

26th World Gas Conference

1 – 5 June 2015 – Paris, France



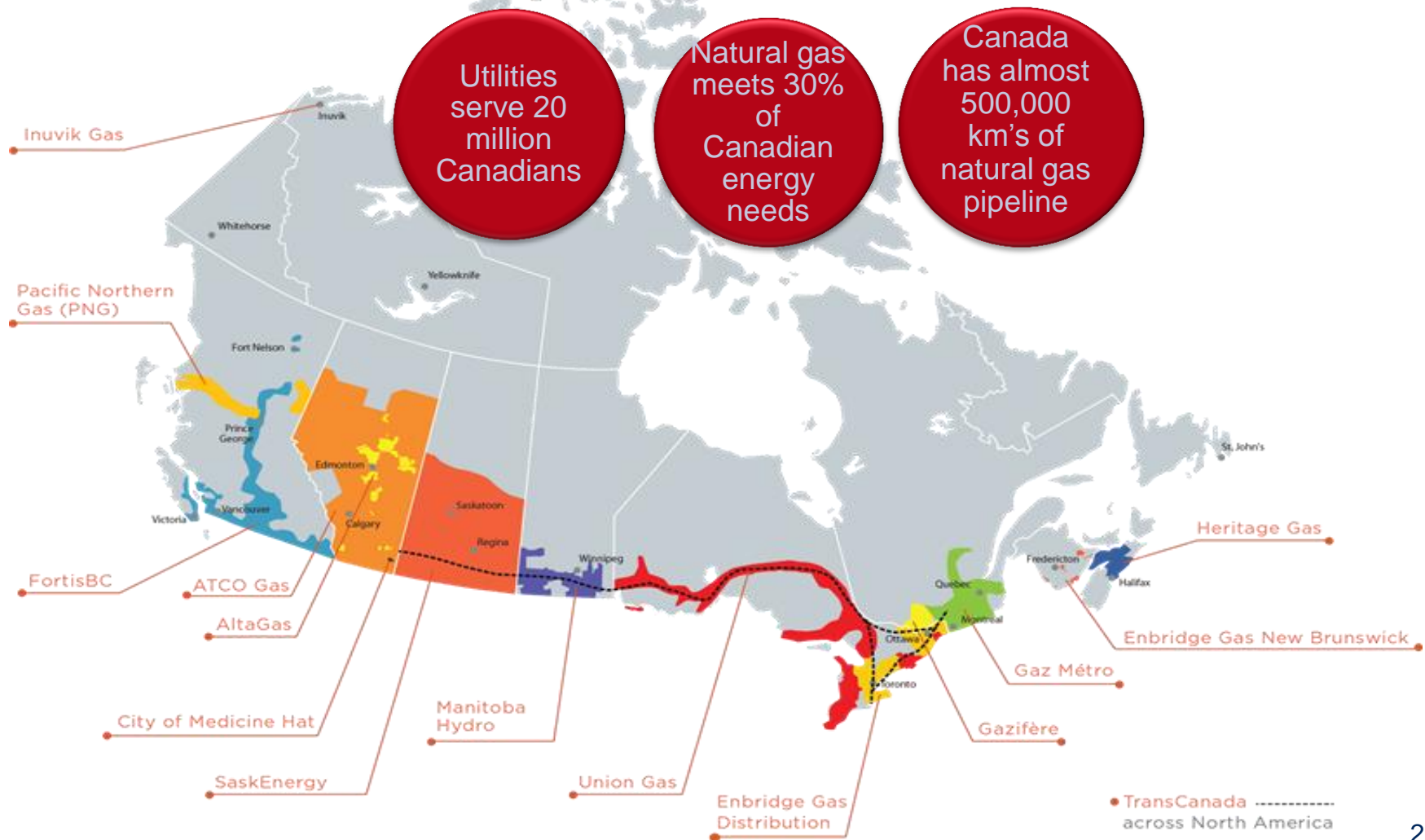
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Natural Gas Utility Collaboration: Driving Funding for Gas Technology Funding

Paul Cheliak
Director, Market Development
Canadian Gas Association

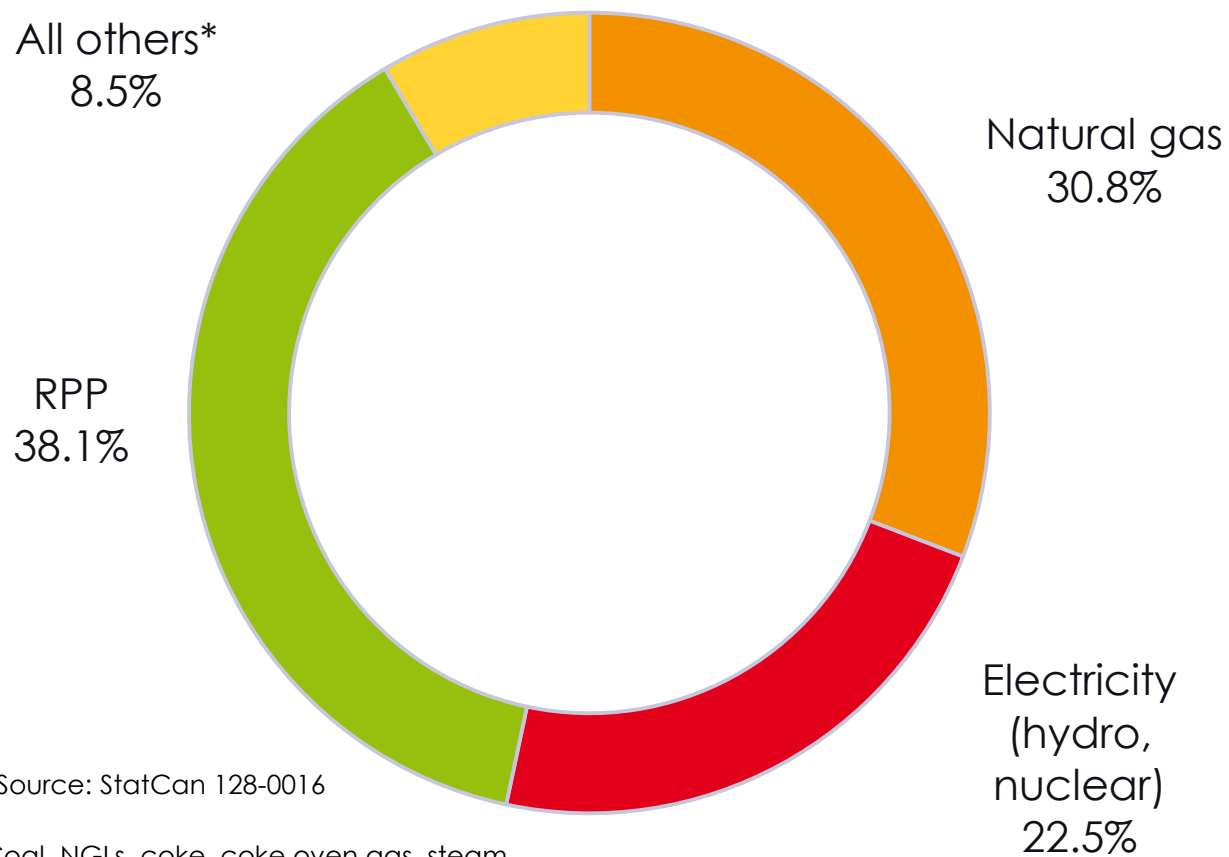


Canadian Natural Gas Utility Pipeline Infrastructure



Canadian Energy Use

Energy final demand - Canada - by type (%)

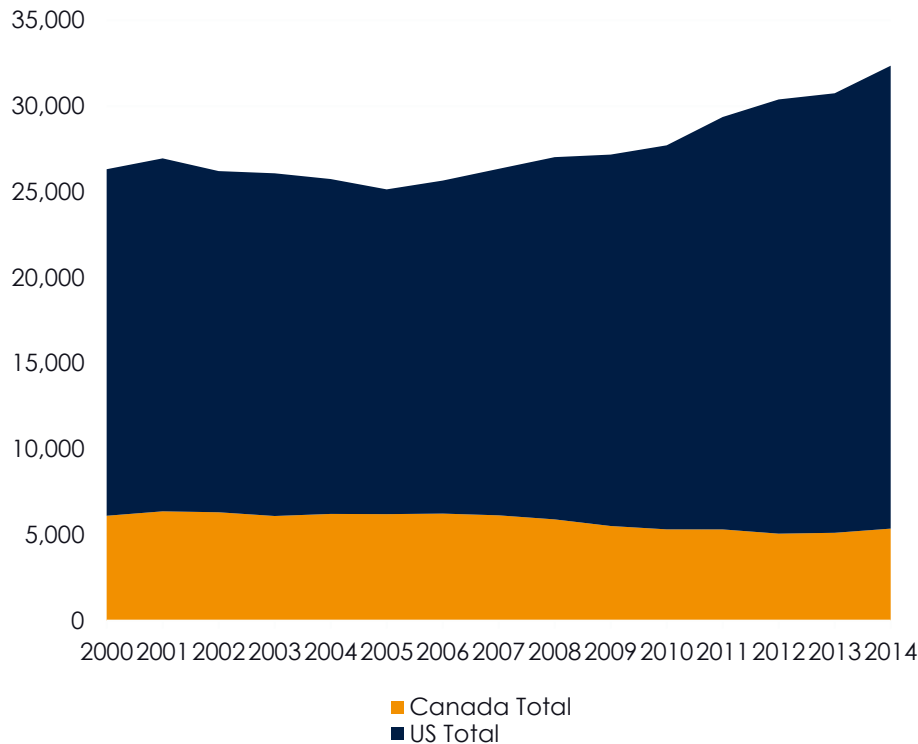


Source: StatCan 128-0016

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

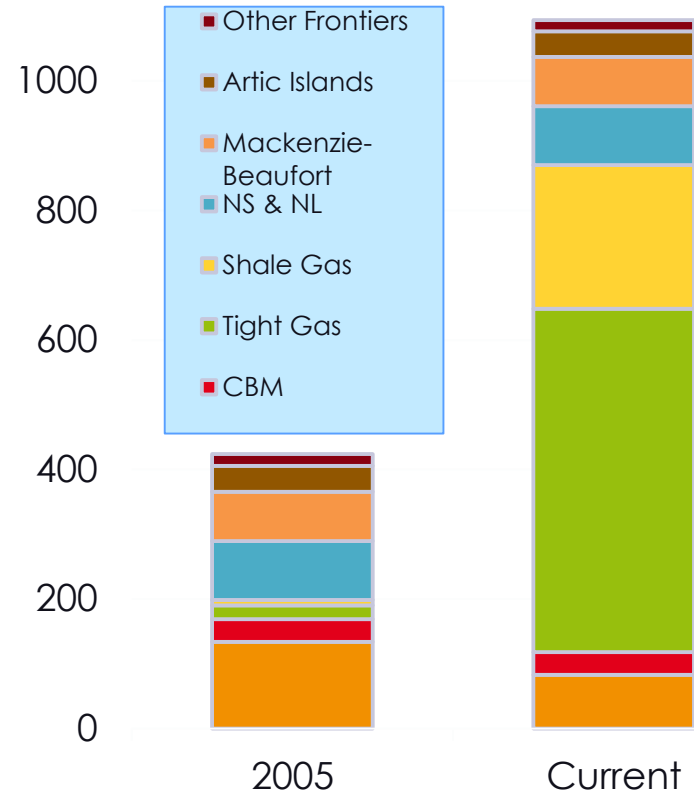
North American Production and Canadian Resources

Marketable natural gas production -
Canada + U.S.
(billions of cubic feet)



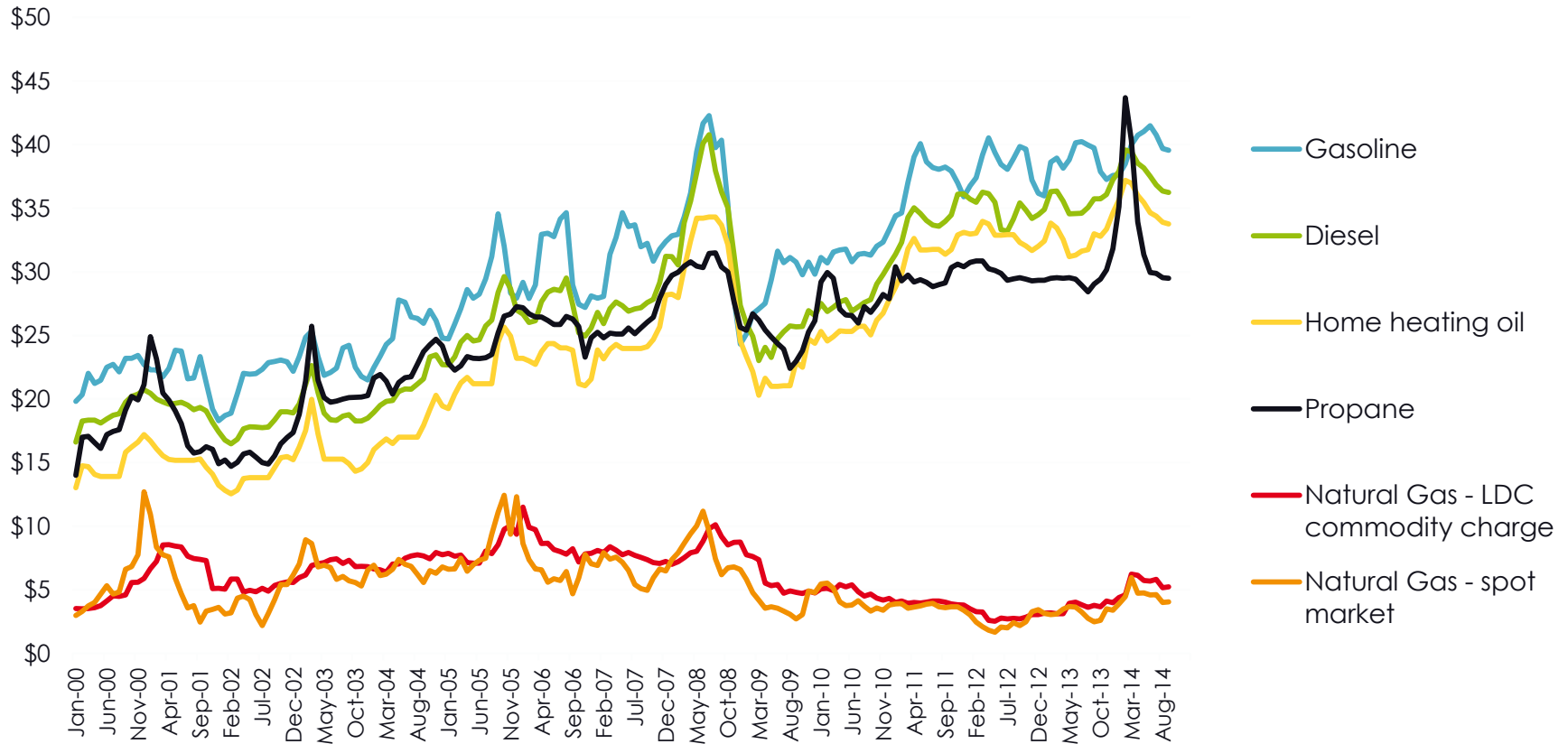
Source: U.S. Energy Information Administration, Canada National Energy Board

Natural Gas Resources
(trillions of cubic feet)
From National Energy Board



Canadian Energy Commodity Prices

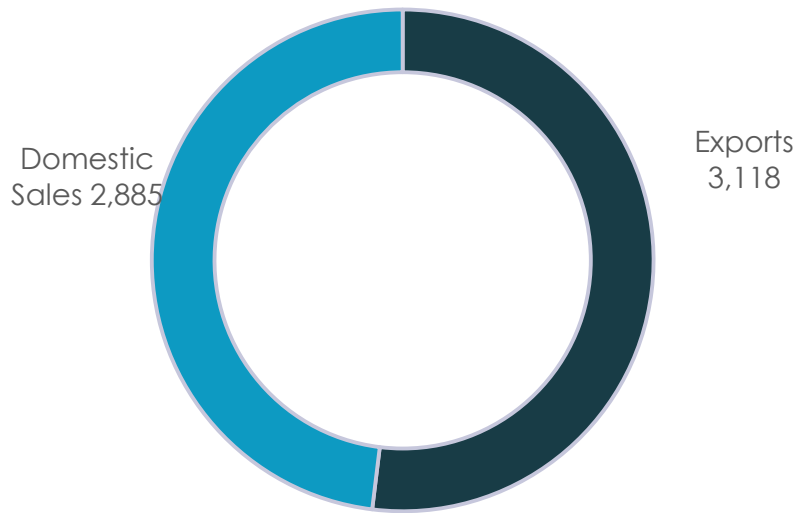
Energy commodity prices - Canada
(\$/mmBtu)



Source: StatsCan 326-0009, Kent Group, CGA

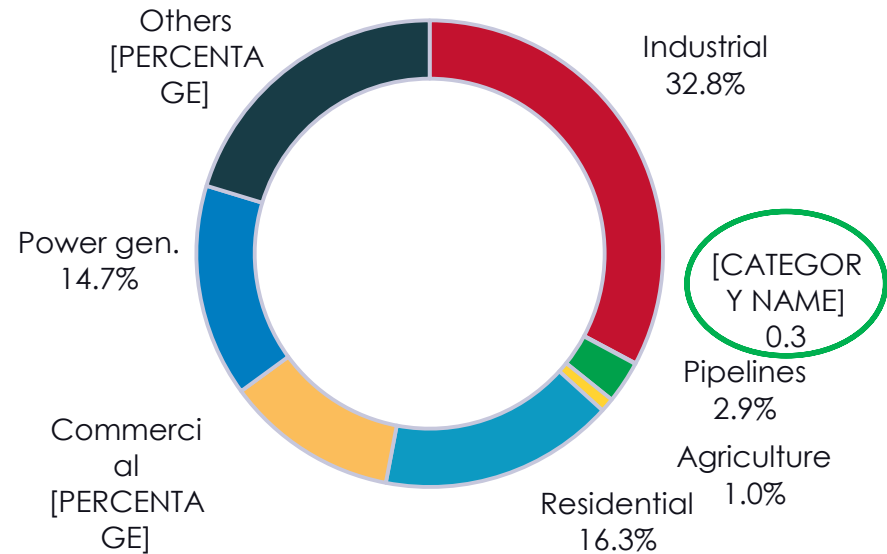
Canadian Natural Gas Export and Demand

2013 - Natural Gas Consumption and Exports (bcf)



Source: Statcan 131-0001

2013 Natural gas - final demand- by sector



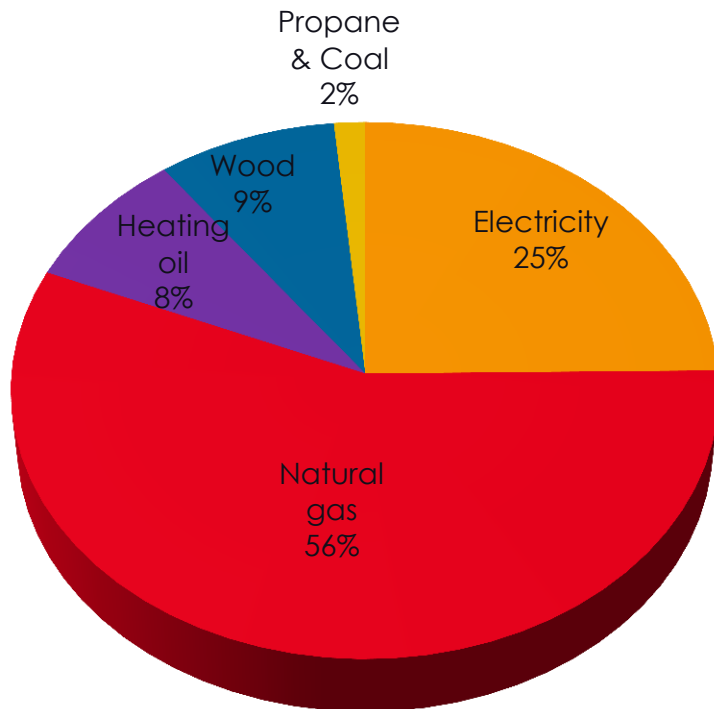
Source: Statcan 128-0016

In 2013, Canada exported over half its gas to the US

Less than 0.5% of Canada's natural gas use is for transportation.

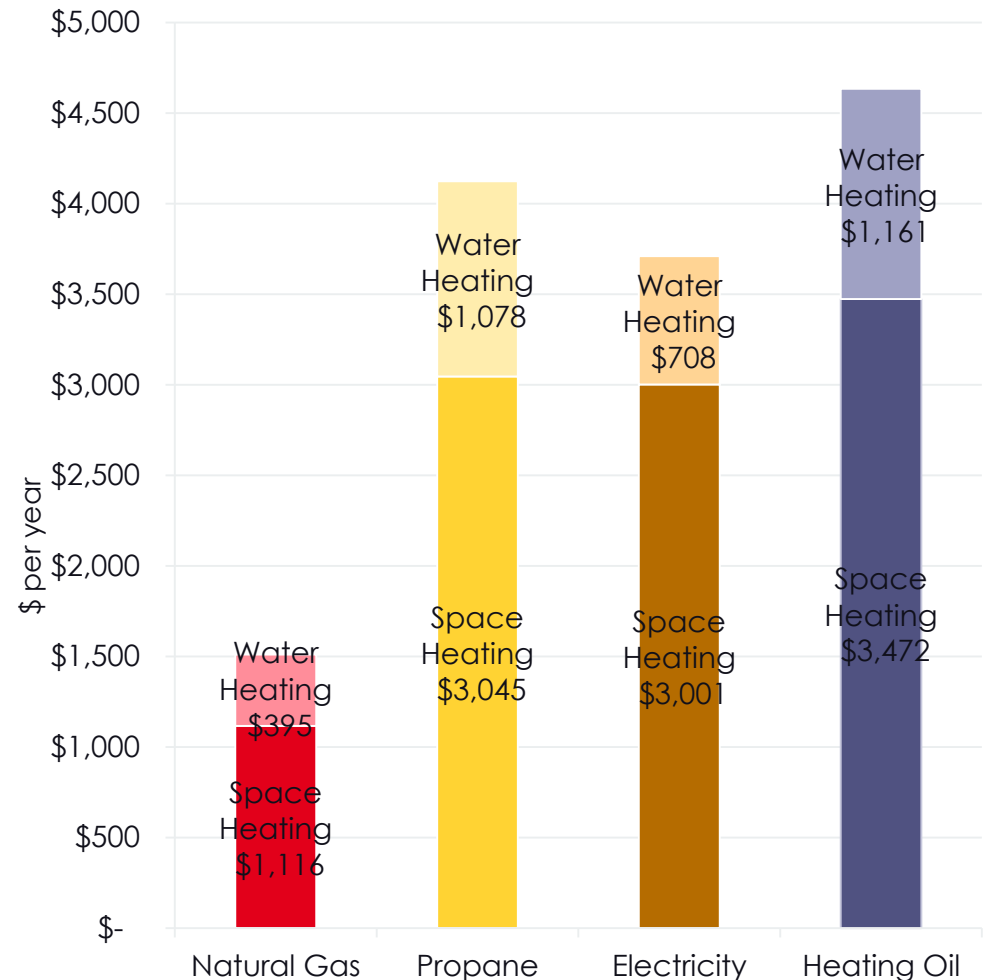
Canadian Energy Costs: Residential Analysis

Residential Space & Water Heating Energy Choices in Canada



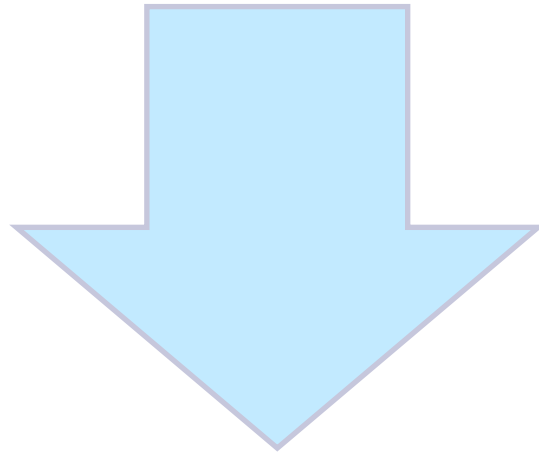
Source: NRCan End Use Database

Residential Space & Water Heating Costs - Canada, 2013

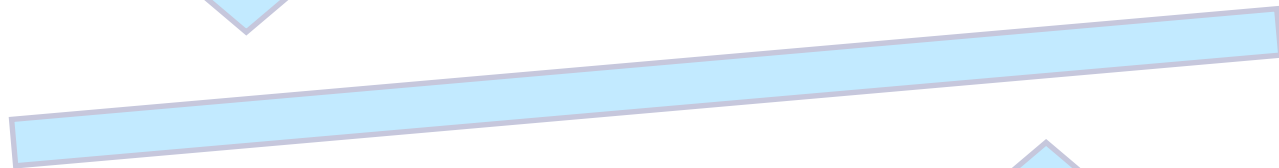


Sources: StatsCan, Hydro Quebec, Kent Marketing, Canadian Gas Association

The Energy Innovation Challenge and Utilities



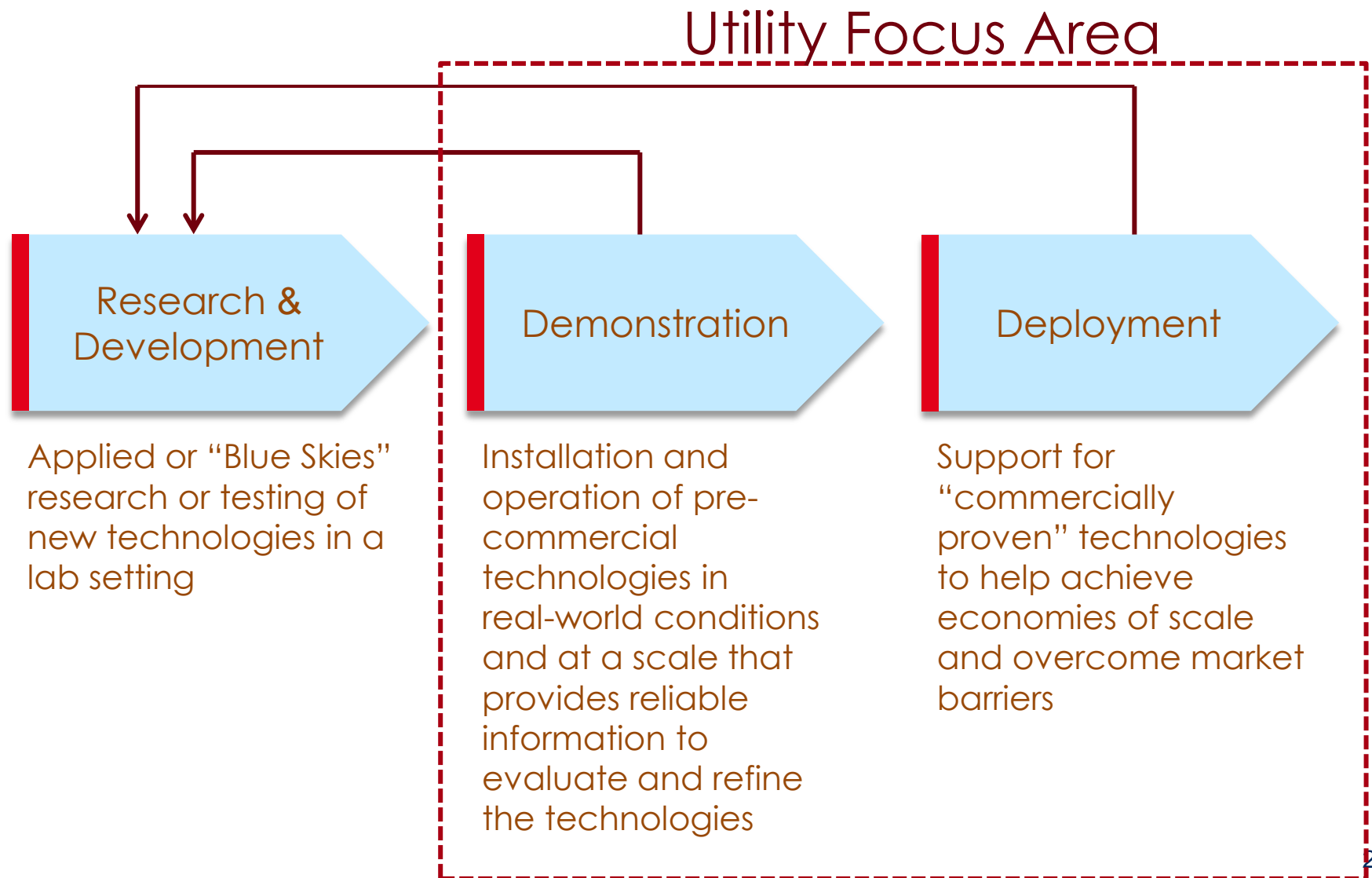
- Lack of Funding
- Sharing risk
- Finding a funding model that works



- We all want innovation
- We have succeeded in the past
- A dialogue is occurring



Three Stages to Energy Innovation



Examples of Utility Innovation

Research & Development

Natural Gas:

Cost effective residential micro CHP, natural gas cooling, condensing furnaces, biomass gasification to RNG quality

Demonstration

Natural Gas:

>0.80 EF natural gas water heaters, renewable natural gas offerings, LNG for locomotives.

Deployment

Natural Gas:

DSM/Energy efficiency programs: water heaters, combo space-water heaters, furnaces

The Utility Industry: Infused with the Public Interest

Economy

Employment, income + global competitiveness (more efficient end uses, opportunity to create new companies and jobs)

Environment

Energy efficiency, renewables

Reliability

Increased network resiliency, expedient outage recovery, distribution automation, and community energy systems

Security

Protection of network and production facilities against cyber attacks

Public Safety

Gas network integrity, emergency storm response

Social Benefits

Affordable service and technology advances for all customers

Utility Industry: A Period with Challenges and Opportunities

Challenges

- Aging infrastructure and workforce
- Diminished customer tolerance of outages
- Disruptive technologies (DG, Microgrids)
- Evolving security and privacy needs

Opportunities

- New services and products
- Customer empowerment and choice
- Resilience
- Lower energy costs
- Cleaner energy

An Emerging Alignment of Interests

Infrastructure renewal, consumer choice must be met by utility and regulatory solutions that mitigate total energy bills, enhance reliability, and promote environmental sustainability

Utilities and regulators will both be held to a higher standard

This will require both technology and regulatory process innovation

Utility role: propose an innovation portfolio that will meet future customers needs

Regulator role: Guidance, oversight, and cost recovery with some leniency in the short term

Policy Role: Signal need for innovative approaches to assist with broader policy issues (economic, environment)

Shared role: Stakeholder engagement, customer education, performance measurement, sharing of 'wins'

Impediments to Utility Innovation

Market

- Lack of customer awareness
- Product value chains need to develop
- No one 'owns' the utility innovation space – requires leadership

Industry

- Regulated monopolies employ a low risk approach
- Utilities do not compete with one another
- Relatively limited shareholder returns (limited upside for the utility)

Policy/Regulatory

- Mismatch between low-risk regulatory model and higher risk profile associated with innovation
- Policy signals are not being delivered on end use innovation to regulators
- DSM programs restrict innovative offerings

Pillar 3: Proposed Innovation Strategy

Collaborative Innovation Consortia

- Government, Utilities, Private Stakeholders
- Centralized expertise and RD&D capacity
- Technology advisory council with broad stakeholder representation
- Projects segmented by utility function and by time horizon

Regulatory Oversight and Program Management

- Majority of funding directed to collaborative projects with some utility-specific projects
- Multi-year (3+) innovation plans subject to regulatory approval (with funding authorization)
- Regulatory guidance for business case evaluation criteria
- Some discretion to optimize portfolio of projects
- Annual reports with traditional utility cost/management oversight

Funding

- Customer funded with reconciling mechanisms
- \$3-12/customer/year on gas and electric = \$140 m/yr, proposed to be matched by Federal Government.
- Pursue co-funding opportunities

Overview: 3 Pillars for New Gas Technology Funding

Pilar 1: Utility to Utility Collaboration

- CGA's Energy Technology and Innovation Canada

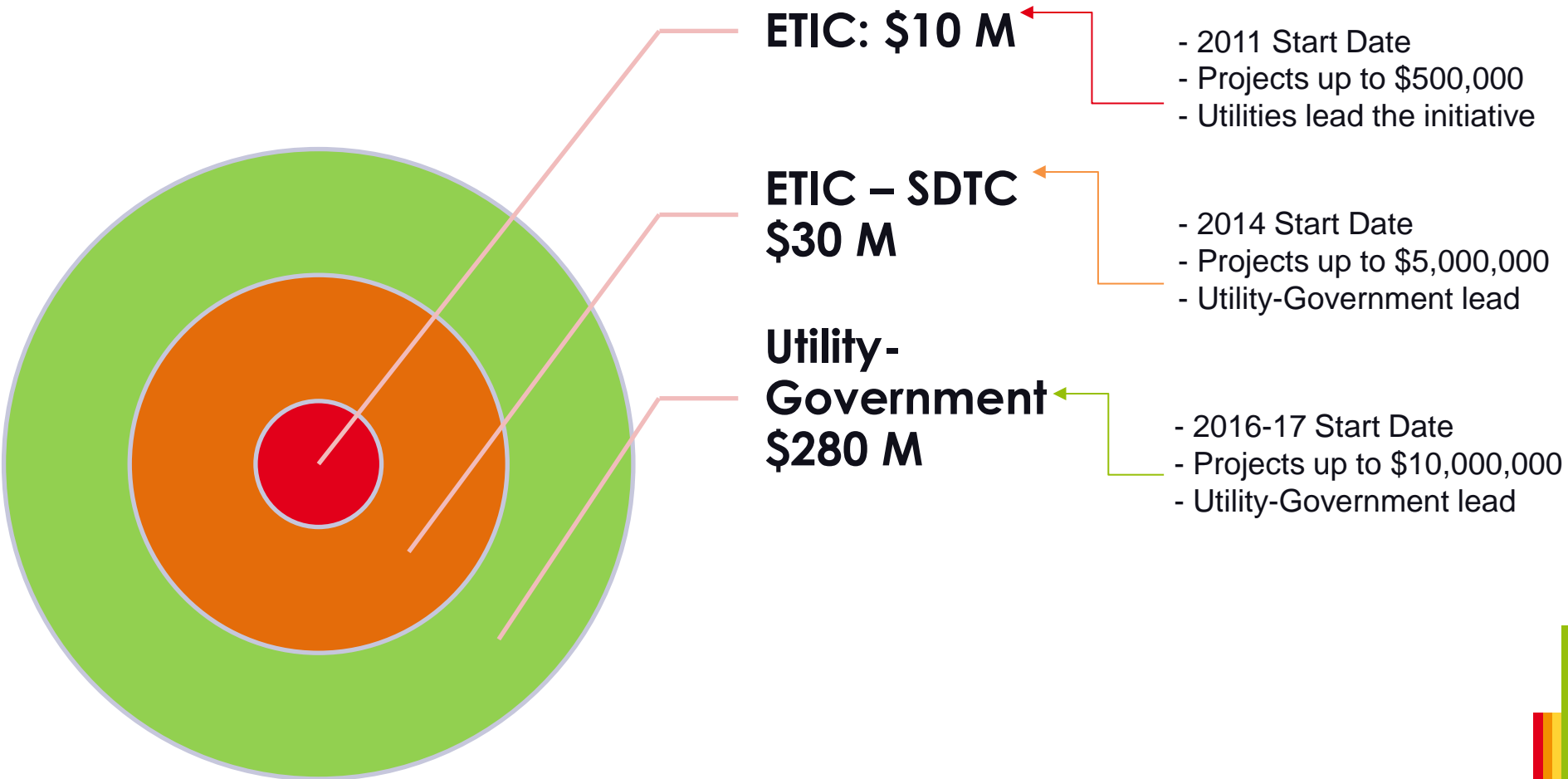
Pilar 2: Utility to Government Collaboration

- CGA's \$30 million Fund with Sustainable Development Technology Canada

Pilar 3: Utility Rate Payer Funding for Technology

- CGA's \$280 million proposal for an Innovation Levy on the Rate Base

Summary: Growing the Collaboration and Funding Level Over Time



Pillar 1: Utility – Utility Technology Collaboration: \$10 Million

Energy Technology and Innovation Canada

Collaboration for Next Generation Natural Gas Energy Solutions

ETIC Vision: To ensure that natural gas enabled technologies remain a significant part of Canada's low carbon energy future, through strategic investment in technology commercialization and innovation

Focus Areas

Project Details

Res, Com, Industry

16 Projects, \$8M

Remote LNG and CNG

1 Project, \$40K

Transportation

3 Projects \$100K

RNG

3 Projects \$1M

CHP

1 Projects \$100K

2014-15 Projects

- RNG Technology Roadmap
- Natural Gas Cooling Study
- Gas v. Electric Competitiveness
- Gas in Net Zero in Buildings
- mCHP Test Standard for NA
- Small scale LNG comparison
- Compact Furnaces
- Low Cost Condensing Economizers

Utility to Government Funding: \$30 million



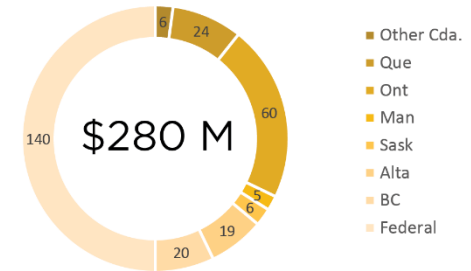
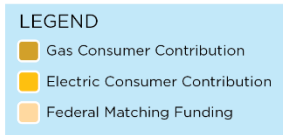
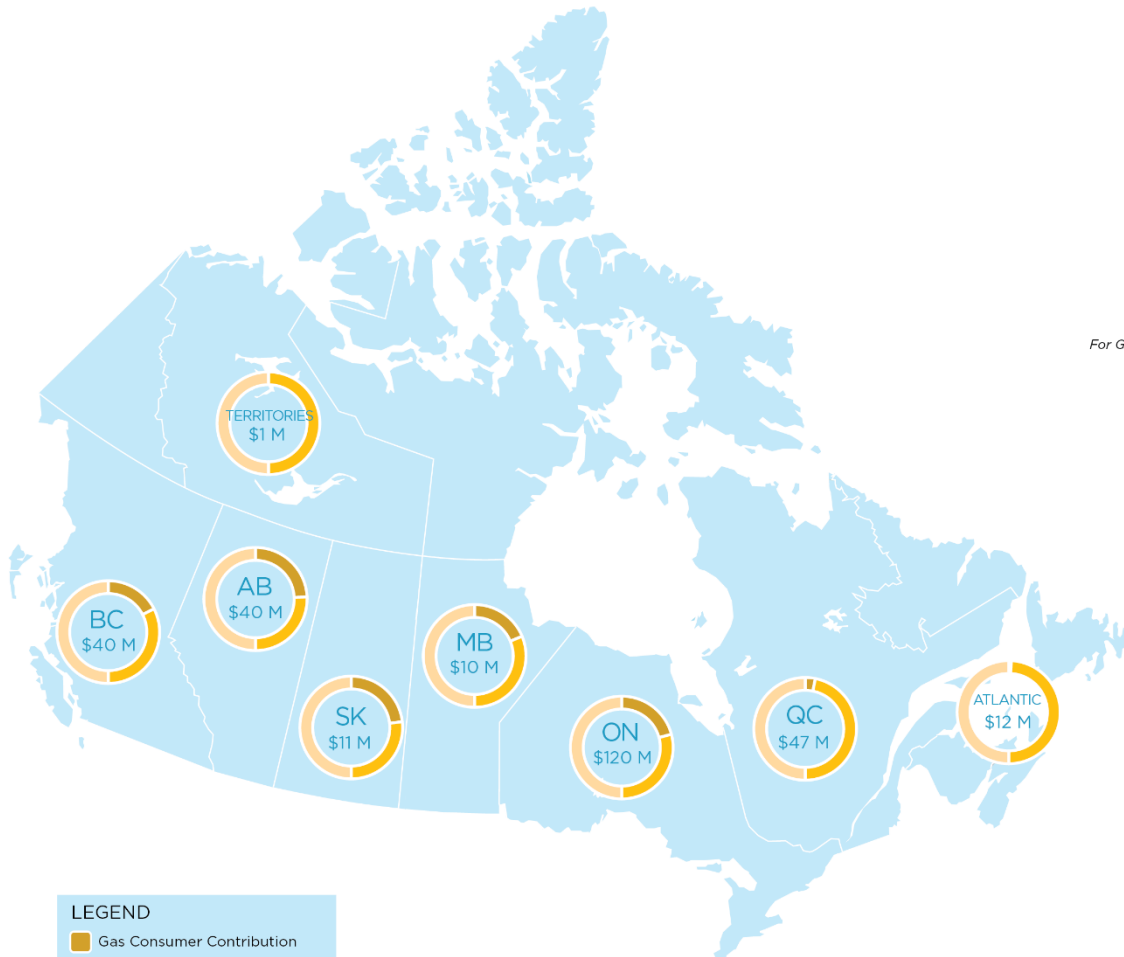
The SD Natural Gas Fund™ is a collaboration to support technology development in downstream natural gas.

- CGA will contribute up to \$15 million and SDTC will contribute up to \$15 million, creating a fund valued at up to \$30 million over three years.
- The Fund will make investments in end use natural gas technologies in the residential, commercial, industrial, power generation, transportation and renewable natural gas sectors

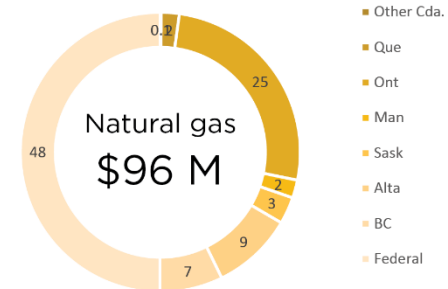
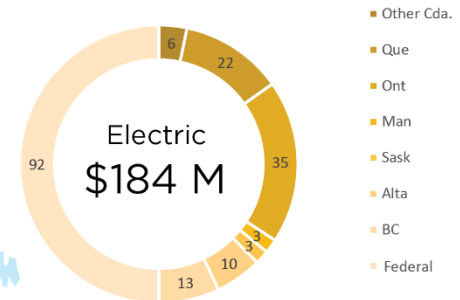
Interested in Applying For Funding: <https://www.sdtc.ca/en/apply/sd-natural-gas-fund>

Pillar 3: Utility – Federal Collaboration: \$280 Million

Canada's Energy Utility Innovation Funding Potential



For Gas and Electric Customers: \$6/year residential, \$12/year commercial



Canadian Gas Association: Public Resources

ENERGY | ÉNERGIE

INFORMATION, INSIGHT, AND PERSPECTIVE ON ENERGY | INFORMATION, APERÇU ET POINT DE VUE SUR L'ÉNERGIE

Diane Francis with Ian Macfarlane, Australian Minister for Industry
Diane Francis et Ian Macfarlane, ministre australien de l'Industrie

Abundant Demand - How can Public Policy help Keep Energy Affordable?
Demande abondante

Political commentators on Canada's "Energy Superpower"
Le Canada est-il un véritable superpuissance énergétique?

ENERGY | ÉNERGIE

INFORMATION, INSIGHT, AND PERSPECTIVE ON ENERGY | INFORMATION, APERÇU ET POINT DE VUE SUR L'ÉNERGIE

An Interview with Greg Ebel, Chief Executive Officer of Spectra Energy - Bringing Perspectives on Ontario's Energy Industry
Une entrevue avec Greg Ebel, chef de la direction de Spectra Energy - Regard sur l'industrie énergétique de l'Ontario

North America's Changing Energy Landscape - An Interview with Al Monaco
Le paysage énergétique changeant de l'Amérique du Nord - Une entrevue avec Al Monaco

Keys to the Future of Large Infrastructure Projects
Les conséquences de clés to go : Le futur des grands projets d'infrastructure

Transport Minister Lisa Raitt reflects on Transport and the Energy File
La ministre du transport, Lisa Raitt reflète sur les particularités du transport et la filière énergétique

An Interview with KO GAS President, Mr. Seokhyo Jang
Une entrevue avec M. Seokhyo Jang, président de KO GAS

What Can the Federal Government do to Help Keep Energy Affordable for Canadians?
Que pourrait faire le gouvernement fédéral pour continuer à offrir de l'énergie abordable à la population canadienne?

Energying the North - How Can we Drive Investment in Mining and Off-Pipe Communities?
Comment pouvons-nous favoriser les investissements dans les collectivités minières et sans pipeline?

ENERGY REGULATION - THE CONSUMER RELATIONSHIP

INTRODUCTION
Canada's natural gas distribution and transmission companies deliver energy solutions to meet the needs of homes, businesses, and industry. In order to ensure that these solutions are safe, reliable, and affordable, the Canadian Gas Association works with regulators, government, and industry to ensure that the natural gas supply chain is secure, efficient, and resilient.

OVERVIEW
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NATURAL GAS STORAGE

OVERVIEW
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NATURAL GAS STORAGE AND AFFORDABLE AND RELIABLE ENERGY SERVICES
The storage of natural gas in North America plays a critical role in balancing supply and demand. Natural gas production and demand fluctuate significantly between winter and summer. In fact, winter demand in Canada's residential and commercial sectors can surpass summer demand by up to six times. Natural gas storage helps to ensure that supply is available and an ability to respond to demand peaks year-round. This helps ensure affordable and reliable energy services for Canadians all year long as it is stored in the warmer summer months and distributed for use in the cooler winter months.

Click on the video above to see how and why natural gas is Canada's smart energy.

It is important to understand your natural gas bill. Click on the video above to see how natural gas is an affordable energy solution.

Subscribe to our YouTube channel : <http://www.youtube.com/user/CdnGasAssociation>

Cliquez sur la vidéo ci-dessus pour découvrir comment et pourquoi le gaz naturel est l'énergie intelligente du Canada.

Il est important de comprendre votre facture de gaz naturel. Cliquez sur la vidéo ci-dessus pour découvrir combien le gaz naturel est une solution énergétique abordable.

Cdn Gas Association
@GoSmartEnergy

Over 25 million Canadians in homes, businesses, schools, hospitals, and industry use affordable, clean, safe, and reliable natural gas energy to do things right.

545 TWEETS | 1,994 FOLLOWERS | 1,329 FAVORITES

Tweets
@GoSmartEnergy
Support innovation in clean energy industry. #SmartEnergy #CleanEnergy #Innovation

@GoSmartEnergy



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