

Health Risks and Costs of Natural Gas Power Plants

Prepared for

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2026/06/10

This document provides a concise overview of the primary health hazards associated with natural gas (methane) and diesel power generation, alongside information concerning relevant healthcare costs in New Brunswick and across Canada. It is intended to assist the government in fully evaluating the adverse public health impacts inherent to the construction and operation of new gas infrastructure. While not exhaustive, this primer establishes a clear baseline of the significant healthcare impacts and costs that would be borne by New Brunswickers.

Health risks associated with fossil-fuel burning power plants

Accidents: Power plants can be subject to many types of accidents. The main causes are explosions and fires (tube rupture, error in ignition or re-ignition sequences, entry of foreign fuel, etc.). For example, in 2010 an explosion occurred at the Kleen Energy Plant in Middletown, Connecticut, during a natural gas purging operation. Six people were killed and 50 were injured.¹

¹ US Chemical Safety and Hazard Investigation Board. *Kleen Energy natural gas explosion* [Internet]. CSB; 2010 [cited 2026 Jun 10]. <https://www.csb.gov/kleen-energy-natural-gas-explosion/> Also cited in https://www.gem.wiki/Health_Effects_of_Gas_Plants [retrieved 2026 Jun 10].

Pollutants: The main pollutants released into the air by natural gas (methane) power plants are:

- **Nitrogen Oxides (NO_x):** Irritating to the eyes, nose, and throat. Also irritating to the lungs, causing inflammation, coughing, and mucus. Can cause or aggravate asthma and other respiratory diseases such as chronic bronchitis.² May cause Amyotrophic Lateral Sclerosis (ALS), also called Lou Gehrig's Disease.³
- **Sulfur Dioxide (SO₂):** A very toxic compound, sulfur dioxide is irritating to the eyes, nose, and throat; it can irritate the lungs, causing inflammation, coughing, mucus, and cause or worsen asthma and other respiratory diseases, such as chronic bronchitis.⁴ It is corrosive to mucous membranes; it burns skin if it is wet. Can cause ALS, even at levels lower than accepted standards.⁵
- **Fine Particulate Matter (PM_{2.5}):** These particles penetrate our body, especially the smaller ones, and all our organs including our brain; they cause damage such as strokes, heart attacks, cancer, and worsen COPD and asthma, among other effects. Some even cross the placenta, also affecting the fetus.⁶
- **Carbon Monoxide (CO):** Known as a “silent killer” in homes since it is odourless and colourless, carbon monoxide can cause headache, nausea, dizziness, and in cases of high levels of exposure, death due to its ability to displace oxygen in the blood. It can also contribute to ozone formation at the ground level.
- **Volatile Organic Compounds (VOCs):** These can be carcinogenic, cause mutation, and are toxic for reproduction. They also exacerbate the production of ozone in the troposphere (lower atmosphere).
- **Ground Level Ozone (O₃):** Another toxic pollutant and one of the main components of smog, ground-level ozone (or tropospheric ozone), is a strong oxidant, irritating to the eyes, nose, and throat. It also irritates the lungs, causing inflammation, coughing, mucus, and can cause pulmonary edema. It causes or worsens asthma and other respiratory diseases such as chronic bronchitis. It

² Liu X, Lessner L, Carpenter D. Association between residential proximity to fuel-fired power plants and hospitalization rate for respiratory diseases. *Environ Health Perspect.* 2012 Jun;120(6):807-10.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC3385425/>

³ Saucier D. *Assessment of urbanization, air pollution and water pollution as environmental risk factors of amyotrophic lateral sclerosis in New Brunswick.* Université de Sherbrooke; 2025

<https://usherbrooke.scholaris.ca/items/798502be-9e68-4481-a480-2f99ec28f21f/full>

⁴ Liu et al., 2012

⁵ Saucier, 2025

⁶ US Environmental Protection Agency. *Health and environmental effects of particulate matter (PM)* [Internet]. 2026 [cited 2026 Jun 10]

<https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm>

increases tissue inflammation and disrupts immunity, thereby increasing hospitalizations.^{7 8} Its effect is enhanced by NO_x and VOCs.

In summary, these pollutants can increase rates of cardiovascular and respiratory disease, decrease immunity, cause systemic inflammation and cancer, and negatively impact brain health. They can even lead to premature death.^{9 10}

According to Health Canada, about 15,300 people die prematurely each year across the country because of air pollution.¹¹ It also causes an estimated 2.7 million asthma symptom days and 35 million acute respiratory symptom days each year.¹²

In New Brunswick, 1 in 5 children suffer from asthma, and it is the leading cause of hospitalizations among children.¹³ Also, 1 in 5 seniors lives with COPD.¹⁴ Children, older adults, pregnant women, people with pre-existing medical conditions, such as respiratory or cardiovascular diseases, are most vulnerable to air pollution.

Health Canada's guiding document for evaluating air quality health impacts states:

There is consensus among international and national organizations (e.g., the WHO, the European Union, the International Agency for Research on Cancer [IARC], the US EPA and Health Canada) that air pollution has significant human health impacts. Causal associations have long shown that poor air quality results in respiratory and cardiovascular illnesses, hospitalizations and mortality. More recently, such associations have been demonstrated throughout the range of concentrations experienced by Canadians with the result that some air pollutants (such as PM_{2.5}, ozone and NO₂) are regarded at the population level as being non-threshold in their effects.¹⁵

⁷ US EPA, 2026.

⁸ American Lung Association. *How extreme heat triggers asthma* [Internet]. 2024 Jun 13 [cited 2026 Jun 10]. <https://www.lung.org/blog/asthma-heat-triggers>.

⁹ US EPA, 2026.

¹⁰ American Lung Association, 2024.

¹¹ Health Canada. *Health impacts of air pollution in Canada: estimates of morbidity and premature mortality outcomes - 2021 report*. <https://www.canada.ca/en/health-canada/services/publications/healthy-living/health-impacts-air-pollution-2021.html>

¹² Health Canada, 2021.

¹³ New Brunswick Lung Association. *Asthma* [Internet], NBLA; 2026 [cited 2026 Jun 10]. <https://nblung.ca/lung-health/asthma/>

¹⁴ New Brunswick Lung Association. *COPD* [Internet], 2026 [cited 2026 Jun 10]. <https://nblung.ca/lung-health/copd/>

¹⁵ Health Canada. *Guidance for evaluating human health effects in impact assessment: air quality*. 2023. Section 5.1, p. 12. https://publications.gc.ca/collections/collection_2024/sc-hc/H129-54-1-2023-eng.pdf

For non-threshold air pollutants, there is no safe level of exposure.

Climate Change: Gas power plants also contribute to climate change. They burn methane (CH₄), which is a more potent greenhouse gas (GHG) than carbon dioxide (CO₂). In fact, methane traps 84 to 87 times more heat than CO₂ over 20 years, making it a significant driver of global warming.¹⁶ According to ProEnergy, the proposed gas and diesel plant for Tantramar would generate up to 910,000 tonnes of CO₂ equivalent per year – a footprint equal to the annual emissions of 200,000 cars.¹⁷

The World Health Organization has stated unequivocally: “The burning of fossil fuels is killing us. Climate change is the single biggest health threat facing humanity.”¹⁸

The health effects of climate change include:

- **Natural disasters:** Climate change brings increased extreme weather events and natural disasters, with effects on people’s mental, physical, and economic health. In British Columbia, in July 2023, a young asthmatic boy, aged 9, died from an asthma attack brought on by air pollution due to wildfires.¹⁹
- **New infectious diseases:** Warming global temperatures cause migration of diseases carried by mosquitoes and other vectors farther north. Such diseases include Lyme disease, anaplasmosis, babesiosis, Dengue fever, West Nile encephalopathy, Zika, and hantavirus hemorrhagic fever.²⁰
- **Impacts of extreme heat:** The physiological toll of extreme heat is severe. During the 2021 Pacific Northwest heat dome (June 25 to July 1), British Columbia recorded 619 heat-related deaths. Heatwaves exacerbate heart

¹⁶ International Energy Agency. *Methane and climate change* [Internet]. 2021 Jan [cited 2026 Jun 10]. <https://www.iea.org/reports/methane-tracker-2021/methane-and-climate-change>

¹⁷ McHardie M. *Tantramar residents near proposed natural gas plant share health concerns* [Internet]. CBC News; 2025 Aug 22 [cited 2026 Jun 10]. <https://www.cbc.ca/news/canada/new-brunswick/tantramar-gas-plant-sackville-centre-village-power-environment-1.7609042>

¹⁸ World Health Organization. *WHO's 10 calls for climate action to assure sustained recovery from COVID-19* [Internet]. 2021 Oct 11 [cited 2026 Jun 10]. <https://www.who.int/news/item/11-10-2021-who-s-10-calls-for-climate-action-to-assure-sustained-recovery-from-covid-19>

¹⁹ Lynch L. *Her son died of asthma. Now kids get lessons on surviving smoky skies, in his name* [Internet]. CBC Radio; 2025 Oct 9 [cited 2026 Jun 10]. <https://www.cbc.ca/radio/whatonearth/carter-project-bc-mother-teaching-kids-about-air-quality-9.6943130>

²⁰ Public Health Agency of Canada. *Infectious diseases*. In: Berry P, Schnitter R, editors. *Health of Canadians in a changing climate: advancing our knowledge for action* [Internet], 2022 [cited 2026 Jun 10]. Chapter 6. <https://changingclimate.ca/health-in-a-changing-climate/chapter/6-0/>

problems, including heart failure, as well as lung diseases. It can cause heat stroke, which sometimes leads to death.

The mounting costs of air pollution and climate change

These health impacts not only affect individual health; they also carry economic costs related to lost working hours and increased costs to the healthcare system. According to Health Canada, **in 2016 the total economic cost of all health impacts attributable to ambient (outdoor) air pollution was \$120 billion.**²¹

Gas plants add to healthcare costs. A 2025 study concerning proposed gas plants in Wisconsin estimated an additional \$119 to \$192 million U.S. per year in health care costs as a result of anticipated health impacts from the gas plants.²²

A national U.S. study estimated that avoiding the construction of gas plants proposed at the end of 2021 would prevent between \$23 and \$74 billion U.S in health costs over the the expected 20-year lifespan of the plants.²³

Healthcare costs in New Brunswick: Building new gas plants in New Brunswick will come at a high cost. For people with chronic lung disease, we know that air pollution increases the use of costly medications, like puffers (MDI). MDIs also contribute to GHG emissions due to their propellants. Canadian data show that for every one-point increase in the Air Quality Health Index, we see a 1.3% to 5.6% increase in emergency visits and hospitalizations.^{24 25}

²¹ Health Canada, 2021, p. 4, Summary.

<https://www.canada.ca/content/dam/hc-sc/documents/services/publications/healthy-living/2021-health-effects-indoor-air-pollution/hia-report-eng.pdf>

²² Shetty K, Nunez Y, Heath N, Efstathiou C, Billsback K. *Health, equity, and economic impacts of proposed gas power plants in Wisconsin: Oak Creek and Paris projects: PSE Healthy Energy*, 2025 Jan. <https://blog.ucs.org/wp-content/uploads/2025/01/Health-Equity-and-Economic-Impacts-of-Proposed-Gas-Power-Plants-in-Wisconsin-Oak-Creek-and-Paris-Projects.pdf>

²³ RMI. *The hidden health costs of gas-fired power plants* [Internet], 2026 [cited 2026 Jun 10]. <https://rmi.org/resources/hidden-health-costs-of-gas-fired-power-plants/>

²⁴ To T, Shen S, Atenafu EG, Guan J, McLimont S, Stocks B, et al. The Air Quality Health Index and asthma morbidity: a population-based study. *Environ Health Perspect.* 2013 Jan;121(1):46-52. <https://pmc.ncbi.nlm.nih.gov/articles/PMC3546347/>

²⁵ To T, Feldman L, Simatovic J, Gershon AS, Dell S, Su J, et al. Health risk of air pollution on people living with major chronic diseases: a Canadian population-based study. *BMJ Open.* 2015 Sep 3;5(9):e009075. <https://pmc.ncbi.nlm.nih.gov/articles/PMC4563262/>

According to a study published by the New Brunswick College of Family Physicians in March 2023, an emergency room visit cost \$192.17, and a visit to the doctor cost \$46.50.²⁶ According to the New Brunswick Health Council, a day of hospitalization in NB costs \$581 (2023-2024);²⁷ for the Moncton and southeast region, the cost was higher, at \$675 per day.

According to the Canadian Institute for Health Information, the cost of an average hospital stay in NB is \$7,700 (2022-2023).²⁸ We know that some of these affected patients will end up in intensive or coronary care units, which carry much higher average costs. Some patients will even need to be transferred to other facilities for higher levels of care or specialized diagnostic procedures (e.g. coronary bypass). These additional costs also need to be taken into account.

Cost of increased risk of spontaneous preterm births (20-31 weeks): As noted earlier, some of these pollutants, such as PM_{2.5}, cross the placenta and affect the foetus. In Canada, between 2011 and 2015, the median daily cost of care for premature infants was \$1,940 (IQR, \$1,515 to \$2,619), and the median length of stay was 41 days, totalling a median cost per stay of \$66,669 (IQR, \$4,920 to \$125,550).²⁹ For infants living more than 3 days, the median was \$91,137 (IQR, \$56,596 to \$188,575).³⁰ Further, the costs of care for these infants after hospital discharge are not included here (physiotherapy, surgery, numerous visits to hospital, assistance in learning throughout childhood, etc.).

What does all this mean for New Brunswick?

Our hospitals are already under strain, and healthcare budgets are stretched. We can avoid adding additional costs and strain by pausing the proposed RIGS gas plant.

²⁶ Manuel V, Bien-Aimé I, Boutot É, Dupuis JB, Johnson C. Timely access to primary care in New Brunswick. *Can Fam Physician*. 2023 Mar;69(3):e61-e65.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC10030129/>

Manuel V, Bien-Aimé I, Boutot É, Dupuis JB, Johnson C. Accès aux soins primaires en temps opportun au Nouveau-Brunswick : variabilité dans les régions de santé. *Can Fam Physician*. 2023

Mars;69(3):e66-e72. <https://www.cfp.ca/content/69/3/e66.abstract.fr?langselect>

²⁷ New Brunswick Health Council. Indicator RHA-NB-005: data tables [Internet], 2024 [cited 2026 Jun 10].

<https://nbhc.ca/indicators/rha-nb-005#tables>

Conseil de la santé du Nouveau-Brunswick. Indicateur RHA-NB-005 : tableaux de données [Internet], 2024 [cité 2026 Juin 10]. <https://csnb.ca/fr/indicateurs/rha-nb-005#tables>

²⁸ Canadian Institute for Health Information. Cost of a standard hospital stay (CSHS) [Internet], 2024

[cited 2026 Jun 10]. Available from: <https://www.cihi.ca/en/indicators/cost-of-a-standard-hospital-stay-cshs>

²⁹ Rolnitsky A, Urbach D, Unger S, Bell CM. Cost of neonatal intensive care for extremely preterm infants in Canada. *Transl Pediatr*. 2021 Jun;10(6):1630-1636. <https://pmc.ncbi.nlm.nih.gov/articles/PMC8261596/>

³⁰ Rolnitsky A et al. *Transl Pediatr*. 2021

There are less costly and healthier ways to meet New Brunswick's energy needs. The money saved can be invested back into healthcare, renewable energies, our schools, early childhood education and care, and other social programs that support a healthy, vibrant society.

Finally, we speak far too little about the profound emotional costs and financial losses borne by those who lose a loved one, an unborn child, their home, their livelihood, or their harvest. Their lives matter. We cannot, in good conscience, support activities that actively jeopardize the health and well-being of New Brunswickers. The evidence is strong, and we ask that you chart a truly clean, safe, and affordable energy future for our province.

Sincerely,

A handwritten signature in black ink, appearing to read 'Renée', with a long horizontal line extending to the left.

Renée Turcotte, M.D.
Co-Chair CAPE NB

A handwritten signature in black ink, appearing to read 'Chris', with a long horizontal line extending to the right.

Chris Arsenault, M.D.
Co-Chair CAPE NB