

## **Comments on the Proposed Clean Electricity Regulations – A Public Health Perspective November 2, 2023**

### **Introduction**

These comments are being submitted on behalf of the Canadian Health Association for Sustainability and Equity (**CHASE**), a non-profit organization directed and run by public health professionals, the Canadian Public Health Association (**CPHA**), and the Manitoba Public Health Association (**MPHA**).

Public health agencies have a strong interest in Canada’s electricity sector because of its direct impacts on human health through air quality, water quality, and the aquatic food chain, and because of its indirect and significant impacts on human health as a major source of greenhouse gases (**GHGs**).

The public health sector was an active advocate for the phase-out of coal-fired power plants in Ontario.<sup>i&ii</sup> Public health associations across the country have also engaged in consultations on the phase-out and regulation of coal-fired and natural gas-fired power plants nationally at several stages over the last seven years.

### **Electricity is Pivotal to a Decarbonized Economy**

In alignment with the latest climate science, Canada has made a commitment to reach net-zero emissions from its electricity grid by 2035. The International Energy Agency (**IEA**) has identified the decarbonization of electricity as the “single most significant way to reduce global emissions by 2030” and the end-use of electrification as “one of the most important contributors to the attainment of emission goals by 2050”.<sup>iii</sup> The latter point reflects the reality that a climate-friendly world is one that will run on electricity instead of fossil fuels.

Several studies have estimated that electricity capacity in Canada will have to be 2.2 to 3.4 times greater than 2020 levels to meet the electricity needs of a decarbonized world in 2050.<sup>iv</sup> For this reason, it is essential that we invest in an electricity sector that is climate-friendly, health promoting, resilient, and affordable.

### **Alternatives to Fossil-Based Electricity are Available and More Affordable**

Several modelling studies have demonstrated that Canada can generate all of the electricity it will need - free of GHGs and air pollutants - by 2035 with wind- and solar-based technologies, energy storage systems, energy efficiency measures, and upgrades in the electricity grid.<sup>v&vi</sup>

Modelling studies have also predicted that consumers who switch from fossil fuels to electricity for their vehicles, homes and businesses will pay less for their energy in 2050 than they do today. Energy costs are expected to drop because electric technologies, such as heat pumps, are so much more efficient than the fossil-based technologies they are replacing, and because the costs of renewable energies have dropped so much in recent years.<sup>vii</sup>

**By accelerating the phase-out of coal- and natural gas-fired power plants in Canada, the Clean Electricity Regulations (CERs) have the potential to produce significant air quality health and health equity benefits for people in various regions of the country.** Alternatives to fossil-based electricity are healthier for people. Non-emitting renewable energies, energy efficiency, and battery storage will

produce much greater immediate health benefits than will gas-fired generating stations. While gas-fired generating stations burn much cleaner than coal-fired generating stations, they still emit significant quantities of nitrogen oxides (NO<sub>x</sub>) that can harm human health directly, in the form of nitrogen dioxide (NO<sub>2</sub>), and indirectly when transformed in the atmosphere into ground-level ozone and fine particulate matter (PM<sub>2.5</sub>).<sup>viii</sup>

In Ontario, for example, where the provincial government plans to increase the use of gas-fired power plants by 375% by 2030 and 600% by 2040, relative to 2017, we can expect significant increases in NO<sub>x</sub> emissions. This will increase air levels of NO<sub>2</sub>, ground-level ozone, and PM<sub>2.5</sub>, air pollutants that are already responsible for approximately 6,600 premature deaths/year and health outcomes valued at \$49.2 billion/year in Ontario.<sup>ix</sup> To increase NO<sub>x</sub> emissions in areas that already have a high levels of air pollution, particularly in a population-dense region such as the Greater Toronto and Hamilton Area (GTHA), could have significant impacts upon population health and health equity.

Without an assessment of the air quality health-related impacts associated with these draft regulations and the exemptions and extensions proposed, it is difficult to say how significant the health-related benefits could be. However, an analysis conducted in the US found that significant health benefits could be realized by investing in renewable energy rather than new gas plants. It estimated that \$23-\$74 billion in air pollution-related health impacts could be avoided over a 20-year period if gas plants proposed for development by the end of 2021 were not built.<sup>x</sup>

**The CERs also have the potential to contribute to substantial health and health equity benefits by substantially reducing GHG emissions in Canada.** Climate chaos is no longer some distant threat for people in Canada. In 2023, wildfires consumed more than 18.4 million hectares of land in Canada; 11,000 people were deployed to fight these fires.<sup>xi</sup> These wildfires placed more than [200,000 people in Canada](#) on evacuation orders.<sup>xii</sup> They forced tens of thousands from their homes. They emptied entire [communities](#)<sup>xiii</sup> and displaced [Indigenous communities](#) from land that that may now require decades to recover.<sup>xiv</sup> And they exposed ten of millions of people across the country to extremely high levels of air pollution.<sup>xv</sup>

For many years, natural gas was promoted as a bridge fuel to a lower-carbon economy. This view was based upon the direct emissions from natural gas-based technologies. In the electricity sector, CO<sub>2</sub> emissions from gas-fired generating stations are 50-60% lower than emissions from coal-fired generating stations.<sup>xvi</sup> However, over the last decade, a number of different studies have demonstrated that significant quantities of methane, with a global warming potential 86 times greater than CO<sub>2</sub> over a 20-year period, are released during the drilling, extraction, handling, and transportation of natural gas. Several studies have also found that emissions from the unconventional oil and gas sector (i.e., fracking) have been underreported in national inventories.<sup>xvii</sup> A newly released IEA report concluded that methane is responsible for around 30% of the rise in global temperatures since the industrial revolution and that fossil fuel operations are the second largest source of those emissions.<sup>xviii</sup> When Howarth analysed the GHGs emitted from a gas-fired generating station using a life-cycle analysis, he found that methane leakage rates upstream would have to be lower than 2.8% for a gas-fired generating station to have a climate advantage over a coal-fired generating station.<sup>xix</sup>

## **Recommendations:**

**We support the 2035 Net-Zero Emissions Target.** We are pleased to see the regulations include a clear target that would require the electricity sector to reach net-zero emissions by 2035.

**We believe, however, that interim measures are needed to encourage the phase-out of emissions leading up to the 2035 deadline.** An interim measure, such a 2030 emissions target, would send a strong market signal to provinces, utilities, and companies.

**We cannot support extensions to the 2035 target.** We are strongly opposed to the grandfathering provision that would delay application of the emission standard until a unit reaches a 20-year “end of prescribed life” period for all natural gas units built before 2025; a provision that could allow plants to operate unabated until 2045. This provision could seriously undermine the direct and indirect health and health equity benefits, as well as the climate benefits, promised by these regulations.

We believe that no blanket exemptions should be granted for fossil fuel generators beyond January 1, 2035 on the basis of a generating facilities “useful life”, regardless of when they were commissioned. These regulations have been in development since 2016; the provinces, utilities, and companies in this sector have known the goals of these regulations for many years and should not be allowed to undermine Canada’s climate commitments by rushing to build before 2025.

**We can accept the net-zero intensity standard of 30 tonnes of carbon dioxide emissions per gigawatt-hour of electricity generated (30 tCO<sub>2</sub>e/GWh).** We understand that this limit is based upon the emissions intensity of natural gas generation with carbon capture and storage (CCS) achieving a 95% capture rate; a rate that CCS experts and vendors have confirmed should be attainable by 2035.

**Strict limits must be placed on exemptions from the intensity standard.** The full performance standard of 30 tCO<sub>2</sub>e/GWh should apply to all new generating units commissioned after January 1, 2025. No special consideration should be provided for peaking plants unless a system operator can demonstrate that the same electricity system value cannot be delivered economically by a zero-emissions alternative.

**We can accept the exemption of electricity generating units with a capacity less than 25 MW from the regulations.**

**We would like to see the carbon tax fully applied to the electricity sector to encourage reductions in GHG emissions.**

**In closing,** we appreciate the steps that the Federal Government has taken, both in terms of the CERs and supportive funding, to foster a clean, reliable, and affordable electricity sector upon which we can build a decarbonized future in Canada. This step is pivotal to the provision of a livable planet for our children.

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<sup>i</sup> Toronto Public Health (TPH). 1999. Changes in Ontario’s Electricity Sector and Air Quality. Prepared by Kim Perrotta. <https://www.toronto.ca/legdocs/1999/agendas/council/cc/cc990413/hl2rpt/cl001.htm>

<sup>ii</sup> Ontario Public Health Association (OPHA). 2002. Beyond Coal: Power, Public Health, and the Environment. Prepared by Kim Perrotta. <https://chasecanada.org/wp-content/uploads/2020/10/Beyond-Coal-2020-2.pdf>

<sup>iii</sup> International Energy Agency (IEA). 2021.

<sup>iv</sup> Canadian Climate Institute (CCI). 2023. Blog: Understanding the proposed Clean Electricity Regulations (part 1). Prepared by Evan Pivnick and Jason Dion.

<sup>v</sup> Canadian Climate Institute (CCI), 2022. Bigger, Cleaner, Smarter Pathways for Aligning Canadian Electricity Systems with Net Zero. 80pp.

<sup>vi</sup> David Suzuki Foundation (DSF). 2022. Shifting Power: Zero-Emissions Electricity Across Canada by 2035. Prepared by Tom Green and Stephen Thomas. 78pp.

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- viii CPHA/CHASE/OPHA. 2021. Backgrounder: Invest in renewable energy for healthy, green and just communities. Prepared by Kim Perrotta. <https://chasecanada.org/wp-content/uploads/2021/04/RENEWABLES-BACKGROUNDER-ENG.pdf>
- ix Health Canada (**HC**). 2021. Health Impacts of Air Pollution in Canada: Estimates of morbidity and premature mortality outcomes – 2021.
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- xi <https://natural-resources.canada.ca/simple-science/canadas-record-breaking-wildfires-2023-fiery-wake-call/25303>
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- xviii International Energy Agency (**IEA**). 2023. The Imperative of Cutting Methane from Fossil Fuels.
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