

December 20, 2018

Jamie Hulan,
Director, Equipment Division
Office of Energy Efficiency
Department of Natural Resources
930 Carling Avenue (CEF, Building 3, Observatory Crescent)
Ottawa, Ontario
K1A 0Y3

Dear Mr Hulan:

**Re: Canada Gazette, Part I - October 4, 2018
Amendment 15 to Energy Efficiency Regulations
Gas-Fired Commercial Boilers
Enbridge Gas Inc.**

The purpose of this letter is to provide a response on behalf of Enbridge Gas Inc. (Enbridge Gas) to proposed amendments to energy efficiency regulations released by Natural Resources Canada (NRCAN) on October 20, 2018 (the Amendment).¹

Enbridge supports the Federal Government's goals to increase energy efficiency and reduce GHG emissions to meet Canada's commitment under the Paris Accord. That said, as we will explain in further detail below, we have concerns with the Amendment as proposed - particularly as it relates to gas-fired commercial boilers for space heating in the 88 kW [300,000 Btu/h] to 2,930 kW [10,000,000 Btu/h] capacity range.

On reviewing the proposed Amendment, initial concerns were raised due to the Benefit Cost Analysis (BCA) and associated market data research used as rationale for economic feasibility of the Amendment. We do not believe the analysis is accurate. Our concerns heightened when we began to consider the impact this Amendment would have on our customers. At a high level, our concerns are as follows:

- There is significant risk that older commercial buildings would be without heat for several days, potentially weeks²
- It places undue financial burden on the commercial building sector
- An aggressive technology-based standard like this does not sufficiently consider the real life building system as a whole, and it would often be unrealistic to achieve the intended efficiency gains due to building operations

As a company that has been instrumental in reducing 42 megatonnes of GHG emissions since 1995 through our demand-side management programs, our experience has taught us that GHG reduction efforts of this kind are best addressed through provincial codes and energy conservation programs - not Federal regulations.

¹Canada Gazette, Part I, Volume 1532, Number 42:Regulations Amending the Energy Efficiency Regulations, 2016 (Amendment 15) on October 20, 2018

²In the event of boiler failure, the Amendment would require extensive heating system modifications be undertaken before heat could be restored. This could have critical implications for multi-unit residential buildings, retirement facilities, and hospitals.

In light of these concerns and our history in reducing GHGs, we strongly recommend NRCan revisit the Amendment, and specifically, the proposed standard for gas-fired commercial boilers. A more effective regulatory approach would consider building *systems* rather than individual technology standards, such as those put forward through provincial building codes. Additionally, energy conservation programming can support transforming the market to higher efficient technology solutions that are designed to consider the site specific needs and savings potential in a customized manner, minimizing the potential range of negative consequences to customers.

We welcome the opportunity to support and work together with NRCan and the Federal Government to develop alternative solutions to achieve efficiency gains that are realistically attainable and cost effective.

Additional details explaining our concerns are outlined below, preceded by a brief summary about us.

About Enbridge Gas

Enbridge Gas is Canada's largest natural gas distribution provider, with approximately 3.7 million customers in Ontario and Quebec. Enbridge Gas is a leader in the delivery of customer-centric energy efficiency and conservation programming, working in collaboration with governments and various industry stakeholders. With over two decades of experience in the design and delivery of Demand Side Management (DSM) programs in Ontario, Enbridge Gas has contributed to the reduction of 42 megatonnes of GHG emissions since 1995.

These DSM programs have helped transform the marketplace through marketing campaigns, educational awareness, financial incentives and technical support, to increase the use of higher efficiency technologies. Over time, end-use customers have become more familiar and comfortable with these new technologies, engineers and contractors progressively develop their capabilities, and the supply chain responds to meet the increased demand – an approach supported by customers and the marketplace.

Comments

Enbridge understands the appeal of a relatively simplistic regulatory construct such as a product standard to support GHG emissions reductions. However, for many commercial buildings with heating systems, particularly those that involve multiple boilers, requiring all boilers between 88 kW (300,000 Btu/h) to 1,930 kW (10,000,000 Btu/hr) to meet condensing energy efficiency levels is not consistent with industry best practices and creates operational risks.

Economic Feasibility

In the commercial building sector, it is industry best practice to design space heating systems to optimize multiple boilers; specifying condensing boilers for lead (primary) and non or near condensing high efficiency boilers to lag (secondary, supplementary, and redundant purposes). These lag boilers only operate in the coldest part of the heating season when typical design heating water temperatures eliminate condensing possibilities. Should condensing boilers be exclusively installed (as proposed in the new standard), it must be recognized that they generally operate for a limited percentage of time in optimal condensing mode, providing minimal benefits compared to industry best practice - but at more than twice the cost.

It is worth noting that the Federal Government has stated it is committed to setting new standards for space heating boiler equipment to the highest levels of energy efficiency that are economically

and technologically feasible.³ NRCan justified the economic feasibility of this proposed standard based on a Benefit Cost Analysis (BCA), which used data based on a market study prepared by Caneta Research - that was not made public.

Enbridge has reviewed the publicly available BCA and identified a number of shortfalls in the analysis.⁴ Our analysis indicates that addressing these shortfalls would result in a negative BCA.

Additionally, from the building owners' perspective, equivalent energy savings could be achieved for significantly lower cost if instead, industry best practices were employed to match the most efficient boiler to the building's space heating system configuration.

For these reasons, the amendment does not meet the Federal Government's stated objectives of economic feasibility, particularly for multiple boiler systems.

While implementing the amendment for condensing boilers across the board may create a simpler regulatory construct; for Ontario it would negatively impact the competitiveness of the commercial building sector - and would not achieve the expected energy savings and GHG emission reductions. There are also technical and operational risks as outlined below.

The Amendment could result in unintended consequences

The concerns expressed in this letter are not unique to Enbridge. Below is an excerpt from the summary of responses as part of NRCan's earlier pre-consultation process⁵:

"Five manufacturers and three associations stated that the proposed standards for gas boilers intended for hot water systems will not deliver the anticipated energy savings when a unit is installed into an existing high temperature distribution system. Natural Resources Canada agrees and the cost-benefit analysis accounted for reduced performance in these scenarios. One manufacturer, one program and delivery group, two engineering design/management firms, and three advocacy groups commented that high efficiency boilers would still outperform lower efficiency boilers regardless of operating parameters"

Enbridge believes that the proposed standards for commercial gas boilers intended for hot water systems will not deliver condensing energy efficiency savings when the equipment is installed in conventional space heating systems. Specifically, the proposed standard would require condensing boilers in a building that is technically unable to operate in the optimal condensing mode to capture the commensurate energy savings, without extensive and costly modifications.

Despite the noted technical concerns, NRCan advised that the proposed standard is still acceptable because their BCA was positive. As noted above, we believe that additional analysis would result in a negative BCA

Fundamentally, many of the commercial buildings in Enbridge's franchise area are over 50 years old with space heating hot water distribution systems that were designed and built to match lower efficiency equipment of the time. Installing exclusively condensing boiler systems would require extensive and costly retrofits to ensure the new heating system is designed to operate safely and cost effectively.

³ Paving the Road to 2030 and Beyond: Market transformation road map for energy efficient equipment in the building sector, Energy and Mines Ministers' Conference, Iqaluit, Nunavut, August 2018

⁴ A Cost –Benefit Analysis, details to support Proposed Amendments to the Energy Efficiency Regulations, 2016 (Amendment 15), Published in the Canada Gazette, Part 1, Natural Resources Canada, October 20, 2018,

Risk of extended period of heat loss during winter.

Space heating system failures typically occur in winter, when the demands on the boiler are greatest. Implementing the proposed Amendment would create a human safety risk for occupants of commercial buildings (predominately high rise multi-residential, retirement facilities, and some hospitals) that experience a boiler failure in the winter, and could be without heat for an extended period (potentially weeks) while extensive heating system modifications are designed and implemented to meet the Amendment.

Enbridge's preliminary estimates are that approximately 2,000 multi-residential high rise buildings within our area would be exposed to this risk. This is clearly a significant and unintended consequence of the proposed new standard.

Closing Comments

Given the issues identified, Enbridge Gas strongly recommends NRCan revisit the Amendment's proposed standard for gas-fired commercial boilers. We welcome the opportunity to support the Federal Government in reaching its energy efficiency related GHG emission goals to meet Canada's Paris Accord commitments. However, we are compelled to explain the risk this current Amendment would have for building owners and residents.

Enbridge believes strong provincial building codes, in conjunction with energy efficiency and demand side management programs, promote and drive higher levels of energy efficiency and GHG emissions reductions in a cost effective manner. Our experience with DSM demonstrates its efficacy in transitioning the marketplace: while ensuring the 5 A's of market transformation are addressed - Availability, Awareness, Accessibility, Affordability and Acceptance.²

As previously noted, when considering efficiency standards of this nature, we believe the more effective regulatory approach would be to consider building systems as a whole rather than individual technologies, and we are prepared to support and work together with NRCan to develop alternative solutions.

Please feel free to contact Terry Whitehead by email (terry.whitehead@enbridge.com) or by phone at 416 753 6269 to discuss this important initiative.

Sincerely,



Sarah Van Der Paelt
Director, Marketing & Energy Conservation