Heritage Gas

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RE: HERITAGE GAS SUPPORT FOR HRM'S CLIMATE ACTION PLAN

Heritage Gas supports HRM's ambitious climate change plan to be carbon neutral by 2050 and to help communities adapt to climate change. No single type of energy will enable HRM to achieve these goals - we'll need transformative and collaborative solutions that conserve energy, improve energy efficiency, increase energy resiliency, and offer cleaner energy sources for buildings, industries, and transportation.

Heritage Gas is already taking action and developing plans to address climate change in Nova Scotia. Natural gas has helped reduce GHG emissions in Nova Scotia by over 200,000 tonnes per year through the conversion of homes, commercial buildings, and industries from oil to cleaner-burning natural gas. Looking forward, Heritage Gas will be doing much more to reduce GHG emissions and increase energy resiliency in HRM at relatively low cost compared to other alternatives. We're working on projects and developing plans that will support HRM to:

- improve the energy efficiency of buildings;
- transition to a mix of cleaner energy sources, including cleaner electricity, renewable energy, and lower-carbon fuels for buildings, industries, and transportation; and
- adapt to climate change by improving the reliability and resiliency of HRM's energy infrastructure.

We track and report GHG emissions from the use of natural gas in Nova Scotia as part of the Province's cap & trade system. As the lowest emitting fossil fuel, including electricity generation in Nova Scotia for the next several years, the carbon footprint from the combustion of natural gas is relatively small compared to other fuels.

To promote sustainability and help our customers evaluate alternatives to reduce their household carbon footprint, a GHG emissions calculator is posted on the Heritage Gas website at https://www.heritagegas.com/for-home/savings-calculator/. We also report the year-to-date GHG emissions reduction from the use of natural gas in Nova Scotia on the homepage of the Heritage Gas website.

Heritage Gas supports the benefits that densification through land use planning offers to reduce GHG emissions in HRM. Energy use per resident is significantly lower for households in multi-unit residential buildings compared to single-family homes, and building higher density residential and commercial developments improves the feasibility of district energy.

Heritage Gas also plays a role in climate adaption by improving energy resiliency in HRM, and this role will become more important as the frequency and severity of storms increases. The natural gas distribution system in HRM is over 99.99% reliable and widespread service disruptions are extremely rare, which can help HRM build resilient multi-grid energy systems. Furthermore, Heritage Gas is working with building owners and industries to complete feasibility and implementation studies for combined heat & power (CHP) generators. CHP improves energy security and reduce energy costs in buildings, by producing on-site electricity and heat that can be available during grid power disruptions.

Details of specific actions and programs that Heritage Gas is working on or planning to undertake that support the themes outlined in the HalifACT 2050 Actions Catalogue are outlined below:

BUILDINGS

Building codes and standards for new construction:

- ***District heating/cooling connection*** – Heritage Gas supports district energy in new large, high density developments in HRM, including the Cogswell redevelopment project, Shannon Park, Dartmouth Cove, and the former St. Patrick's high school lands on Quinpool Rd.

Building performance rating and reporting:

- ***Advanced metering (smart meters, sub-metering)*** – Heritage Gas has installed Automatic Meter Reading (AMR) devices on meters for all natural gas customers that can support monitoring, analyzing and reducing energy use. Energy efficiency and retrofit measures for existing buildings:
- ***Heating efficiency*** – Heritage Gas helps building owners replace older, low-efficiency oil furnaces and boilers with new natural gas condensing boilers and furnaces that are up to 97% efficient and improve energy efficiency by up to 20%.

Industrial carbon emissions reduction:

- ***Energy efficiency or waste energy recovery in industrial processes*** – Heritage Gas is advocating for the development of policies and programs to improve the energy efficiency of industries through the installation of combined heat & power (CHP) generation for industrial processes and large commercial or institutional buildings.

TRANSPORTATION

Fuel economy - public transport:

- ***Improve transit vehicle fuel economy through switching to low or zero carbon fuels*** – Heritage Gas has supported Halifax Transit's study of the conversion of the bus fleet to compressed natural gas (CNG) to reduce bus GHG emissions by 20% compared to the current diesel bus fleet, or by 100% with renewable natural gas (RNG) produced from one of HRM's organics management facilities, landfills, or wastewater treatment plants.

Fuel economy - private transport & Freight Systems:

- ***Switch City authority fleet of vehicles to electric/hybrid/low-carbon*** – If the carbon intensity of electricity generation in Nova Scotia is reduced significantly from current levels, electric vehicles will be an effective action to reduce GHG emissions from light-duty vehicles. However, it is not feasible to electrify heavy-duty vehicles including waste vehicles, construction equipment, and heavy tractors used to haul freight. Heritage Gas has completed a feasibility study and is working with the Province of Nova Scotia to develop a Natural Gas Vehicle (NGV) strategy for heavy-duty vehicles.

ENERGY SUPPLY

Local low or zero carbon energy generation (community scale):

- ***Anaerobic digestion of organic wastes*** – Heritage Gas is working with proponents for HRM's new organics management facility to enable the production, distribution, and sale of renewable natural gas (RNG) through anaerobic digestion from the proposed new facility.
- ***Biogas / landfill gas recapture*** – We have supported HRM to evaluate the feasibility of upgrading biogas from the Otter Lake Landfill to RNG and injecting it into the natural gas distribution grid.
- ***District energy (electricity, heating or cooling) with renewable energy source*** – Heritage Gas has identified several new developments in HRM that could use district energy + combined heat & power (CHP) produced from natural gas, or RNG for heating, cooling, and electricity.
- ***Large scale purchases of renewable energy on behalf of the community*** – Heritage Gas has estimated that up to 500,000 GJ of RNG could be produced locally in HRM (enough to supply 20% of total natural gas demand in HRM). The RNG could be purchased by HRM to meet the heating needs of all buildings owned by HRM and to fuel Halifax Transit's conventional bus fleet. Conversely, this volume of RNG could provide space heat and domestic hot water for 6,000 homes in HRM.
- ***Explore & support provincial regulatory requirements for renewable energy generation*** – Heritage Gas is advocating for policies and programs to support and promote the production of RNG in HRM.

On-site (building scale) energy generation:

- ***Combined heat and power*** – Heritage Gas is supporting large commercial, institutional, and multi-unit residential building owners in HRM to evaluate the installation of on-site combined heat & power (CHP) generators that can improve energy efficiency in buildings to 80-90%, resulting in a 30-40% reduction in GHG emissions, lower energy costs, and greatly improved energy resiliency.
- ***Hydrogen*** – Heritage Gas is evaluating the role that 'green' hydrogen produced from renewable electricity could play to help achieve net-zero GHG emissions in HRM by 2050. Green hydrogen could be used for hydrogen fuel cells in Halifax Transit buses and ferries, heating and cooling homes and businesses. The existing natural gas infrastructure can be effectively used as a 'battery' to store surplus renewable electricity to significantly reduce GHG emissions while reducing the increase in peak electric demand that will be created by increased electrification. Green hydrogen

infrastructure is currently being developed in Ontario and a major expansion in the use of green hydrogen is anticipated to help meet 2050 net-zero GHG emission targets.

- ***Heat pumps (water, ground, air)*** – Heritage Gas is supporting the development of several new heating systems including natural gas heat pumps for space heat and domestic hot water, micro-combined heat and power generators, and natural gas-electric hybrid heating systems that provide the benefits of electric heat pumps during milder temperatures, while minimizing the impact on peak electric load during the colder winter months.
- ***Biogas recapture from industrial processes*** – Biogas is already being recaptured from a few industrial facilities in HRM and used for heating in buildings. Heritage Gas is interested in identifying more biogas recapture opportunities.

WASTE

Energy recovery & landfill management:

- ***Landfill gas to energy (carbon capture, methane capture)*** - Heritage Gas has collaborated with HRM to evaluate the feasibility of upgrading biogas from the Otter Lake Landfill to RNG and injecting it into the natural gas distribution grid.

WATER & WASTEWATER

Energy recovery:

- ***Methane/biogas recovery for reuse*** – Heritage Gas supports Halifax Water's studies to evaluate the production of RNG through anaerobic digestion at local wastewater treatment facilities. The RNG could be injected into HRM's natural gas distribution system to enable buildings, heavy trucks, and transit buses in HRM to displace their conventional natural gas use with renewable energy.

Heritage Gas has been pleased to participate in the development of HalifACT 2050's recommendations and we're looking forward to working with HRM to implement its climate change action plan.

Regards,

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