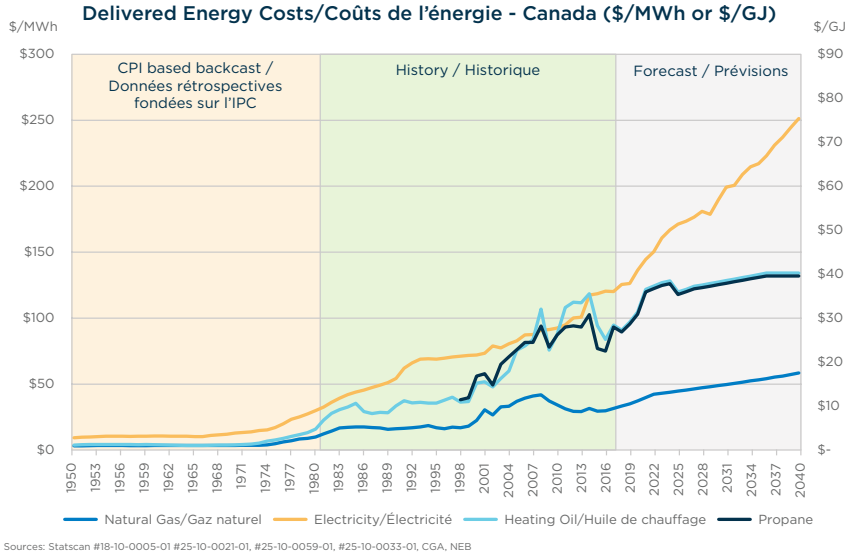
CANADIAN GAS ASSOCIATION
ASSOCIATION CANADIENNE DU GAZ

CGA by the Numbers:
Demystifying energy measurement units

In this issue of By the Numbers we look at how the commonly used units of measurement of the various forms of energy (electricity, gasoline, natural gas, diesel fuel, home heating oil, etc.) are related. The goal is to make it easier to compare them on an energy content basis.

The chart shown illustrates that natural gas has remained Canada's most affordable fuel for many decades. It also shows that for the foreseeable future, the affordability advantage of natural gas is expected to grow. But with each energy form measured and sold in its unique units it's hard for consumers to compare and know which energy is the most affordable. To further complicate matters some energy forms are priced by their volume not their energy content (e.g. litres of gasoline/diesel fuel, or cubic metres of natural gas). This adds to the challenge, particularly for natural gas, since it can be compressed and so a price per volume measure really tells us little about how much energy we are paying for.



Sources: Statscan #18-10-0005-01 #25-10-0021-01, #25-10-0059-01, #25-10-0033-01, CGA, NEB

But measures of energy content, (megawatt hours - MWh for electricity, Gigajoules - GJ for natural gas, millions of British thermal units - mmBtu for natural gas and measures of volume (litres, cubic metres, cubic feet) can all be cross-converted. Below is a collection of common unit conversions to help make energy measurement clearer and the value proposition of natural gas easier to identify and understand.

1 gigajoule (GJ) of natural gas is equal to...							
in cubic metres (m^3)	in cubic feet (ft^3)	in kilowatt hours (kWh)	in millions of British thermal units (mmBtu)	in litres of gasoline	in U.S. gallons of gasoline	in litres of diesel/home heating oil	in U.S. gallon of diesel/home heating oil
25.8661	913.9932	277.7855	0.94781	29.7866	7.8688	26.1132	6.8992

$10 per GJ of natural gas is equal to...							
in $ per m^3	in $ per ft^3	in $ per kWh	in $ per mmBtu	in $ per litre of gasoline	in $ per gallon of gasoline	in $ per litre of diesel/home heating oil	in $ per gallon of diesel/home heating oil
$0.3866	$0.0109	$0.0360	$10.5506	$0.3357	$1.2708	$0.3829	$1.4494

The tables above makes clear that the affordability advantage of natural gas is significant, no matter how you measure and price it.

350 Albert Street, Suite 1220, Ottawa, ON, K1R 1A4 | Tel/Tél. : 613-748-0057 | Fax/Télec. : 613-748-9078 | www.cga.ca