

CGA By the Numbers: The Ups and Downs of Natural Gas Prices

In this issue of *By the Numbers*, we look at the price of natural gas services. We breakdown a typical gas utility bill and explain the components. We describe the market factors that affect natural gas commodity prices to help explain why they have increased. We also provide comparisons of Canadian natural gas prices with those elsewhere, and with the cost of other energy alternatives here at home.

The key points are as follows:

1. The gas commodity price is determined by the open market and is the usual cause of fluctuations in natural gas utility bills. There is no mark-up applied to the commodity: the price a distribution utility pays for gas is the price the consumer pays for gas.
2. There are numerous factors that effect natural gas price changes. Recent increases are the result of quick growth in demand post-pandemic, and heightened LNG demand globally.
3. A steadily increasing charge on the consumer's bill is carbon taxes. These are rapidly raising the price of natural gas energy services across the economy.
4. In spite of market conditions and carbon taxes, natural gas remains the most affordable heating option in most applications – cheaper than electricity, propane, and heating oil.
5. Gas prices in Canada remain amongst the lowest in the world. Compared to prices in the US, Europe, and Asia, the benchmark price in Canada is as much as 83% lower as of mid year 2022.

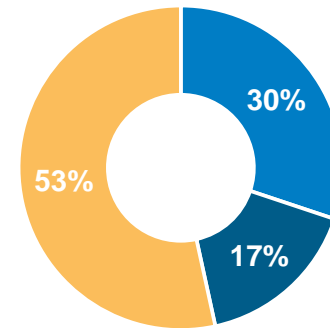
Affordability is front-of-mind for many Canadians in the face of rising inflation. Natural gas affordability has been and remains key for Canadians' wellbeing. In this difficult economic environment, CGA thought it important to explain the costs associated with natural gas services. In Canada, your natural gas bill consists of three main components:

- a gas commodity charge;
- delivery (transmission and distribution) charges; and
- a charge for carbon taxes.



The gas commodity charge is a market-based price that is paid to natural gas producers. Unlike the transmission and distribution charges, the commodity price is non-regulated, and it fluctuates as market conditions change. Natural gas delivery companies pass this commodity charge directly through to customers without mark-up – the price the companies pay is the price the consumer pays for the gas used. Figure 1 depicts the breakdown of a typical natural gas bill in January 2022.

FIGURE 1: TYPICAL NATURAL GAS COST BREAKDOWN

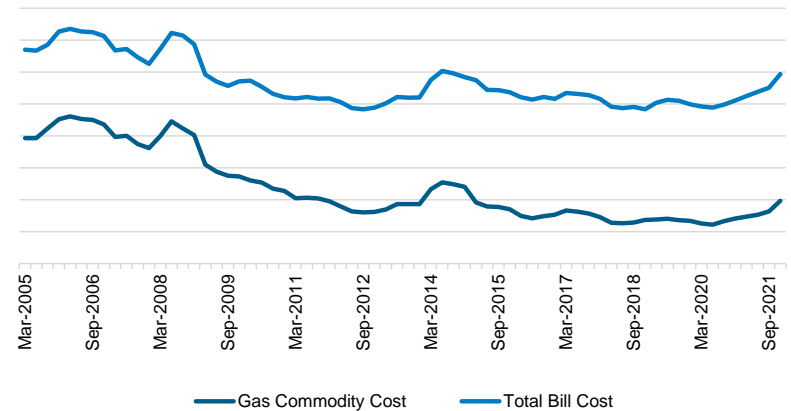


■ Gas Commodity ■ Carbon Tax ■ Transmission & Distribution

Source: CGA

Figure 1 indicates a January 2022 commodity price amounting to 30% of the total gas bill as of that date. The percentage contribution of the commodity price goes up and down, depending on the market price of the commodity. Since 2005, the commodity price has ranged between 25% and 62% of the total bill, depending on gas markets. This means the customer can actually see how markets have a direct impact on the price ultimately paid to utilities. This relationship between total bill costs and gas commodity costs, as shown in Figure 2, makes this point. The graph also shows how despite recent gas commodity price increases, gas remains significantly more affordable than it has been over the last few decades. And indirectly, the graph demonstrates how distribution and transmission costs have stayed relatively constant throughout this period.

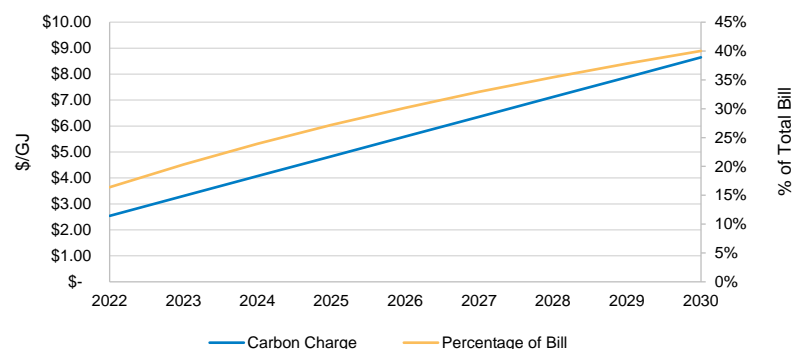
FIGURE 2: AVERAGE ANNUAL COST



Source: CGA

In contrast to the market-based fluctuations of the commodity price – both up and down over time – it should be noted that the carbon price charge is only going one way: up. Carbon taxes will rise significantly every year, at least until 2030. Today, the carbon price is set at \$50 per tonne, meaning consumers pay an additional \$2.54 per GJ, about 17% of the total bill, for these taxes. By 2030, when the carbon price reaches \$170 per tonne, the carbon charge on consumer bills will increase to \$8.65 per GJ. Assuming other charges stay the same, the carbon charge alone could make up 40% of the total bill costs.

CARBON CHARGE



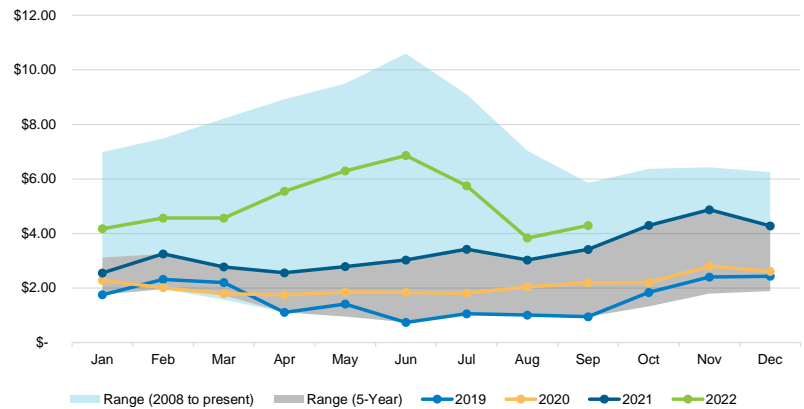
Source: CGA, ECCC

We noted that the recent rise in gas utility bills is partly a result of higher gas commodity prices. Though prices have since come down, the benchmark price for natural gas in Alberta reached \$6.86 per GJ in June 2022, its highest point since 2008. What is behind the rising commodity price? As we explain below, there are several factors at play.

The first factor to examine is natural gas consumption. The demand for natural gas in 2022 has been significantly higher than the demand in 2021. Since mid-2021, as the economy has recovered from the shutdowns brought about by governments to manage the COVID-19 pandemic, demand for energy services has increased dramatically. Furthermore, much of the country experienced extremely cold temperatures between December 2021 and January 2022. In January 2022, consumption reached its highest point in the last five years, exceeding the previous max by more than 16%.

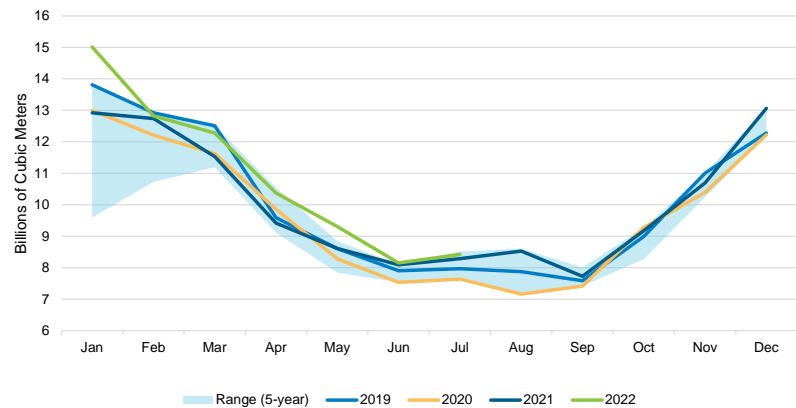
However, domestic consumption only explains part of the demand picture. Recovery elsewhere in the world has also been dramatic and has built upon the longer-term trend of demand from less developed countries for affordable, clean, reliable natural gas. Added to all of this, the ongoing invasion of Ukraine by Russia and its impact on European energy markets has significantly increased demand for LNG cargoes. Despite our continuing inability to export LNG in any significant quantity, Canada has sent more gas by pipeline into the US, where existing LNG facilities can receive and liquefy the Canadian product for export overseas. Obviously, our ability to do this is limited given the limits of our pipeline export capacity. This trend can be seen on the graph – gas exports to the US have remained high even as we come out of the heating season. The volume of natural gas exported in April 2022 was nearly 20% higher when compared to the same month in 2021. The world wants more natural gas, and that affects global prices. Until countries like Canada can deliver more of their clean and affordable product, these price pressures will continue.

ALBERTA NATURAL GAS PRICE (CAD/GJ)



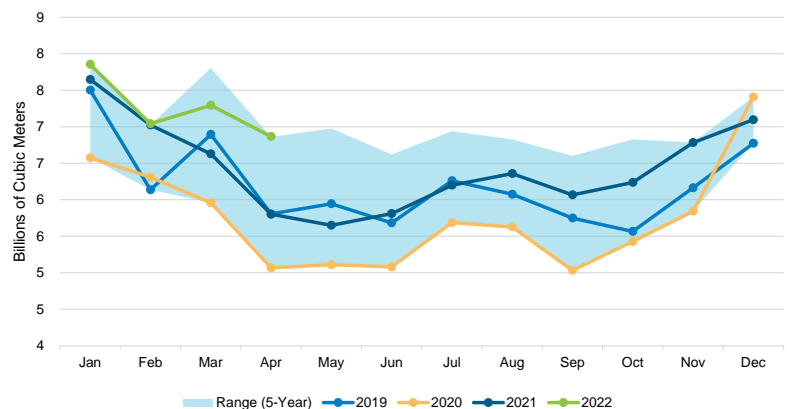
Source: ICE

DOMESTIC GAS DEMAND



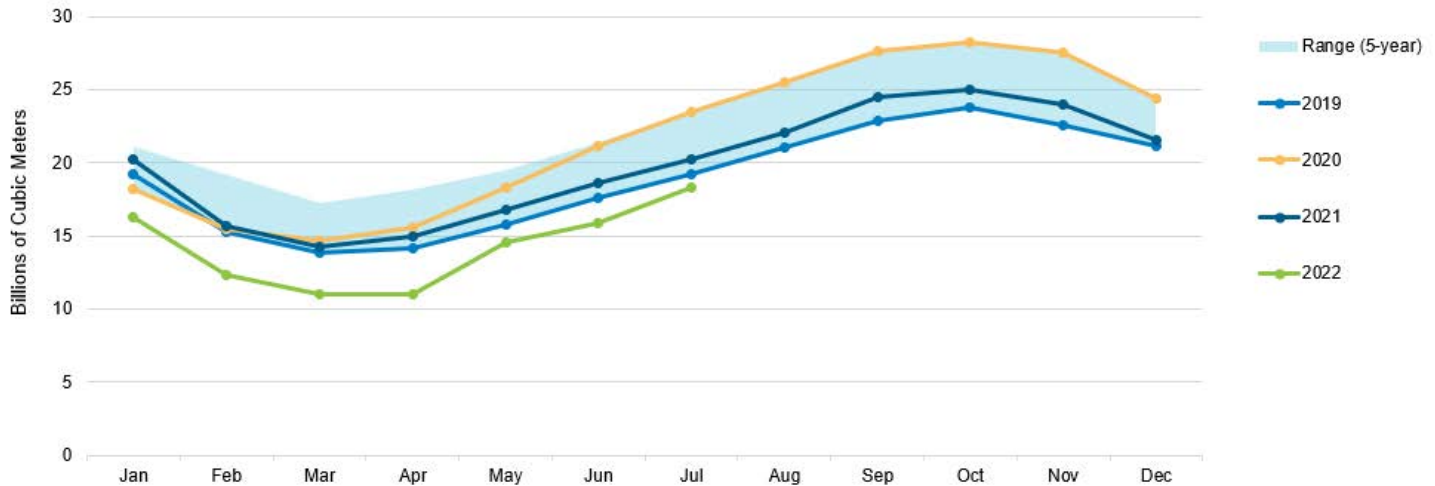
Source: StatsCan

NATURAL GAS EXPORTS



Source: StatsCan

NATURAL GAS STORAGE

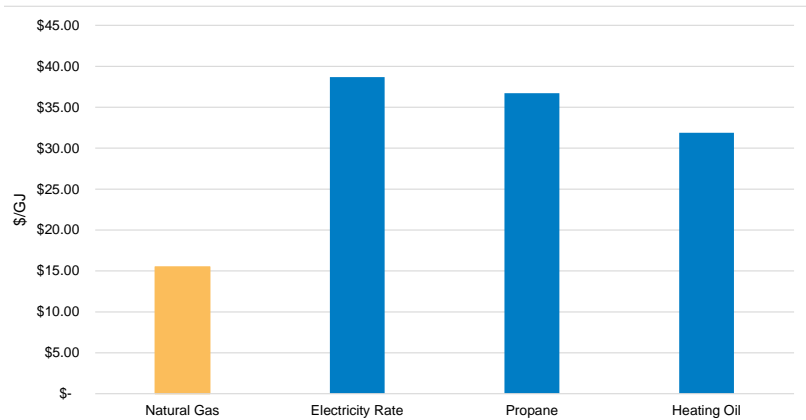


Source: StatsCan

Another important factor that can affect domestic prices is storage. Canada's largest energy battery is natural gas storage. In a typical year, natural gas is stored throughout the summer when demand is at its lowest and therefore prices are lower, allowing reserves to be built up in anticipation of the winter heating season when demand (and therefore prices) can be much higher. Filling our storage reservoirs is a hedge against higher prices for consumers in the winter, not to mention a great energy security guarantee. However, between January and July of 2022, Canadian storage levels were at their lowest levels in the last five years – less than the previous lows by nearly 25% – because of the demand pressures noted above.

The various inflationary pressures have been real and hard on consumers, and it means all are looking to find ways to reduce costs. The natural gas affordability advantage remains key here. It is hard to demonstrate that advantage when different energy commodities are priced in different units. But if we translate leading energy

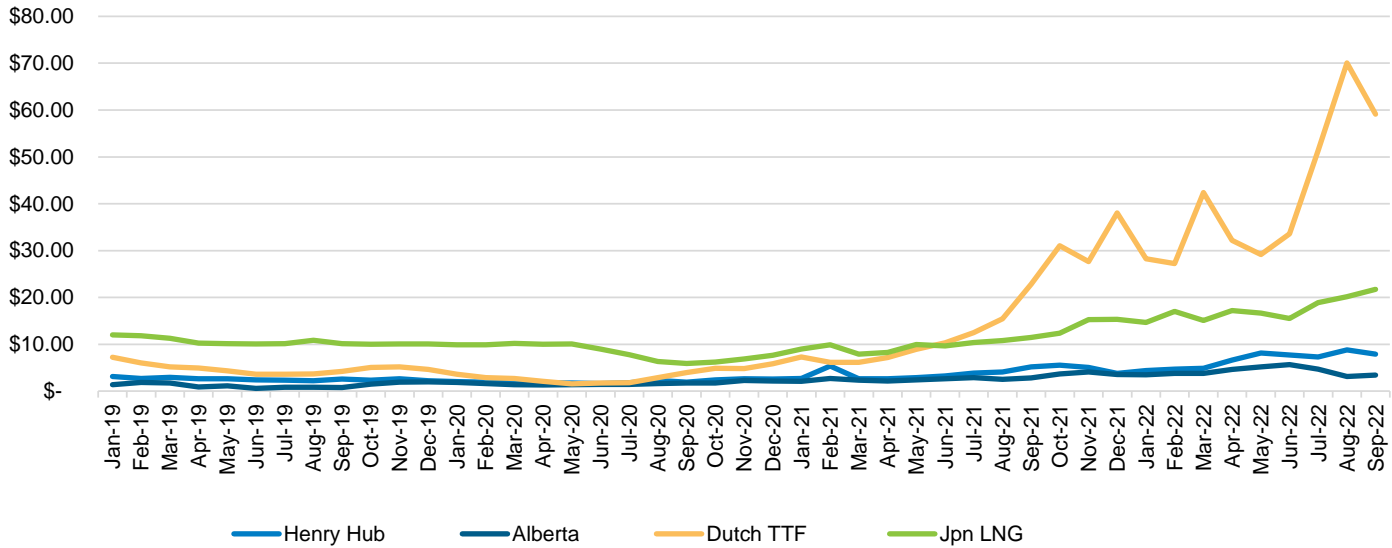
RESIDENTIAL ENERGY COSTS



Source: CGA, Hydro-Quebec, StatCan, Kent

services into common units, the advantage becomes clear. As of March 2022, the average price for natural gas was \$15.50 per GJ (5.58 cents/kWh). In comparison, the average 2021 prices for electricity, propane, and heating oil were \$38.69 per GJ (13.93 cents/kWh), \$36.72 per GJ (13.22 cents/kWh), and \$31.89 per GJ (11.48 cents/kWh), respectively.

NATURAL GAS BENCHMARK PRICES (USD/MMBTU)



Source: ICE, EIA, World Bank

Furthermore, if we expand our lens to a global scale, we see that Canadian gas continues to be one of the lowest-priced commodity charges in the world. In 2021, the average price of Canadian gas was \$3.36 per GJ or 1.21 cents/kWh. When compared to other gas benchmark prices in the US, Europe, and Asia, the Canadian benchmark price has remained the lowest out of the four by a margin of 36–83%.

The price of natural gas is driven by markets: it will rise and fall as market conditions change. The price of natural gas services to consumers includes that price, along with the cost of delivery, and the growing cost of government-imposed carbon charges. Taken together, the complete cost is still the most affordable option for Canadians in almost every energy application, and a key element of Canada’s ongoing competitiveness.