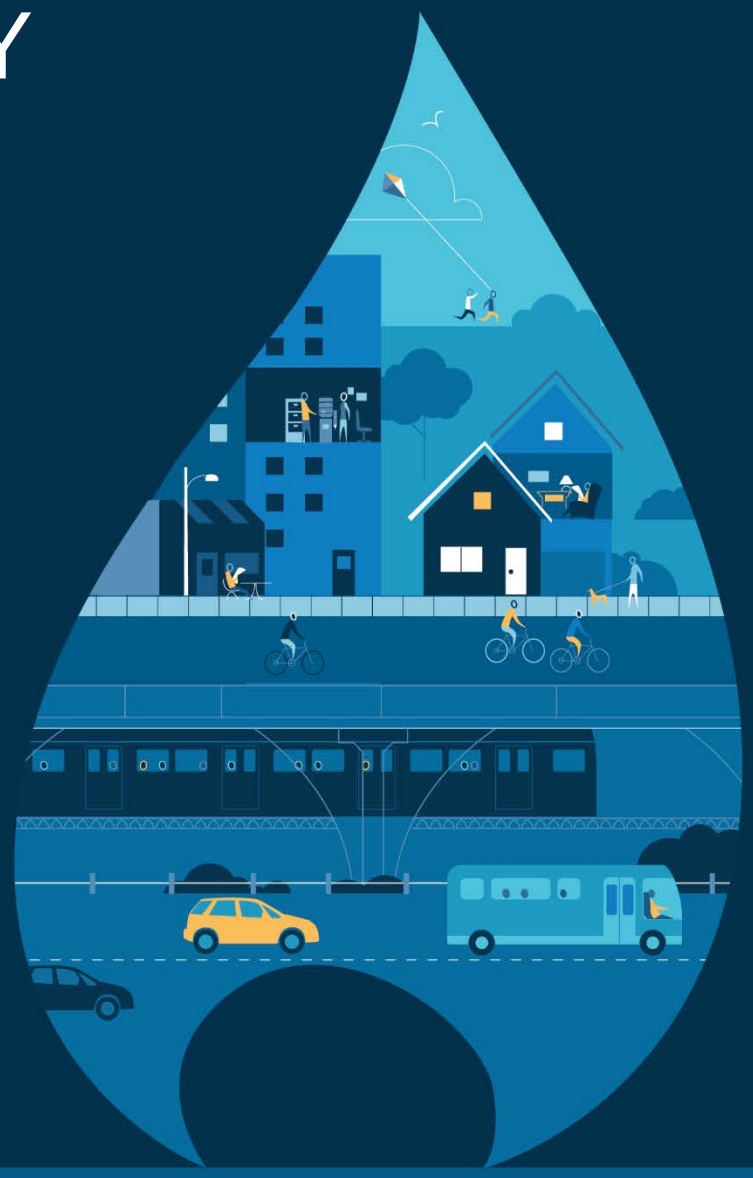
THE NATURAL GAS OPPORTUNITY

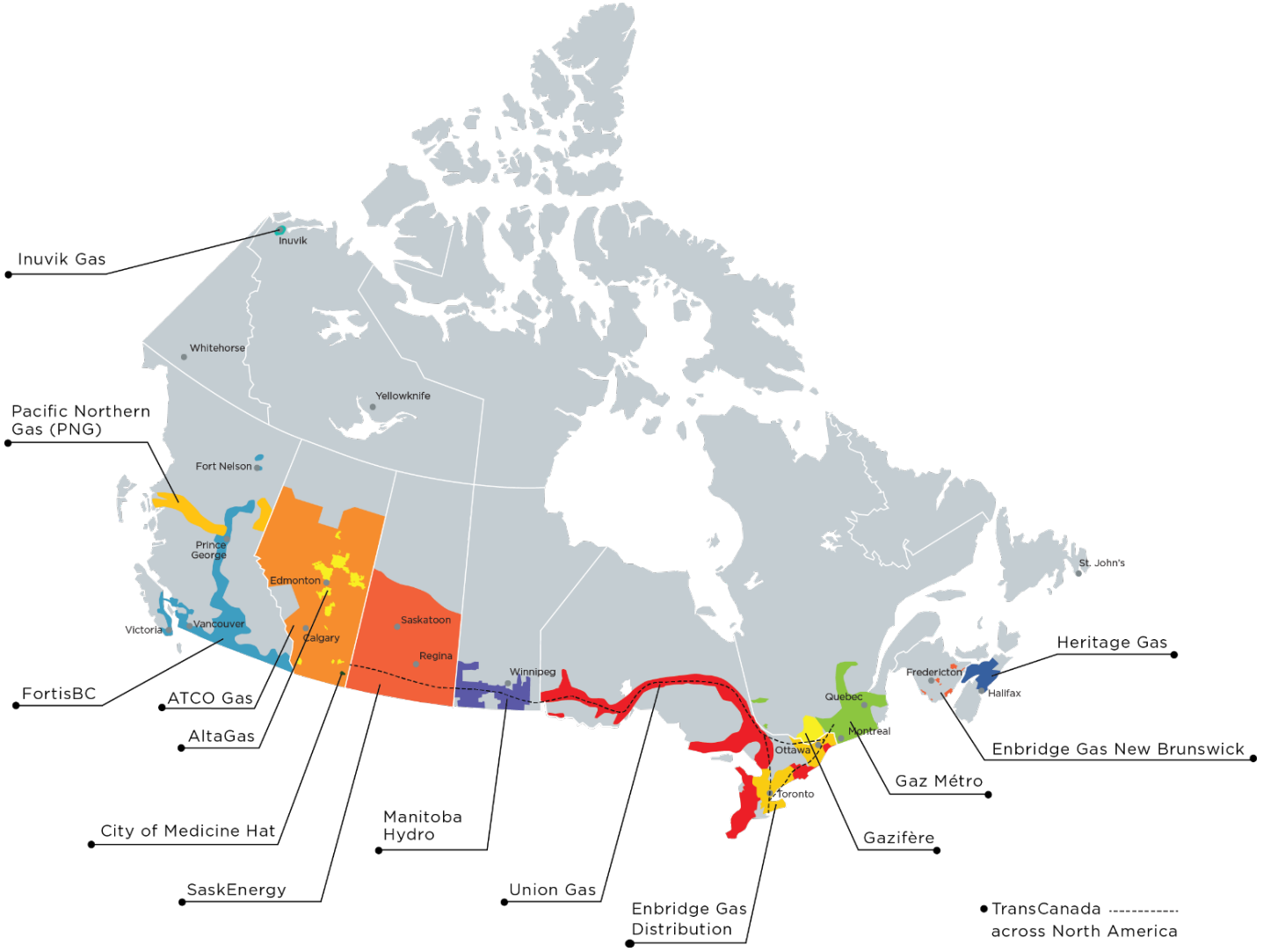
Reducing emissions, providing affordable energy, driving innovation, and growing the economy.



Canadian Gas Association
Presentation to the Senate Committee on Energy, the Environment and Natural Resources
Low Carbon Economy Study
April 13, 2017

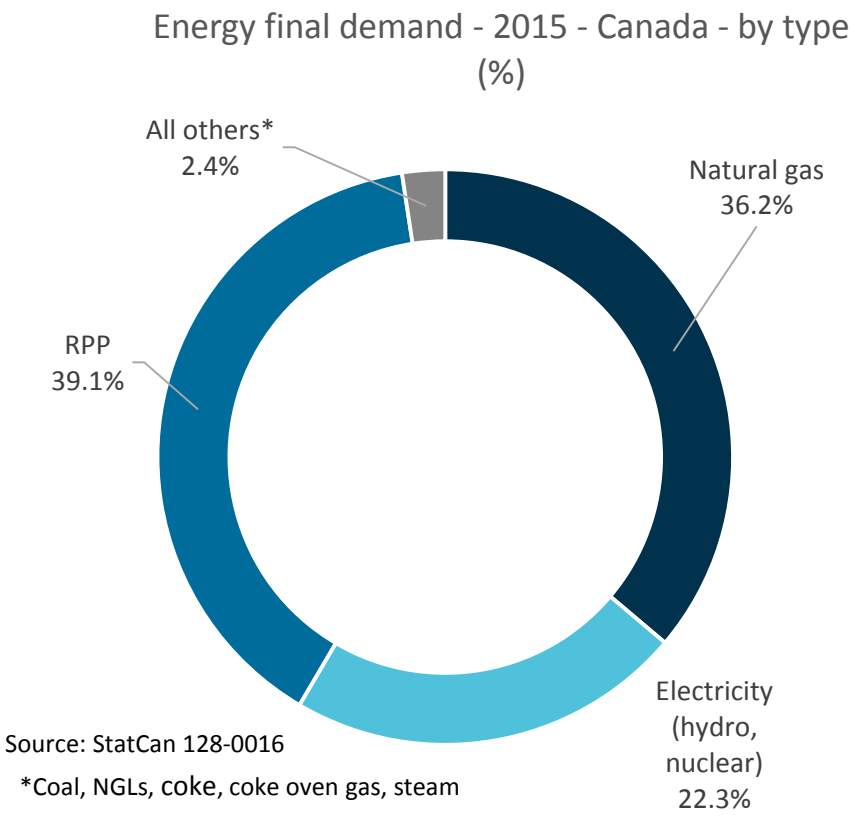
CANADIAN GAS ASSOCIATION
ASSOCIATION CANADIENNE DU GAZ

CGA : Our Members



Number of Customers	6.75 million
Distribution Plant	386,644 Kms
Transmission Plant	67,612 Kms
Investment:	$4 billion/yr

CGA : Our Impact



Source: StatCan 128-0016

*Coal, NGLs, coke, coke oven gas, steam

Natural Gas: Attributes and Definitions

Affordable
Any reduction in energy costs while maintaining the same or an improved level of comfort, service or production output, means money in the pockets of consumers – for families in their homes, or for businesses to become more competitive and to expand. Households that use natural gas for space and water heating save in the order of $2,000 per year compared to homes using propane, electricity, and heating oil for the same applications.

Abundant
Canada has more than 200 years of supply at current production levels. The affordability of natural gas in Canada is reinforced by the stable and growing supplies from across the North American marketplace.

Clean-burning
Natural gas is an efficient and clean burning energy choice with fewer emissions than many other fuels. As well, natural gas is an important partner for renewables and emerging low-emission technologies. Further, and of particular concern in the North, in case of a leak, natural gas dissipates in the air avoiding damage to the ground.

Innovative
Innovative and essential technologies are essential if governments are to achieve energy, environmental and efficiency objectives. The natural gas delivery industry is a critical partner in efforts to support and drive innovation and efficiency in the economy.

Resilient
Over 454,000 kilometres of underground transmission and distribution infrastructure, and storage facilities have been built out to bring natural gas across the country to customers. Since 2005, the natural gas distribution sector has invested over $25 billion in this extensive Canadian national network.

Safe
The natural gas distribution industry is committed to the safe, secure, reliable, and environmentally responsible delivery of natural gas to customers. Natural gas delivery systems are designed, built and operated to equal or exceed the highest codes and standards.

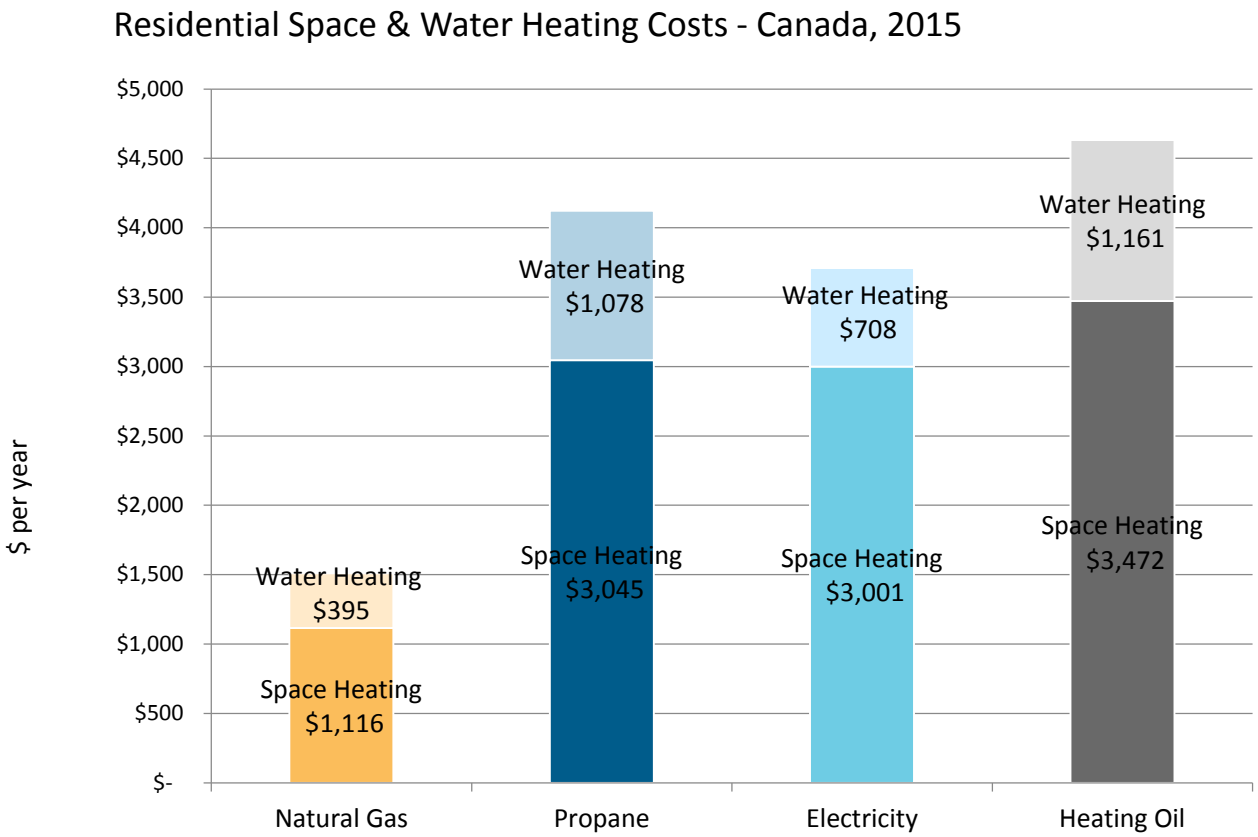
Compressed Natural Gas
This is natural gas that is compressed to reduce its volume by up to 300 times compared with natural gas at normal pressure. CNG is ideal for passenger cars, pick-up trucks, cube vans, buses, shuttles, short-haul tractor-trailers, dump trucks, and refuse trucks.

Liquefied Natural Gas
This is natural gas that is cooled to a liquid state to -162 degree Celsius to reduce its volume by 620 times compared to natural gas at normal pressure. LNG is ideal for return to base truck fleets, ferries, ships, rail, mining applications, industrial uses, and communities in northern and remote communities.

Renewable Natural Gas
This is a CO_2 neutral, 100 per cent renewable energy source produced from organic waste. The gas is captured, cleaned and delivered for use in the same way as natural gas in homes, businesses and institutions.

Core to our Value Proposition: Savings at Home….

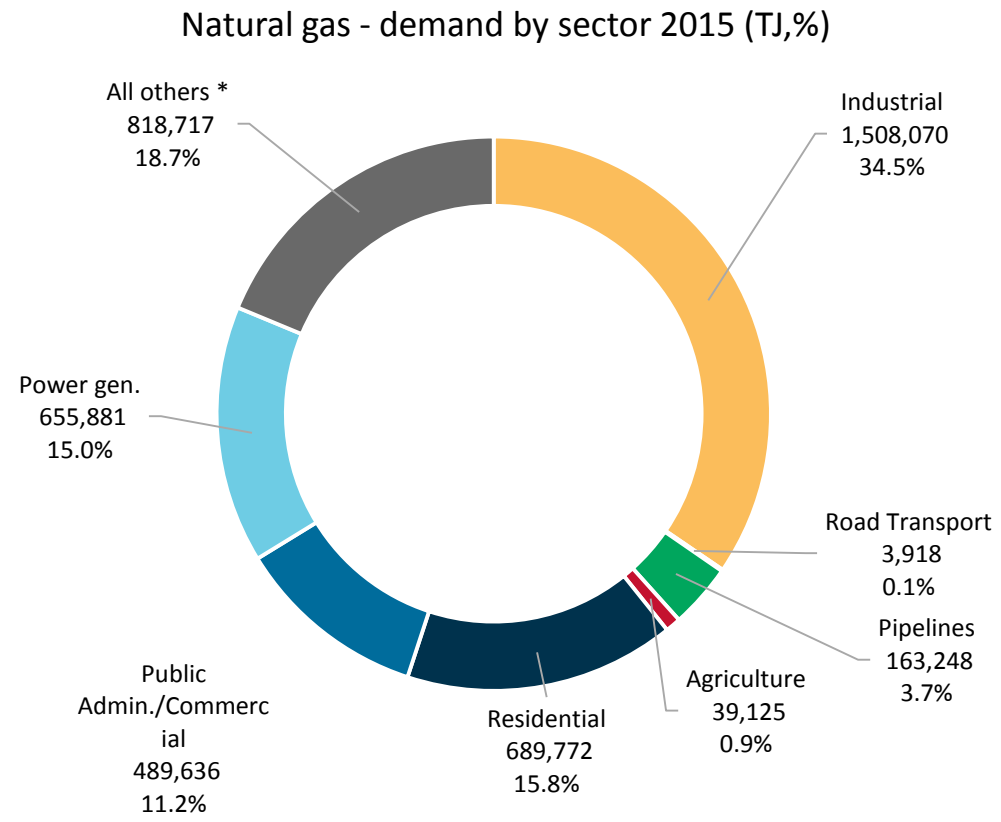
- Increased natural gas supply in North America is the primary driver of lower natural gas prices.
- Long history of delivering affordable and competitively priced energy.
- Statistics Canada reports that total household spending on natural gas has declined from just under $8.1 billion in 2008 to just over $6.4 billion in 2015.
- Meanwhile, Statistics Canada reports that electricity spending has increased from $15.5 billion in 2008 to $20.2 billion in 2015.



Source: StatsCan, Hydro Quebec, Kent Marketing, Canadian Gas Association

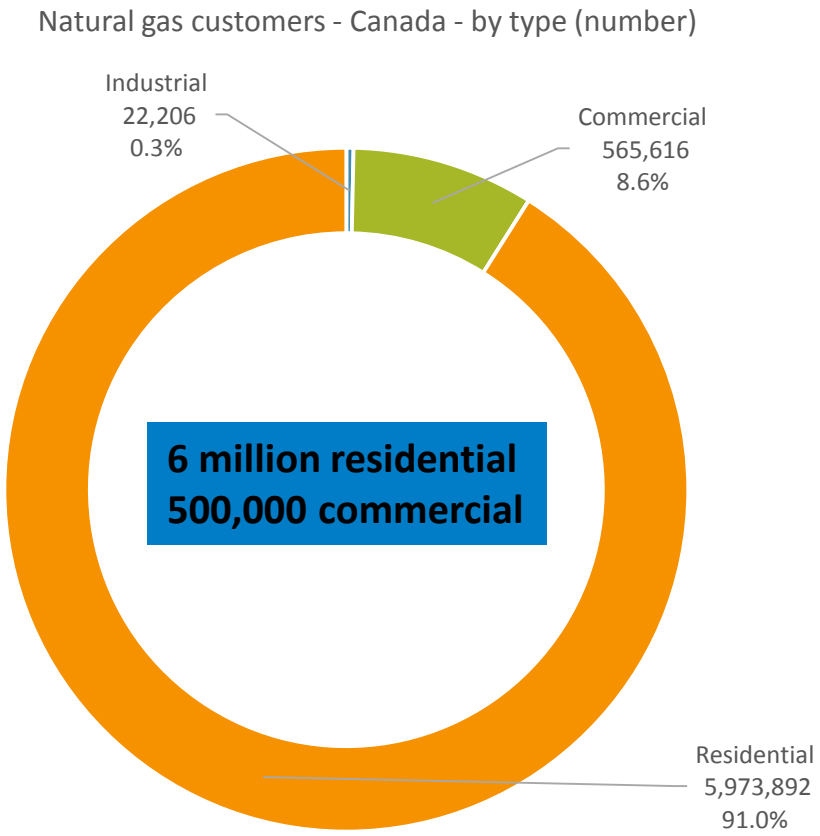
…and Competitiveness for Canada

- Natural gas is used across the Canadian economy and rising electricity prices are making more and more energy users look to it as a preferred alternative
- Competitiveness is increasingly important, for Canadian commercial and business energy users, given the (increasingly) lower energy costs for their American competitors.
- From the Senate Committee's report on the Transition to a Low Carbon Economy (focus on electricity):
  - Manufacturers and other large energy and electricity users will face significant cost implications and risk of jeopardized Canadian competitiveness, with a transition to a low carbon economy
  - Industries are not necessarily able to pass costs down to their customers and there is a serious concern that businesses will simply relocate or invest in countries with more manageable production costs

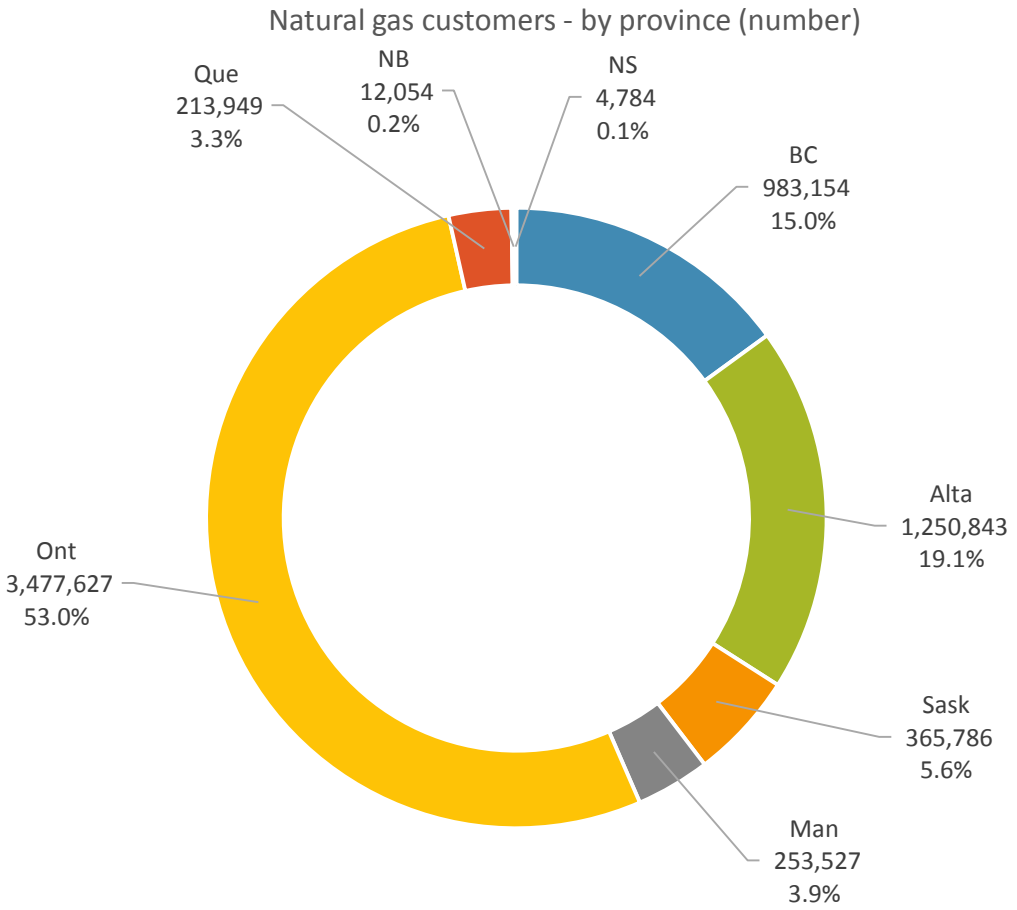


Source: Statcan 128-0016 *transformed to RPP or steam, producer use, non-energy use

Natural Gas Customers in Canada



Source: StatCan 129-0003



Source: StatCan 129-0003

Canadian Natural Gas Opportunity: GHG Reduction Potential to 2030

- ICF International Study, September 2016 “The Canadian Natural Gas Opportunity: GHG Reduction Potential to 2030”
- Five areas of natural gas use where significant GHG reductions can be realized including: renewable natural gas, natural gas for transportation, LNG and new pipelines to new gas users, energy efficiency and coal to natural gas for power generation.

Measure	2030 GHG Reduction Potential (tCO_2e/yr)	Assumptions
RNG	14,703,036	>5% of natural gas throughput replaced with RNG
Transport	5,564,089	~25% of heavy duty fleet converted to natural gas
LNG	4,293,036	Variability province by province
Energy Efficiency	11,833,098	~6% reduction in energy usage vs BAU
Coal to Natural Gas	11,491,721	Variability province by province
TOTAL	47,884,980	~6.5% reduction in national emissions

Canadian Natural Gas Opportunity: GHG Reduction Potential to 2030 – Province to Province

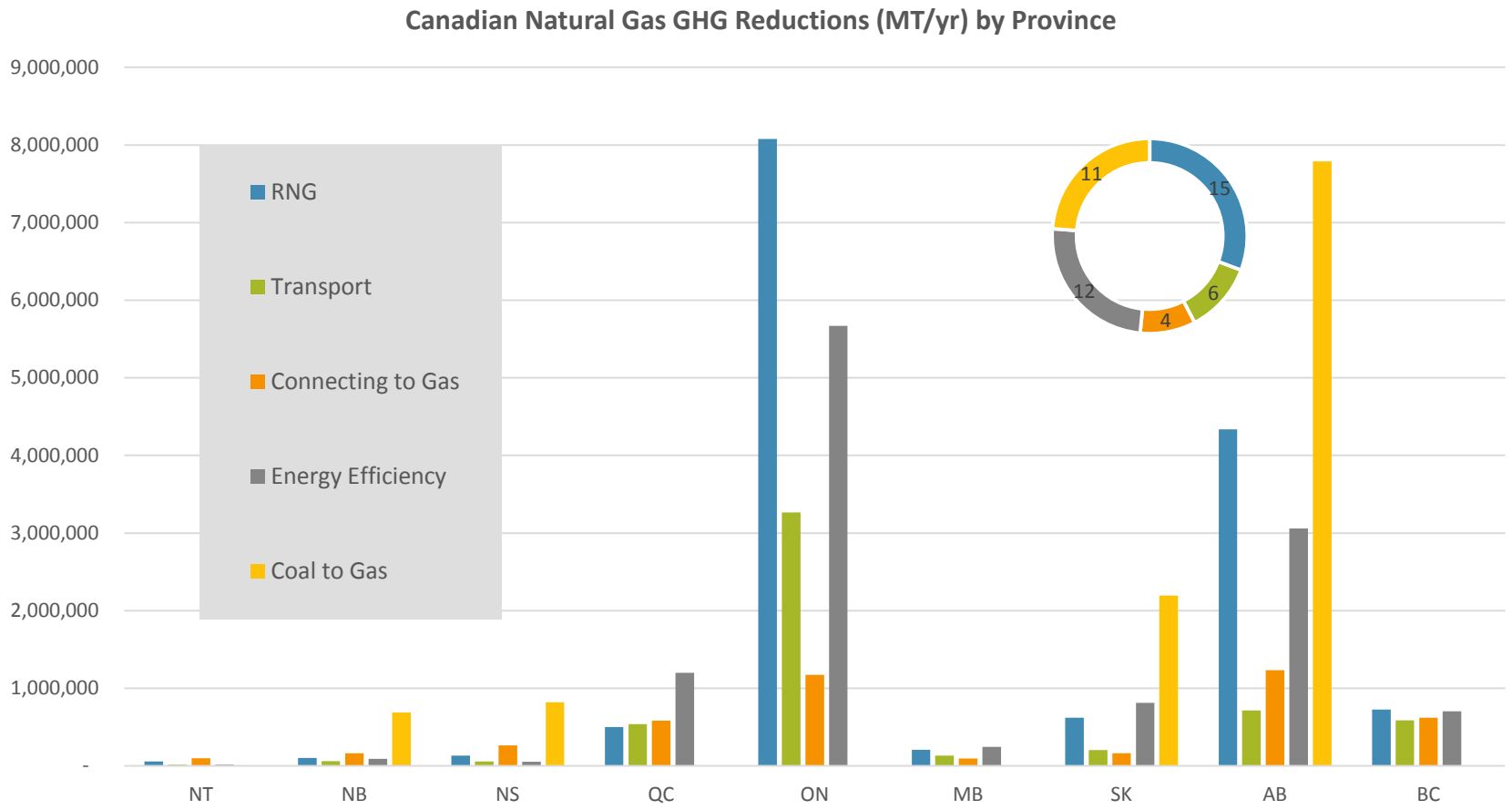
- On a province by province basis we see differences in total potential and relative potential of each measures based on size of the province, energy demand emissions profile.
- It is estimated that to achieve these GHG reductions, annual investments of under $8 billion are required

	RNG	Transport	LNG	EE	Coal to NG	TOTAL
NB	100,839	61,400	161,053	90,539	687,500	1,101,331
NS	134,291	58,850	263,381	52,301	821,618	1,330,440
QC	500,000	538,495	583,489	1,200,000	-	2,818,000
ON	8,078,800	3,266,544	1,174,699	5,669,924	-	18,189,969
MB	206,335	130,800	95,068	245,015	-	677,218
SK	620,456	205,450	162,195	813,865	2,196,253	3,998,218
AB	4,337,196	715,500	1,232,836	3,058,158	7,786,350	17,130,195
BC	725,119	587,050	620,315	703,296	-	2,635,751
TOTAL	14,703,036	5,564,089	4,293,036	11,833,098	11,491,721	47,884,980

Natural Gas Enabled GHG Emission Reductions

- 2030 total = 48 MT
  - 15 MT - RNG
  - 6 MT – transport
  - 4 MT – new gas connections
  - 12 MT deep EE
  - 11 coal to gas

- Costs per tonne vary depending on emission reduction opportunity.



Natural Gas - Areas of Collaboration

	Communities	Liquefied Natural Gas	Transportation	Renewable Natural Gas	Innovation
Opportunities	• Include natural gas pipelines as eligible for federal clean infrastructure funding. • Allocate $250 million to co-fund up to 1/3 of a pipeline project with utilities and provinces	• Include LNG to remote communities as eligible for South of 60 fund and Northern off diesel strategy • Allocate $50 million to support First Nations and industrial consumers to adopt LNG as a clean fuel for power and heat.	• Inclusion of CNG waste and transit vehicles and refueling stations in Federal-Provincial infrastructure framework and agreements; • Funding to support LNG fueling and bunkering operations at key port and rail facilities • Treatment of LNG in marine and rail regulations	• Federal funding to match provincial RNG commitments (e.g., $100 million in Ontario). • Introduce a $50 million "Green Pipeline" Fund to connect agricultural RNG supplies to the gas pipeline system. • Include RNG in renewable energy technology funds	• Allocate $100 million to co-fund with utilities energy efficiency retrofits for homes, businesses and industry. • Funding for clean technology and renewable energy technologies
GHG Reduction Potential	• By 2030, ICF estimates that .5 MT of GHG could be saved by connecting new communities to gas pipelines.	• By 2030, ICF estimates 4 MT of GHG's could be saved by delivering LNG and CNG to communities and industry using diesel and oil.	• By 2030, ICF estimates 5 MT of GHG's could be saved by expanding the use of LNG and CNG in transportation.	• By 2030, ICF estimates 14 MT of GHG's could be saved by blending up to 10% RNG into the Canadian gas pipeline system.	• By 2030, ICF estimates 11 MT of GHGs could be saved through deeper utility energy efficiency programs.
Year 2016 Examples of Federal Leadership	• $3 million in federal funding for a pipeline Asbestos, Quebec (Dec 2016).	• We are seeking to secure a role for LNG in Canada's discussions around an off diesel strategy, as per the Vancouver Declaration.	• $62.5 m over 2 yrs, starting in 2016–17, to NRCan to support infrastructure for alternative transportation refueling, including nat. gas.	• Minister James Carr's endorsement for CGA's 10% blending target for RNG in the gas pipeline system.	• Budget 2016: $800 million to NRCan to support clean energy investments.

Questions/Comments

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For more information visit
www.cga.ca