfd by 2035 in the current projection (versus 23 Bcfd in last year's projection).
  - Total gas production in US and Canada reaches about 132 Bcfd by 2035 in the current projection (versus 131 Bcfd in last year's projection).
- Alberta oil sand production still grows, but at a slower pace in this year's projection.
  - Alberta bitumen production is projected to reach 1.5 billion barrels by 2035 in the current projection, compared to 2.1 billion barrels in last year's projection.
  - Gas demand associated with the oil sands development increases to 2.4 Bcfd by 2035 in the current projection, compared to 3.4 Bcfd in last year's projection.
- Low near-term oil prices have delayed the fixed investment decisions for several LNG export terminals in the earlier stages of development, and lower projected oil prices reduce projected export volumes.
  - U.S. LNG exports are expected to decline post-2025, as North American gas prices firm and US LNG facilities compete against oil and other LNG sources in global spot markets.
  - Projected LNG exports from British Columbia start later and are lower in the current projection; the start date has been delayed to 2026, and exports reach 1.4 Bcfd by 2028.

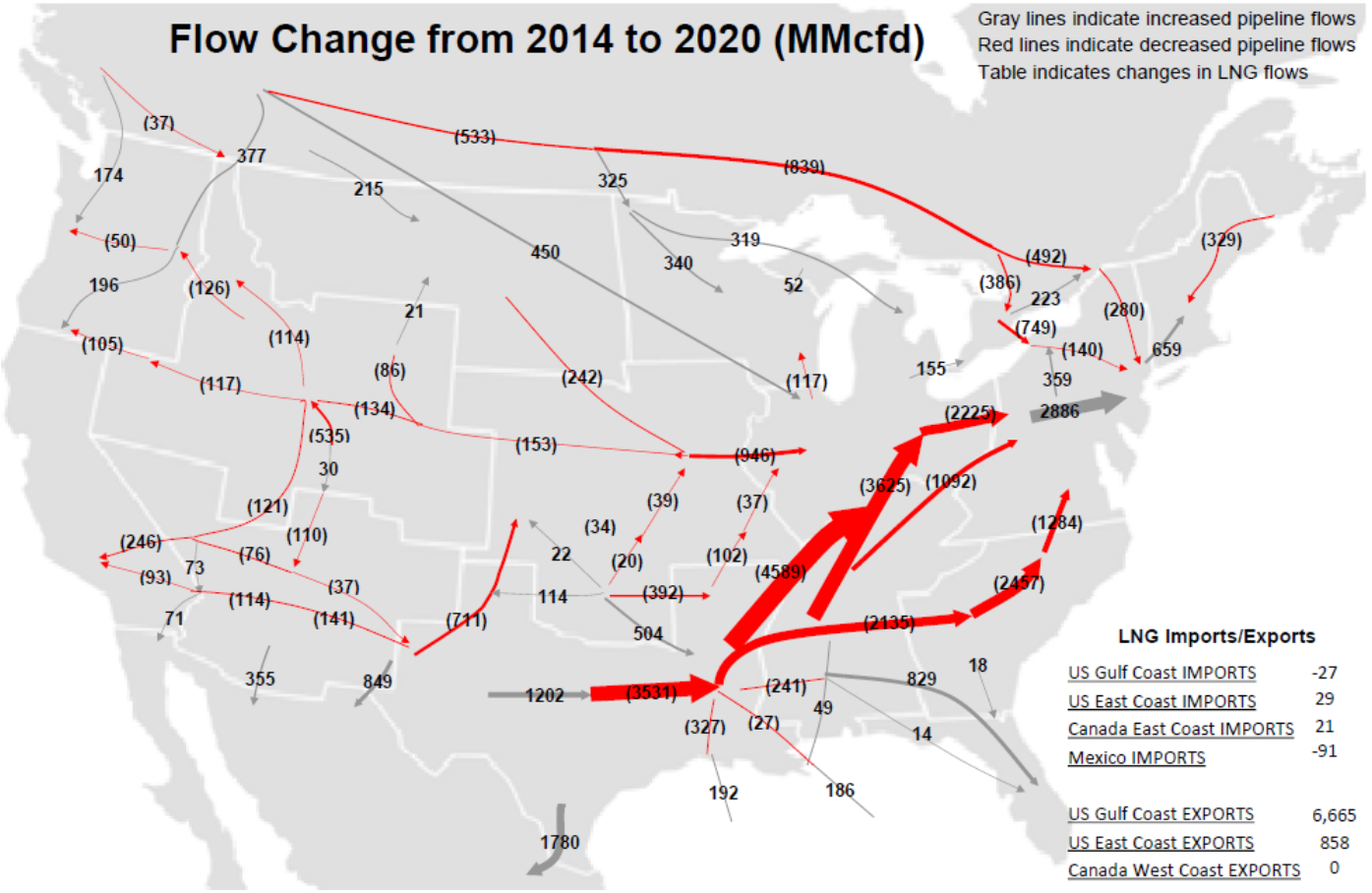
Lower Oil and NGL Prices Shift Natural Gas Development Activity from Wet to Dry Plays

- Associated gas drilling activity (oil- and NGL-directed) was a major source of production growth over the last 5 years.
  - From 2010-15, associated gas production accounted for 40% of total production growth.
- Over the last 12 months, the U.S. rig count has dropped by over 60%.
  - Biggest declines are in “wet” plays , including Granite Wash, Mississippian, and Williston Basins.
- Both oil- and gas-directed drilling activity are down, but low oil and NGL prices have resulted in deeper cuts in liquids-rich plays, reducing gas production growth in these areas.
- Activity has dropped by less in dry plays like Marcellus and Utica.
- Increases in production per well drilled have partially offset decreases in rig activity.



Changes in Supply and Demand Will Significantly Change Pipeline Flows Over the Next Decade

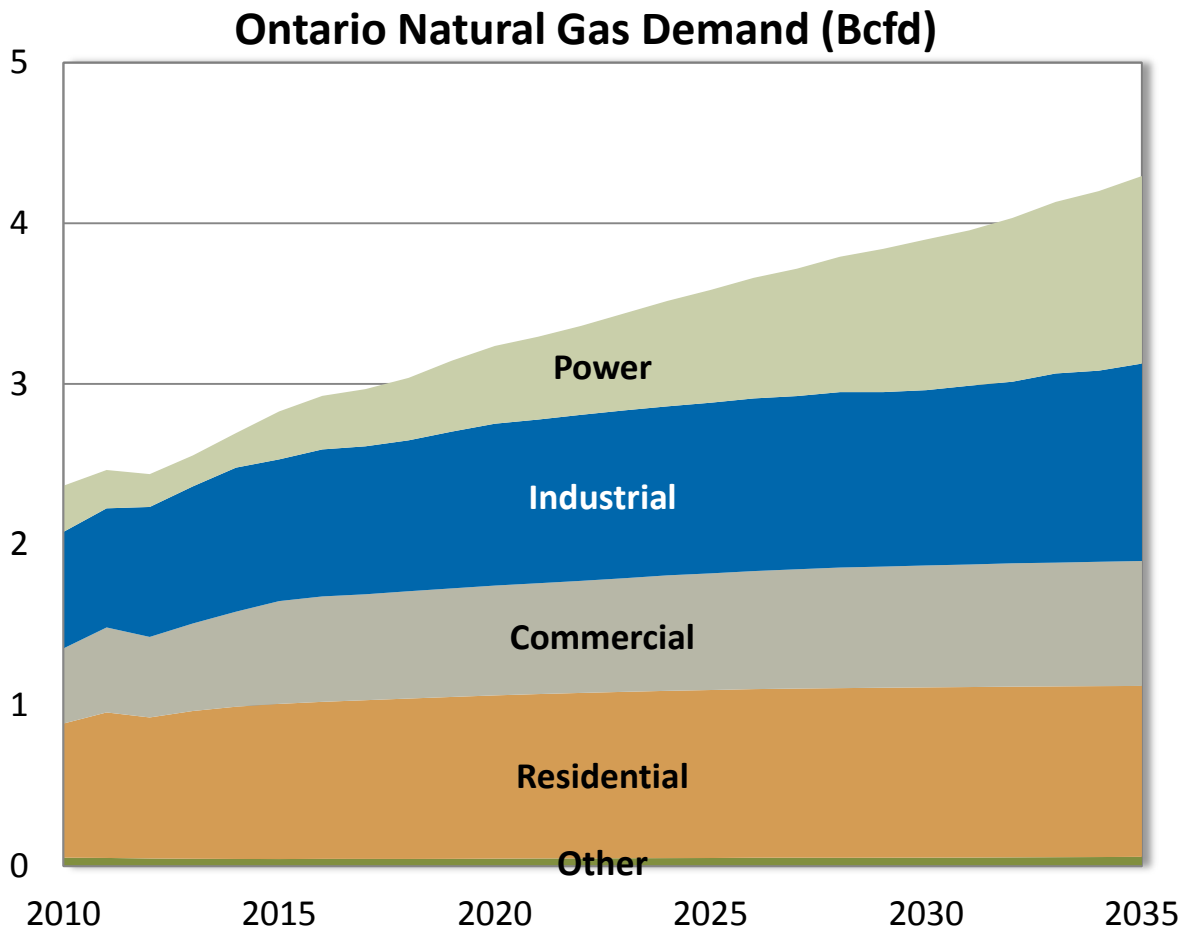
- Robust gas production growth in Appalachia will displace gas flows from the Gulf Coast and the WCSB to Ontario and the Northeastern United States.
- Many Gulf Coast to Northeast pipelines will be converted and reversed to deliver gas to the Gulf Coast for LNG exports.
- Flows from WCSB to Ontario decline, but flows from WCSB to the Western U.S. and Midwest increase.



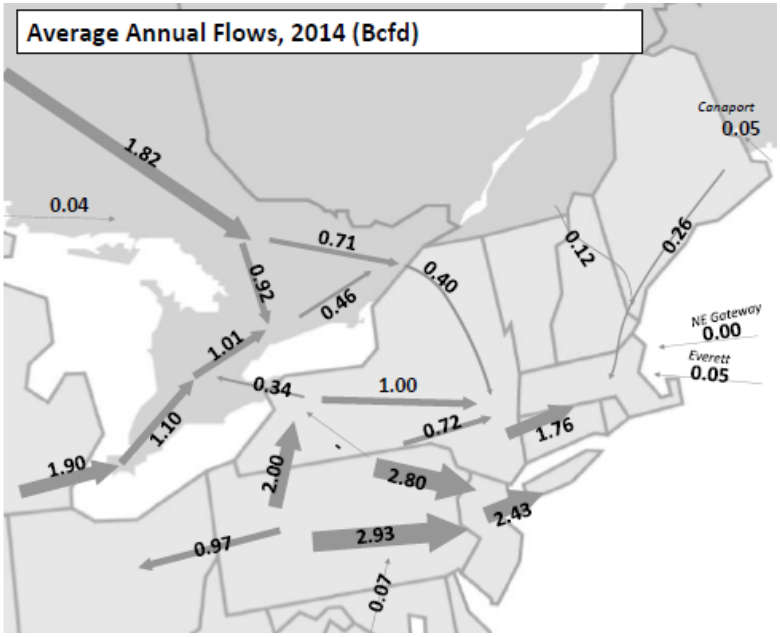
Source: ICF International

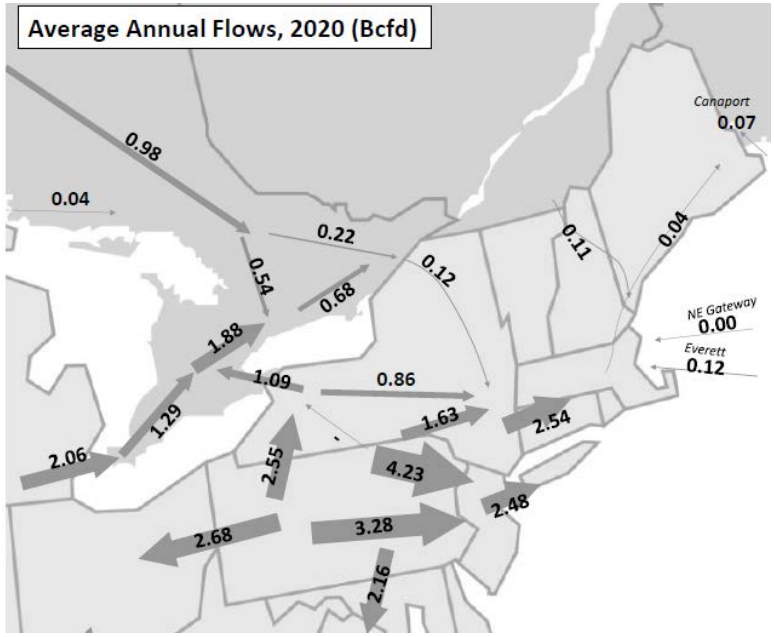
Ontario Gas Use is Projected to Increase, Primarily Due to Increased Power Sector Demand

- Ontario gas demand is projected to grow at an average rate of 2.2% per year through 2035.
- Most of the projected growth is in the power sector.
  - By 2035, power sector demand is projected to reach 1.2 Bcfd.
  - Electric load growth, nuclear retirements/ refurbishments, and backstopping renewable power generation all contribute to natural gas demand growth.
- Residential/commercial demand is projected to grow at less than 1% per year.



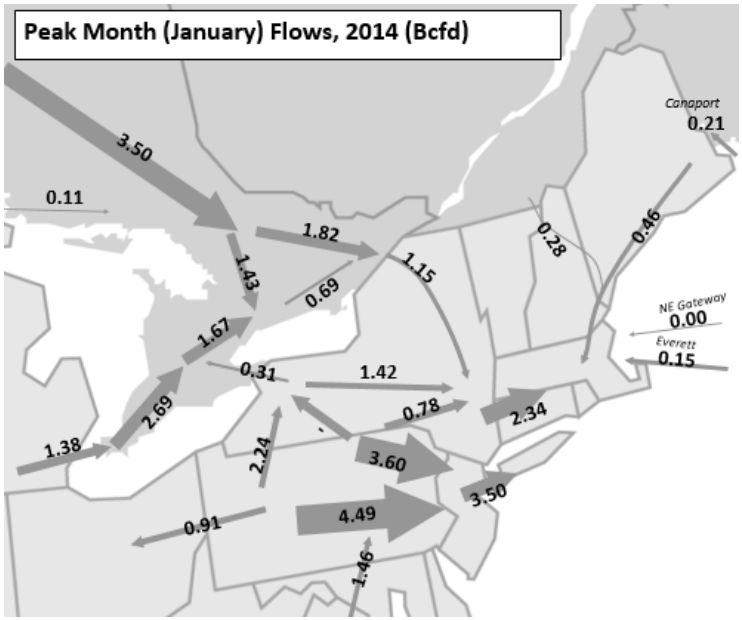
Flows into Ontario from Western Canada Projected to Decline, While Flows from Michigan and New York Increase

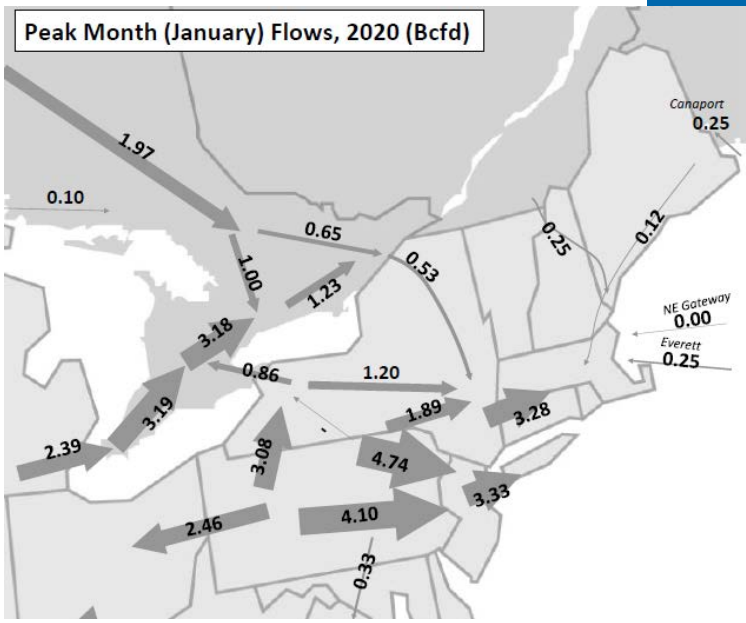




- Changes in regional gas supplies and demand and anticipated gas infrastructure changes lead to declines in flows from Western Canada into Ontario.
  - Flows out of the Appalachian Basin increase, and much of this gas makes its way into southern Ontario via Michigan and Niagara.
- On an annual basis, outbound flows at Waddington (into Iroquois) decrease due to increased production in the Appalachian Basin and increased connectivity between Appalachia and eastern markets.

Ontario Pipeline Flows During Peak Winter Periods are also Changing





- Peak period flows from Western Canada into Ontario decline and are offset by an increase in flows through Michigan and New York.
- During peak months, outbound flows at Waddington decline somewhat due to displacement by Appalachian supply. However, flows into Iroquois will remain a critical component of peak period supply in the U.S. Northeast.
- Interruptible capacity becomes very scarce during peak winter periods, causing extreme spikes in New England spot prices.
- The price signals in the New England market are seen at Waddington during peak winter periods and prompt gas flows into Iroquois, thereby having an impact on Ontario market prices. Capacity constraints in Ontario can place upward pressure on prices at Waddington and into New England.

New England Continues to Influence the Ontario Gas Market

- While there are ample gas supplies nearby in Appalachia, pipeline capacity from these plays into New England remains constrained during winter months. New England's winter constraint causes price pressure at Waddington, thereby influencing the Ontario market.

Appendix:
Key Assumptions Behind ICF Market Projection

Key Assumptions Behind ICF's Market Projection

The market projections provided in this presentation are based on results from the *Gas Market Model* (GMM), ICF's proprietary model of North American gas markets. Key assumptions behind the ICF market projection are provided below.

- For the balance of 2015 and all of 2016, U.S. GDP growth assumptions are based on the Wall Street Journal's November 2015 Survey of Economists; from 2017 forward, ICF assumes a real dollar growth rate of 2.6% per year. Canadian GDP is projected to increased at 2.5% per year throughout the forecast.
- Projected weather is consistent with average seasonal patterns over the past 20 years.
- ICF has reduced its near-term oil price (refiner's average cost of crude) projections and expects a slower recovery to the long-term equilibrium marginal production cost of $75 per barrel (in 2014$) by 2025.
- U.S. electricity demand growth averages 1 % per year; Canadian growth averages about 1.3% per year.
- ICF's projection reflects one plausible outcome of U.S. EPA's proposals for new emissions regulations, including Mercury & Air Toxics Standards Rule (MATS), water intake structures (often referred to as 316(b)), coal combustion residuals (CCR, or ash), and the Clean Power Plan (CAA Section 111(d)). It includes a charge on CO_2 reflecting the time it may take for direct regulation of CO_2 to be implemented.
  - These assumptions for U.S. environmental regulations generally favor the continued retirement and replacement of coal capacity with gas capacity.
- Renewable capacity increases to meet state and provincial renewable portfolio standards.

Key Assumptions Behind ICF's Market Projection (continued)

- U.S. nuclear plants are assumed to have a maximum life span of 60 years; this assumption results in nearly 25 GWs of retirements between 2028 and 2035.
- For Canada, ICF assumes that, per current plans, all nuclear units at the Pickering Station are offline by 2020. While the remaining nuclear capacity is expected to be maintained, planned refurbishment of all the units at the Darlington and Bruce stations will remove substantial portions of the nuclear capacity from service starting in 2016.
- The ICF Base Case includes a probability weighted CO2 price for the power sector in the U.S. The case does not consider the proposed Ontario Climate Change Initiate.
- ICF estimates the economically recoverable natural gas resources in U.S. and Canadian natural gas total over 4,000 trillion cubic feet (Tcf).
  - Shale gas resources account for over 50% of the resources.
- Gas supply development is expected to be consistent with recent levels, with no significant restrictions on permitting and fracturing beyond the current restrictions.
- Pipeline capacity expansions over the next 4 to 5 years are consistent with announced projects. In the long-term, pipeline capacity is expanded when the market projection indicates the need for additional capacity (i.e., increased basis).
- Pipeline capacity changes include development of TransCanada's Energy East and Eastern Mainline Expansion projects, and 2015-17 expansions by Union Gas, TCPL, and Enbridge within Ontario.

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