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Développement durable de l'industrie des gaz  
de schiste au Québec

6212-09-001



**Natural Gas  
Smart Energy  
and  
A Foundation of Canada's Clean Energy Future**

**Canadian Gas Association submission to the Bureau d'audiences publiques sur  
l'environnement on the sustainable development of shale gas in Quebec**

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# Natural Gas: Smart Energy and a Foundation of Canada's Clean Energy Future

## Canadian Gas Association Submission

### Overview

People across this country desire an energy system that meets the needs of a growing economy and population, with minimal environmental impacts and the most efficient use of resources. Natural gas is the foundation of that system. Natural gas is the largest form of energy produced in Canada and accounts for 30% of the energy use across the country – and is the most important energy source in every sector of our economy – save transportation.

Natural gas is a growing domestic resource available in all regions – including Quebec; a significant provider of public revenue; an affordable energy choice; a safe and reliable fuel; a clean source of energy; and, a flexible energy partner for buildings and communities, power generation and export, and transportation. Because of these unique values and given the energy and environmental objectives set by governments across the country, natural gas is smart energy: a core strategic asset and the efficient foundation of Canada's clean energy future.

*Despite low natural gas prices, British Columbia posted a better than expected \$98 million in land lease sales for the month of August. Sales were primarily from buyers of natural gas targets in northeast British Columbia. The year to date total for 2010 is now \$760 million.*

### Natural Gas is Smart Energy

***It heats over 6 million homes and powers businesses across the country. It can fuel vehicles and help make electricity systems more flexible. It is versatile, affordable, safe, clean and reliable. As Canada's energy mix continues to diversify, so will the role of natural gas within it—both as a primary energy source and the foundation of innovative renewable alternatives.***

### Abundantly Available:

North America's natural gas resources have been increasing over the past decade, mainly due to technological advances in recovery from unconventional sources (such as the significant supplies recently discovered in Quebec). North America has over a century of supply and continuing innovation promises to unlock still more from shale, renewable, and other sources.

### Clean Energy:

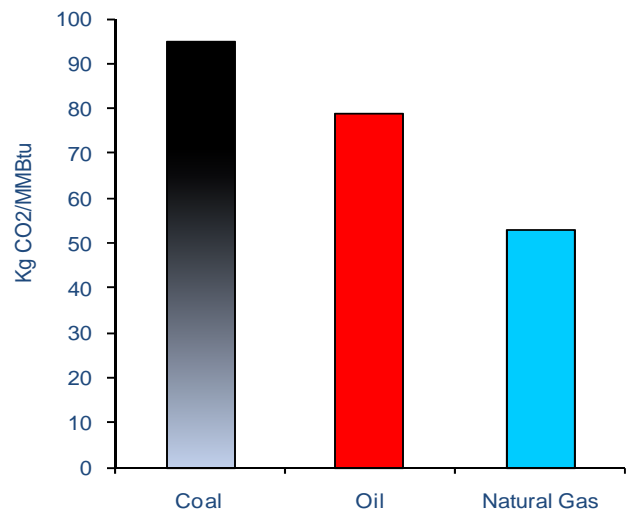
Natural gas is a clean burning source of energy. Market-ready natural gas has no ash content, is not a primary or major source of particulates, contains no sulfur dioxides, has negligible sulfur content, produces minimal nitrogen oxides, and has a low greenhouse gas emissions profile which has the potential to be further lowered by introduction of renewable natural gas in the mix. As well, the technologies that use natural gas are highly efficient – up to 95% in home heating, up to 80% efficient in water heating and 80% in electric power generation.

### Versatile:

Natural gas provides almost one-third of all energy used across the country and is the #1 energy source in Canada's residential, commercial and industrial sectors. It is an instant, on-demand energy source and natural gas-based technologies can be scaled to size.

Today, over six million customers - ranging from home owners, small businesses, hospitals, schools, large industry, and power generators - depend on natural gas for a wide-range of energy needs because it provides the right amount of energy where and when it is needed. As well, the ability of natural gas-fired power stations to 'ramp-up' at a moment's notice make it the ideal partner to facilitate intermittent renewable electricity generation from sources like wind and solar.

Carbon Dioxide Emission Factors for Stationary Combustion



Source: US EIA

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### Affordable:

Natural gas is an affordable energy choice. The price that consumers pay for natural gas is driven by the open market forces of supply and demand which help keep the market competitive. Moreover, with an increasingly abundant supply, ample storage capacity, a robust natural gas commodity market, the high efficiency of fuel-using equipment, and the competitive capital cost of fuel-using equipment, natural gas will continue to be an affordable energy solution for a wide range of needs.

### Reliable:

The extensive natural gas pipeline system through Quebec and across most of the country is designed with multiple redundancies and safety features. This system is backstopped by significant natural gas storage facilities. In North America, storage sites can hold two months worth of supply that ensures natural gas is available and affordable at all times.

### Safe:

The natural gas industry meets the highest standards, working with a world class regulatory system for exploration, production, transportation, distribution and use. Protecting workers and the public is the top priority of the natural gas industry. Natural gas itself is non-toxic and easily disperses in open spaces.

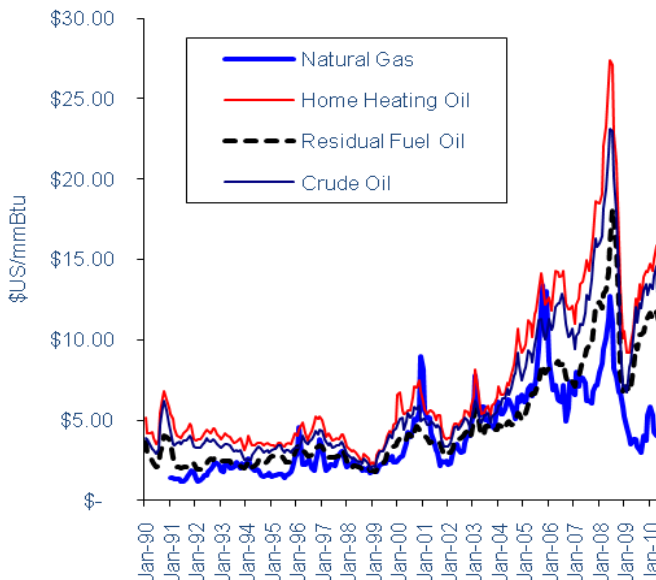
### Natural Gas is a Foundation for a Clean Energy Future

All regions of this country have abundant energy resources of one kind or another - hydroelectric, nuclear, oil, coal, renewable and natural gas. All of these energy forms are likely to form a part of Canada's energy mix for the foreseeable future. However, in order to stay competitive in a global economy and respond to environmental challenges more attention has to be given to the efficient and effective use of these resources - that is ensuring the right fuel is used in the right place, and at the right time.

Natural Gas, when partnered with technologies that take full advantage of its unique attributes, is an extraordinarily efficient energy choice. For example:

- Natural gas is the smart choice for a variety of space and water heating applications, and the highly efficient technologies available today can be "right sized" to meet the needs of any building.
- The ability to efficiently generate electricity using natural gas provides opportunities for system planners to make power available where and when it is needed. This permits easy integration with other technologies like hydroelectricity, facilitating the better management of those resources for export and other uses.
- The "on-off" flexibility of natural gas makes it a good partner for renewable generation such as wind and solar.
- Natural gas provides a reliable source of affordable, efficient energy for a wide range of industrial processes, particularly those requiring heat or steam. The lower emissions of natural gas and the ability to install combined heat and power technology provide significant environmental benefits.
- For heavy duty transport vehicles and for urban fleet vehicles, using natural gas as a fuel can provide over-life cost benefits for fleet owners, along with environmental benefits. Canadian companies are global leaders in the development and deployment of today's natural gas vehicle technologies and want to see those technologies flourish in places like the high volume transit corridor from Quebec City to Windsor.

Natural Gas & Oil Products Prices



Source: CGA, US Federal Reserve, World Bank

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Because of the unique values outlined above, natural gas is a foundation for a smarter, more efficient, energy future....

### **...In Homes and Businesses...**

*For direct heating—including space and water heating, cooking and drying—natural gas is the most energy-efficient choice available, with both environmental and economic benefits. Natural gas helps reduce emissions and—because of the promise that innovation will unlock unconventional, renewable and other sources—is also likely to remain highly affordable.*

***For Quebec, a domestic natural gas resource means the opportunity for a more diversified and flexible energy supply options – and the competitive price advantages that could follow from that. Improved natural gas supply can help efficiently serve Quebec's heating demand, freeing up more hydroelectricity for higher profit export that will cut emissions in nearby regions.***

### **...In Communities...**

*Canada's extensive natural gas delivery infrastructure will allow communities to establish energy systems that integrate locally available energy sources in the most efficient ways—with natural gas as a reliable, fundamental component in the mix. Meeting Canada's climate change and clean air goals will require large reductions in energy consumption across all sectors of the economy. The best way to address energy end-use and reduce GHGs is through an integrated, community based approach, by matching the type of energy with its use, managing and using surplus heat energy, converting various forms of waste to energy, and integrate renewable sources of energy with existing energy grids. The potential and benefits of integrated community energy solutions (ICES) are already recognized.*

***For Quebec this means more integrated community energy systems where less energy can be utilized, improving the environmental footprint, reducing expenses and again freeing up energy resources like hydroelectricity for other uses.***

### **...In Industry...**

*Natural gas has many important industrial uses. It is a feedstock for chemical processes, a fuel for process heat applications, a source for hydrogen production through steam reformation, and an important fuel for on-site industrial power generation. The consistent heat offered by natural gas combustion, the absence of oils and waxes, the negligible sulphur content, the zero ash content, and the negligible particulates also make it ideal for use in industrial kilns and blast furnaces.*

***For Quebec this means a low cost input to help build a more robust manufacturing and industrial sector.***

### **...In Transportation...**

*Transportation sources accounted for 30% of Canada's GHG emissions in 2008, with heavy-duty trucks responsible for a growing proportion of that total. Natural gas can provide an estimated 25% reduction in GHGs for heavy-duty fleets.*

*The use of biogas increases the lifecycle benefit dramatically. For municipal fleets, heavy-duty highway trucking and return-to-base shippers, Canadian technology exists to switch to clean, reliable compressed natural gas (CNG) or liquefied natural gas (LNG)—reducing costs, emissions and dependence on imported energy. In the right sized fleet, natural gas can reduce fuel costs by 15 to 30 percent. And with a North American supply expected to last more than 100 years, natural gas will remain affordable*

***Robert Transport of Boucherville, Quebec, one of Canada's largest for-hire trucking companies, has ordered 180 liquefied natural gas (LNG) trucks. Fuelling the Robert Transport fleet is Gaz Métro, a leading distributor of natural gas.***

***This project highlights the benefits of natural gas as a transportation fuel solution to the imperative to reduce GHG emissions from heavy-duty transport sector.***

***For Quebec this means a fuel that can reduce transportation emissions on the high volume transit corridor from Quebec to Windsor.***

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### ...In Power Generation...

Natural gas for power accounts for 13 per cent of Canadian gas demand, with gas power generation facilities located in most provinces including Quebec. Natural gas consumption in the power generation sector has increased by 70 per cent over the twelve year period from 1997 to 2009. This increase is due to the fact that the attributes of natural gas make it the right choice for meeting electricity needs. Natural gas also offers considerable benefits as a fuel for distributed power generation in combined heat and power (CHP) and combined cooling and power (CCHP) applications will also make gas a compelling choice. Industry's sizable energy needs, particularly for process heat and electricity, mean that the increased energy efficiency available through the use of natural gas can decrease their total energy use, cut costs, and improve their competitiveness.

***For Quebec this means niche applications like CHP and integrated community energy systems which can maximize overall system efficiency.***

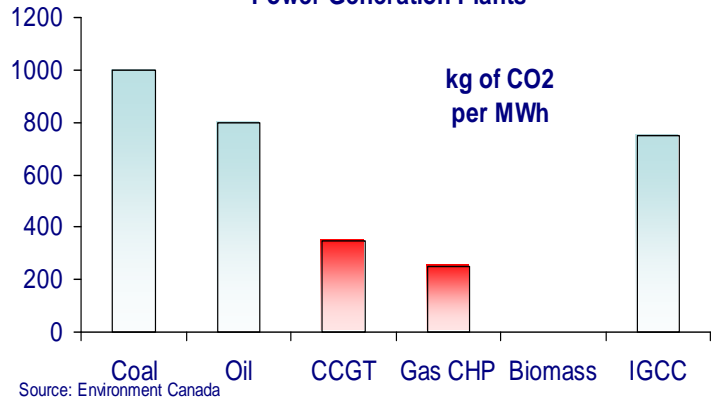
### Conclusions

The growing potential for natural gas supply from within the province offers the opportunity to create an even more robust energy system for Quebec. With natural gas more readily available, Quebec's entire energy system, including its hydroelectric resources, becomes more diverse and flexible. Quebecers will have the opportunity to use their domestic energy resources more efficiently, for their continued economic and environmental wellbeing.

The discovery of natural gas therefore presents significant opportunity for Quebec's energy future. As should be the case, all are concerned that the resource development proceed responsibly, protecting the physical environment and the interests of all affected stakeholders.

The Canadian Gas Association believes this responsible development can and will occur, much as it has across the country, and Quebecers can look forward to the benefits – energy, environmental, and economic – that natural gas development can bring.

**Emissions Comparison from Various Power Generation Plants**



**Emissions Comparison from Various Power Generation Plants**

