

# The Right to a Healthy Environment

Documenting the need for  
environmental rights in Canada

## Case Study 2

# Community impacts of air pollution in urban central Alberta

Andrew Read

April 2017

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# Right to a healthy environment

Do Canadians have a right to a healthy environment, or to be protected from environmental harms? Such rights are recognized in more than 110 countries around the world, but not, however, in Canada.<sup>1</sup>

The idea of recognizing a right to a healthy environment in the Canadian Charter of Rights and Freedoms has been promoted by a number of groups.<sup>2</sup> Recognizing this right in the Charter would enshrine environmental protection under Canada's highest law, which would help ensure that laws across the country are consistent in protecting the health of citizens; that a standard of environmental quality is set for all groups; and that environmental laws are protected from further degradation.<sup>3 4</sup>

Currently, there is no provision in the Canadian Charter of Rights and Freedoms to explicitly protect the environment. Instead, environmental issues or concerns are often considered but one of many "interests" in front of the courts. However, it is possible that current provisions under the Charter regarding individual rights can be interpreted to include more broad protection for the environment, without amending the document.<sup>5</sup>

Section 7 of the Charter is often considered to be a likely provision that can be read to include environmental protections. S. 7 guarantees the "right to life, liberty, and security of the person and the right not to be deprived thereof except in accordance with the principles of fundamental justice."<sup>6</sup> How s. 7 or other sections of the Charter can be

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<sup>1</sup> Ecojustice, "Right to a Healthy Environment". <http://www.ecojustice.ca/case/right-to-a-healthy-environment/>

<sup>2</sup> David Suzuki Foundation, "Blue Dot." <http://bluedot.ca>

<sup>3</sup> Ecojustice, *The Right to a Healthy Environment: Canada's Time to Act* (2015) 6. [https://www.ecojustice.ca/wp-content/uploads/2015/04/Right\\_to\\_a\\_healthy\\_environment\\_FINAL.pdf](https://www.ecojustice.ca/wp-content/uploads/2015/04/Right_to_a_healthy_environment_FINAL.pdf)

<sup>4</sup> David R. Boyd, *The Constitutional Right to a Healthy Environment*, (July 2012). [http://www.environmentmagazine.org/Archives/Back\\_Issues/2012/July-August\\_2012/constitutional-rights-full.html](http://www.environmentmagazine.org/Archives/Back_Issues/2012/July-August_2012/constitutional-rights-full.html)

<sup>5</sup> Lynda M. Collins, "An Ecologically Literate Reading of the Canadian Charter of Rights and Freedoms," *Windsor Review of Legal and Social Issues* 26 (2009), 8.

<sup>6</sup> Canadian Charter of Rights and Freedoms, s 7, Part I of the Constitution Act, 1982, being Schedule B to the Canada Act 1982 (UK), 1982, c 11.

interpreted to include environmental protections is outside the scope of this work and has been discussed at great length by other scholars.<sup>7</sup>

The argument has been persuasively made by other organizations and experts that a right to a healthy environment is possible and can be practically implemented;<sup>8</sup> and it can be effective at improving environmental outcomes and better fulfilling other human rights. As existing rights are violated by environmental harms, placing environmental protection on a greater footing as a right instead of an interest will achieve greater fulfillment of those rights.

## Documenting the need for a right to a healthy environment

To illustrate the need for these laws, it is important to document examples where existing rights have been impacted by the insufficient footing of environmental protection. We have compiled three case studies highlighting the adverse impact on people when environmental rights are lacking and regulatory systems failed to prevent harm through the environment. All three case studies look back to previous energy development in Alberta. Each focuses on a different governing body and aspect of its regulatory system, examining the impacts from the level of the individual, the community, and the region. Although in some instances the regulatory systems have shifted partly in response to some of these issues, the pattern of rights impacts across different regulatory bodies, systems, and industries highlights the need for broader environmental protections to prevent these from repeating.

Our three case studies are:

1. Individual impacts of intensive hydraulic fracturing activity in rural Alberta

Looking to a region northwest of Calgary known as the Lochend, this case study examines the negative cumulative impacts from numerous hydraulic fracturing operations on individuals residing nearby. It explores the failure of a regulatory system that often denied individuals a say in initial project decisions that may impact them, and the failure of the former Alberta Environment, Energy Resource

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<sup>7</sup> “An Ecologically Literate Reading of the Canadian Charter of Rights and Freedoms,” 21.

<sup>8</sup> Avnish Nanda, “Constitutionalizing Environmental Protections Under the Charter: Part 1-4,” *The Court*, March 2014. <https://www.thecourt.ca/constitutionalizing-environmental-protections-under-the-charter-part-i/>

Conservation Board and the later established Alberta Energy Regulator to monitor and manage the cumulative effects of multiple projects.

## 2. Community impacts of air pollution in urban central Alberta

The second case study examines the negative impacts on air quality on communities in central Alberta when coal-fired power plants were approved despite predicted exceedances of provincial air quality standards and inadequate cumulative effects modelling. Additionally, it examines the regulatory process that excludes parties with an interest in the matter who can provide important information to aid in reducing the impacts of these approvals on communities downwind.

## 3. Regional impacts of oilsands development in northern Alberta

The third case study examines the implementation of regional planning in the Lower Athabasca Region which began in 2012. This case study primarily focuses on the impacts on First Nation's treaty and aboriginal rights; however, the identified impacts also demonstrate potential violations of human rights under human rights legislation and the Charter. Despite the objectives of regional planning, after four years Alberta's first regional plan does not have the means to prevent cumulative environmental impacts to traditional land, land use, and Indigenous livelihoods and cultural practices.

Our objective was to contribute to discussion for the need for a right to a healthy environment (through either a "reading in" under existing Charter rights or potential Charter amendments), by documenting the human impacts of energy development that are mediated through the environment. Examining both the status quo and more recent efforts of the Alberta government to consider cumulative effects, these case studies demonstrate that processes in place are inadequate to prevent environmental impacts that infringe on currently protected human rights, and that the right to be protected from these impacts needs to be strengthened.

# 1. Nature and context of industrial activity

## 1.1 Community and geography

Alberta is divided into six air zones, based on the Land Use Framework regional boundaries, as shown in Figure 1. Many parts of the province have recently experienced elevated public health risks related to ambient levels of fine particulate matter (PM<sub>2.5</sub>) and ozone, which have strong correlations to human health impacts. In many parts of the province these pollutants are approaching the limits set by the Canadian Ambient Air Quality Standards (CAAQS).

This is particularly true for large urban centres with substantial nearby industrial development, including Edmonton, Red Deer and Calgary, where measured levels have been particularly elevated. In Red Deer, with a population of around 100,000 in the city proper,<sup>9</sup> PM<sub>2.5</sub> levels exceeded the CAAQS in the 2015 provincial assessment of air quality, based on the measurements from a monitoring station in the city.<sup>10</sup> Meanwhile, the Edmonton metropolitan area (Capital Region; population approaching 1.2 million<sup>11</sup>) in a region of the North Saskatchewan air zone called the Capital Airshed, has seen PM<sub>2.5</sub> exceedances going back to 2010.<sup>12</sup> Section 2.1 describes recent air quality measurements in greater detail.

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<sup>9</sup> Alberta Government, *2015 Municipal Affairs Population List* (2015).

<sup>10</sup> Government of Alberta, *Alberta: Air Zones Report 2011-2013* (2015), 9. <http://aep.alberta.ca/air/management-frameworks/canadian-ambient-air-quality-standards-for-particulate-matter-and-ozone/documents/AlbertaAirZonesReport-2011-13-Sep2015.pdf>

<sup>11</sup> Statistics Canada, “Population and dwelling count highlight tables, 2011 census”, January 7, 2016.

<sup>12</sup> Alberta Environment and Sustainable Resource Development, *Capital Region Fine Particulate Matter Response* (2014), 11. <http://open.alberta.ca/publications/9781460120736>

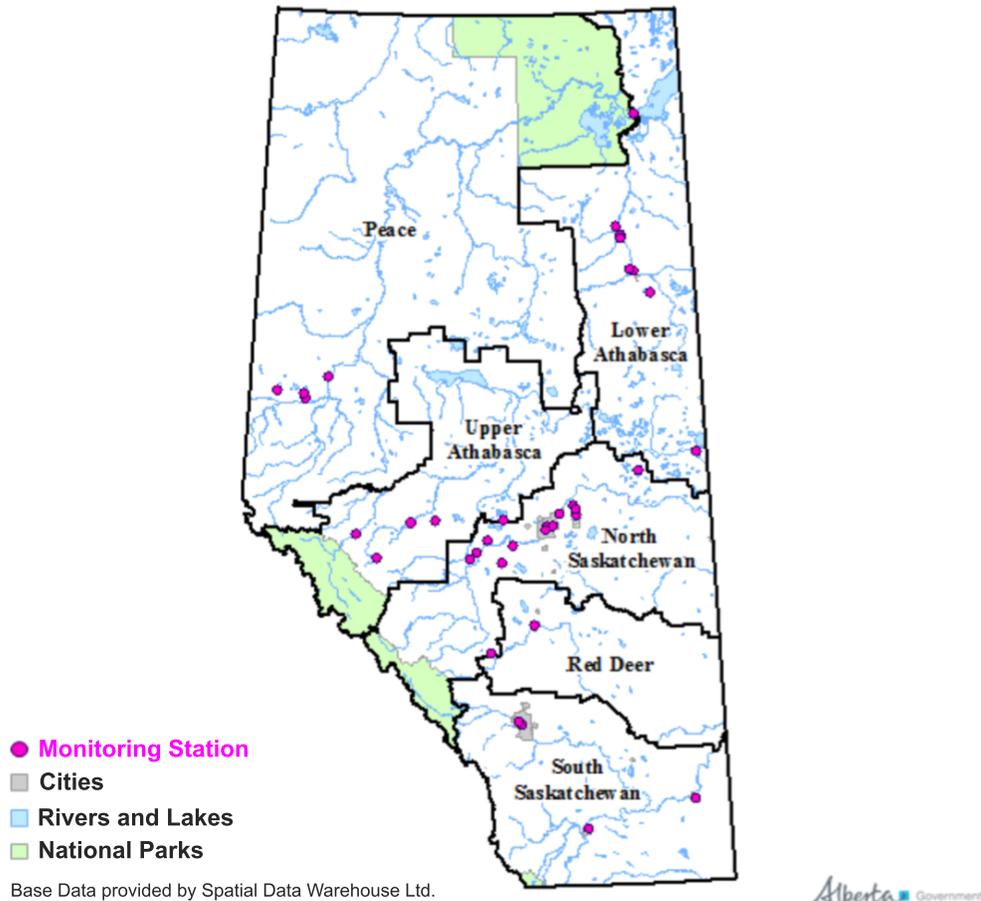


Figure 1. Air zones and ambient air monitoring stations in Alberta

Source: Government of Alberta<sup>13</sup>

While the highest elevated or exceedance levels measured at monitoring stations in the zone are reported, parts of some zones (Red Deer in particular) do not contain monitoring stations. This means that pollution levels in unmonitored parts of these zones are unknown. What is known is that particular monitoring stations in Edmonton and Red Deer have recorded elevated levels, particularly of  $PM_{2.5}$ , which has clearly been linked to health impacts, especially for vulnerable populations such as children with asthma and the elderly with heart problems, described further in section 2.2. As such, this case study focuses on elevated  $PM_{2.5}$  in Edmonton and Red Deer and the contribution from industrial facilities that are approved by Alberta's regulatory bodies.

<sup>13</sup> Alberta: Air Zones Report 2011-2013, 7.

## 1.2 Industrial activity: Oil and gas plus electric power generation

Both of these cities with recorded air quality problems are major population centres in central Alberta. Both have a mix of emissions sources — including both the emissions that often come with major populations such as transportation and building sources, and also major industrial emissions, including oil and gas operations and electricity generation facilities, which are frequently upwind of the cities. Adding to issues of air quality, new emissions sources have been approved or built near both cities in recent years. The mix of all emissions sources leads to elevated air pollution levels that are impacting human health in these cities in particular.

As described below, ambient  $PM_{2.5}$  can result from direct emission of  $PM_{2.5}$  (“primary”) or from the secondary formation of  $PM_{2.5}$  through the reactions of other pollutants in the air, particularly nitrogen oxides ( $NO_x$ ) and sulphur dioxide ( $SO_2$ ). Primary  $PM_{2.5}$  results from a wide variety of human sources, but is dominated in all regions by road dust and construction activities. Pollution can clearly cross air zones, but in the case of secondary  $PM_{2.5}$  it is instructive to look at the data on the relative contributions of  $SO_2$  and  $NO_x$  in the relevant air zones themselves. In both Red Deer and North Saskatchewan air zones, transportation is a considerable  $NO_x$  emitter (33 and 23% of all  $NO_x$  emissions respectively) that is often close to the populations. But across the air zones, the electricity generation and oil and gas sectors are the primary  $SO_2$  emitters and considerable  $NO_x$  emitters (Figure 2). As described in section 2.2, secondary  $PM_{2.5}$  can have a greater impact on human health; secondary formation of  $PM_{2.5}$  from  $NO_x$  and  $SO_2$  is known to be an important causal contributor to the  $PM_{2.5}$  exceedances in Edmonton.<sup>14</sup>

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<sup>14</sup> *Capital Region Fine Particulate Matter Science Report 24.*

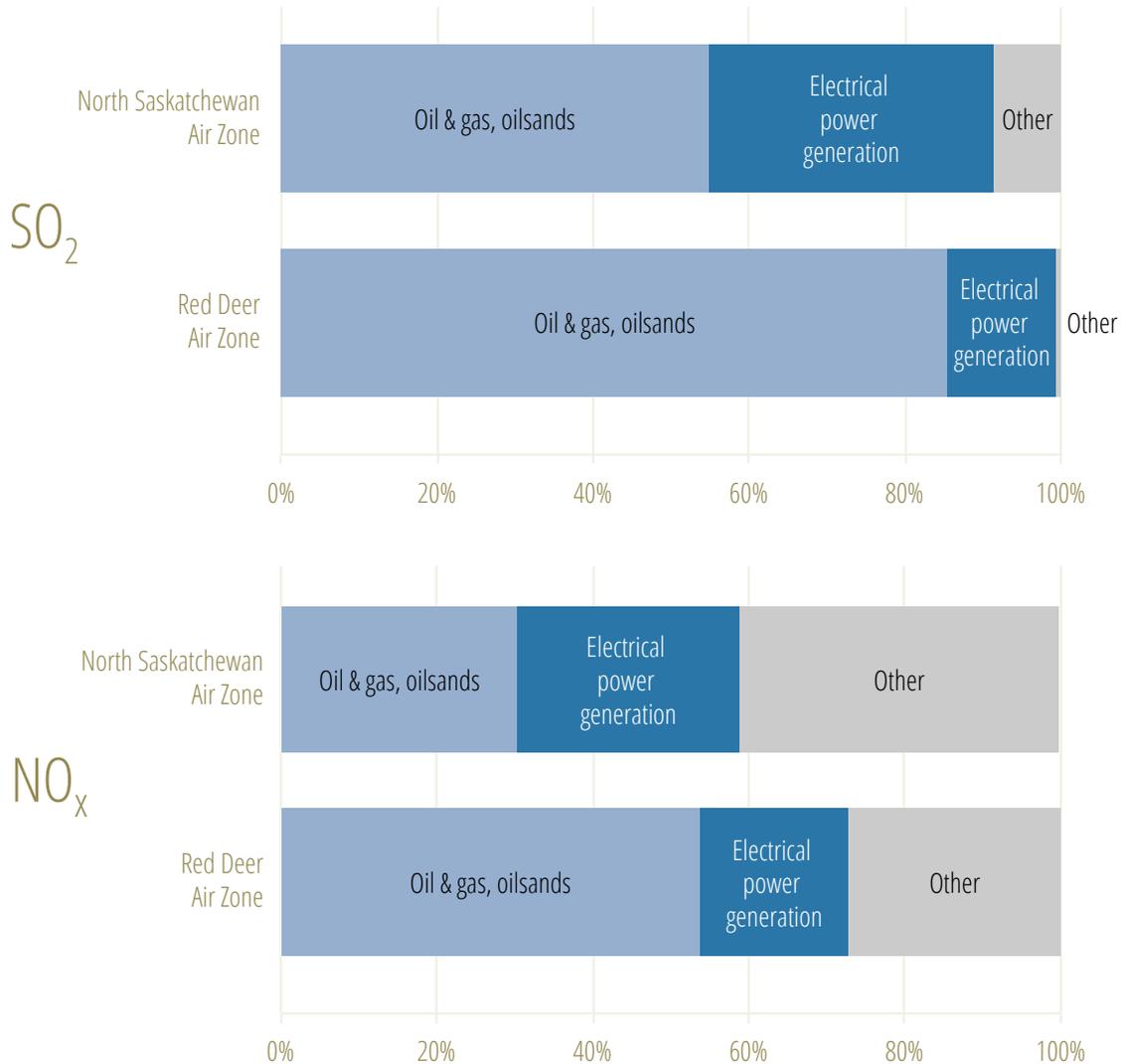


Figure 2. Major sources of SO<sub>2</sub> and NO<sub>x</sub> emissions in the North Saskatchewan and Red Deer air zones

Dominant sources are oil and gas activities (including refining and upgrading) and electrical power generation.

Data source: Government of Alberta<sup>15</sup>

In the Edmonton Capital Region specifically, a subset of the North Saskatchewan air zone, electricity generation is a dominant emitter of SO<sub>2</sub> and a major emitter of NO<sub>x</sub>, as illustrated in Figure 3.

<sup>15</sup> Alberta: Air Zones Report 2011-2013, 18.

## EDMONTON REGION

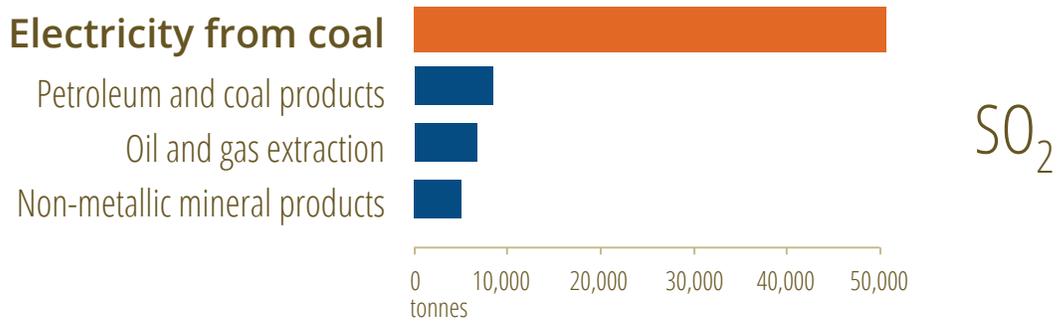
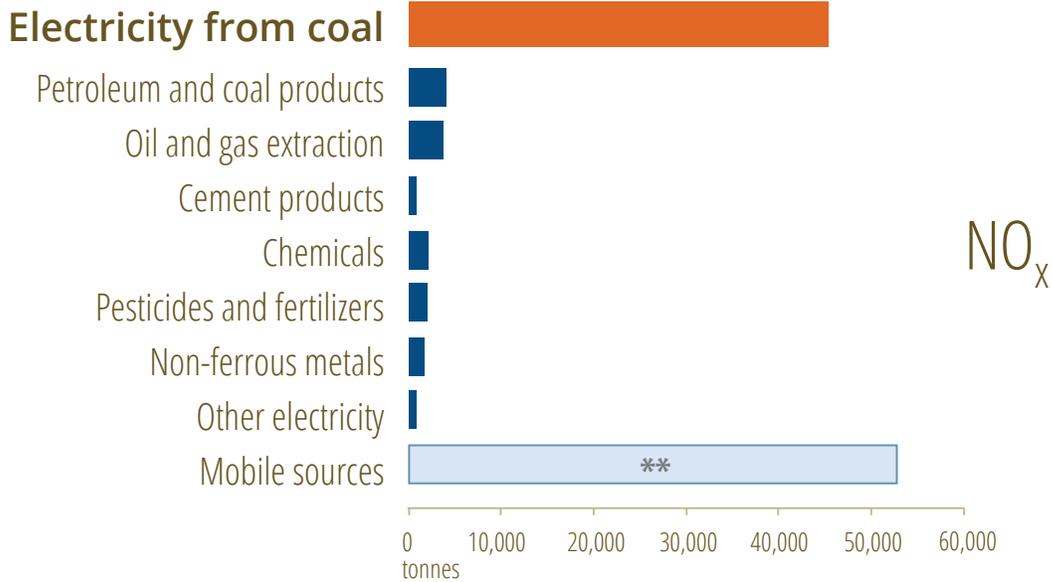


Figure 3. Major sources of SO<sub>2</sub> and NO<sub>x</sub> emissions in the Edmonton Capital Region

Coal plants are a dominant source of important precursors for secondary fine particulate matter.

Data source: Environment Canada and Alberta Environment<sup>16</sup>

<sup>16</sup> Environment Canada, *National Pollutant Release Inventory*. <https://www.ec.gc.ca/inrp-npri/>; \*\*Mobile source data from Alberta Environment, *Capital Region Fine Particulate Matter Science Report* (extrapolated from Figure 21). <https://open.alberta.ca/dataset/9781460120736>. Category names have been simplified. Minor sources are not shown.

## 2. Human impacts of the industrial activity

### 2.1 Impacts to air quality

In 2015, the Alberta government released their province-wide assessment of air quality related to ambient levels of particulate matter pollution between 2011 and 2013. This assessment indicated an elevated risk to the public from this pollutant. The levels of fine particulate matter in every region across the province, and particularly in large urban centers with substantial industrial development, were approaching the Canadian Ambient Air Quality Standards (CAAQS).<sup>17</sup> In the case of the Red Deer region, the measured air pollution exceeded the CAAQS.<sup>18</sup> Figure 4 shows the management level attained by each air monitoring station and air zone for PM<sub>2.5</sub>.

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<sup>17</sup> *Alberta: Air Zones Report 2011-2013*, 15.

<sup>18</sup> *Ibid*, 9.

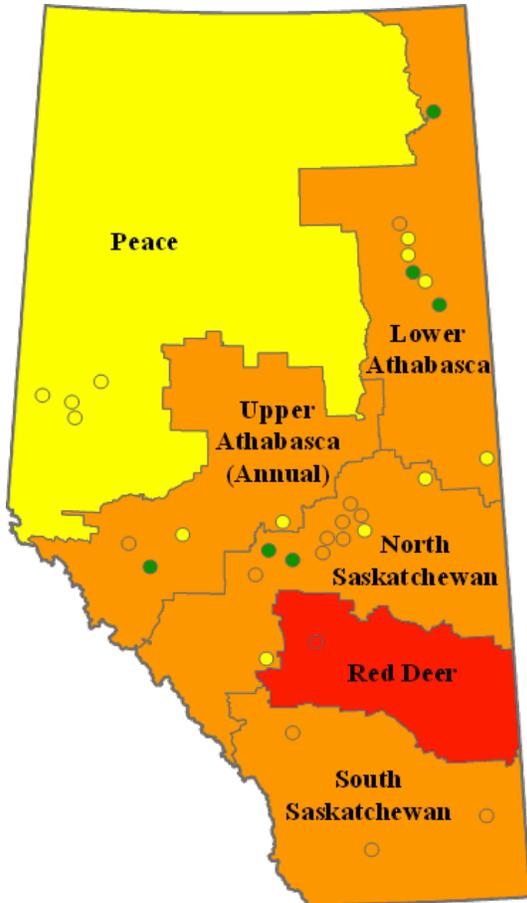


Figure 4. Management levels for the PM<sub>2.5</sub> 24-hour and annual metrics.

Most regions approached CAAQS limits and the Red Deer air zone exceeded the CAAQS for PM<sub>2.5</sub>. The colour coding shown for each region represents the overall status of PM<sub>2.5</sub> concentrations in relation to the CAAQS, further explained in Table 1.

Source: Government of Alberta<sup>19</sup>

While some exceedances are expected every year related to uncontrollable events such as dust storms or forest fires, the CAAQS exclude these natural events from the assessment of their achievement.<sup>20</sup> This means that the exceedances that are measured under the CAAQS are specific to man-made emissions sources.

Although the 2015 analysis represents the most recent assessment of province-wide air quality, air quality has been long recognized as an issue. In the Alberta Capital region,

<sup>19</sup> Alberta: Air Zones Report 2011-2013, 15.

<sup>20</sup> Canadian Council of Ministers of the Environment, *Guidance Document on Achievement Determination Canadian Ambient Air Quality Standards for Fine Particulate Matter and Ozone* (2012), 20. [www.ccme.ca/files/Resourcs/air/aqms/pn\\_1483\\_gdad\\_eng.pdf](http://www.ccme.ca/files/Resourcs/air/aqms/pn_1483_gdad_eng.pdf)

air pollution has been shown to be in excess of previous, less stringent Canada-wide standards for fine particulate matter since 2010.<sup>21</sup> While the 2010 exceedance did result in investigation and development of reactive management actions to decrease ambient pollution,<sup>22</sup> the public had already been exposed to unsafe levels of particulate matter.

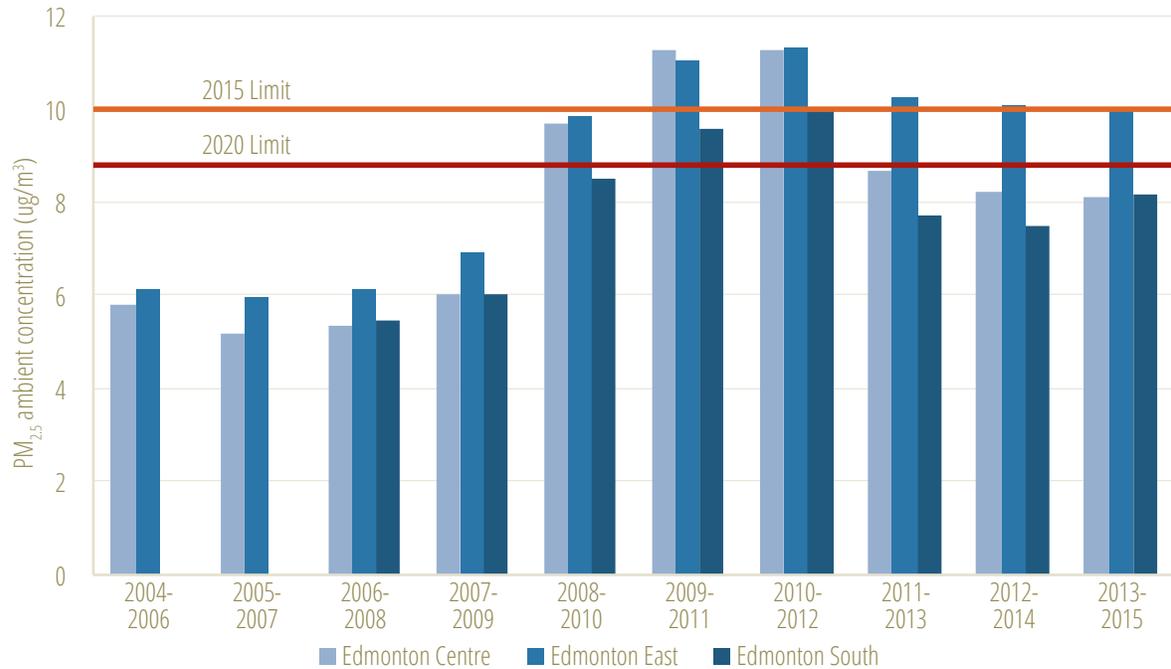


Figure 5: Edmonton 3-year average PM<sub>2.5</sub> ambient concentrations at select air monitoring stations

Includes natural events such as forest fires. Comparison to CAAQS is for illustration and not for determining compliance. Data source: Alberta Environment and Parks<sup>23</sup>

Since those exceedances occurred, the standards for fine particulate matter have become more stringent in recognition of the evolving health research showing that there is no safe level of exposure to PM<sub>2.5</sub>.<sup>24</sup> This standard is progressively being

<sup>21</sup> Alberta Environment and Sustainable Resource Development, *Capital Region Fine Particulate Matter Response* (2014), 11.

<sup>22</sup> *Ibid*, 18.

<sup>23</sup> Government of Alberta, “Airdata warehouse,” July 29, 2016. <http://airdata.alberta.ca/>

<sup>24</sup> Government of Canada, *Canadian Smog Science Assessment – Highlights and Key Messages* (2016), 4. <https://www.ec.gc.ca/Publications/AD024B6B-A18B-408D-ACA2-59B1B4E04863%5CCanadianSmogScienceAssessmentHighlightsAndKeyMessages.pdf>

strengthened in response to the new findings on health impacts, with another reduction in acceptable levels planned for 2020, as shown in Table 1.<sup>25</sup>

Table 1: Canadian Ambient Air Quality Standards Management Levels for ozone and fine particulate matter

Management Level	Management Actions	Air Management Threshold Values					
		Ozone (ppb)		PM <sub>2.5</sub> Annual (µg/m <sup>3</sup> )		PM <sub>2.5</sub> 24 h (µg/m <sup>3</sup> )	
		2015	2020	2015	2020	2015	2020
<b>RED</b>	<b>Actions for Achieving Air Zone CAAQS</b>						
Threshold	63	62	10.0	8.8	28	27	
<b>ORANGE</b>	<b>Actions for Preventing CAAQS Exceedance</b>						
Threshold	56		6.4		19		
<b>YELLOW</b>	<b>Actions for Preventing Air Quality Deterioration</b>						
Threshold	50		4.0		10		
<b>GREEN</b>	<b>Actions for Keeping Clean Areas Clean</b>						

Source: CCME<sup>26</sup>

## 2.2 Impacts of deteriorated air quality on human health

The link between ambient air quality and human health impacts is conclusively established in extensive literature, which does not need comprehensive review here. Additionally, evidence continues to mount about the human health impacts of pollution, including the types of air quality problems that have been documented in central Alberta.

### Ambient fine particulate matter

The chemical composition of the fine particulate matter can vary, and health impacts differ based on the specific chemicals present.<sup>27</sup> Studies have conclusively linked

<sup>25</sup> Environment Canada, “Backgrounder: Canadian Ambient Air Quality Standards,” August 14, 2013. <http://www.ec.gc.ca/default.asp?lang=En&n=56D4043B-1&news=A4B2C28A-2DFB-4BF4-8777-ADF29B4360BD>

<sup>26</sup> Canadian Council of Ministers of the Environment, “Resources: Particulate Matter and Ground-level Ozone”. [http://www.ccme.ca/en/resources/air/pm\\_ozone.html](http://www.ccme.ca/en/resources/air/pm_ozone.html)

particulate matter (both fine particulate matter (PM<sub>2.5</sub>) and larger particulates of up to 10 micrometres (PM<sub>10</sub>)) to hospitalizations and increased respiratory and cardiovascular mortality, as well as asthma exacerbation, inflammation, changes in heart rate variability and increased incidence of respiratory diseases like chronic obstructive pulmonary disease, cancer and pneumonia.<sup>28</sup> Fine particulate matter is especially impactful: studies have linked increases in lung cancer risk and cardiopulmonary mortality risk to slight increases in the fine particulate matter level.<sup>29</sup>

Secondary PM tends to be the smallest particles, which when inhaled can enter the bloodstream, leading to cardiac diseases. Short-term exposure to acute fine particulate matter has been associated with increased incidences of cardiovascular disease and ischaemic heart disease, along with higher risk of heart failure, while long-term exposure increases the risk of mortality from cardiovascular illness.<sup>30</sup> Secondary PM formation resulting from NO<sub>x</sub> and SO<sub>2</sub> thus has the greatest human health impact.<sup>31</sup>

These impacts are aggravated for vulnerable populations, including children, the elderly and people with pre-existing medical conditions.<sup>32</sup> Health outcomes are worsened for diabetics (reduction in vascular function) and asthmatic children (deteriorated lung function).<sup>33</sup>

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<sup>27</sup> Health Canada, *Human Health in a Changing Climate: A Canadian assessment of vulnerabilities and adaptive capacity*, Jacinthe Séguin, editor (2008), 120.

<sup>28</sup> S.T. Ebel, W.E. Wilson and M. Brauer, “Exposure to ambient and nonambient components of particulate matter: A comparison of health effects,” *Epidemiology* 16 (2005), 396; H. Gong, Jr. et al., “Controlled exposures of healthy and asthmatic volunteers to concentrated ambient fine particles in Los Angeles,” *Inhalation Toxicology* 15 (2003), 305; 5 R. McConnell et al., “Air pollution and bronchitic symptoms in southern California children with asthma,” *Environmental Health Perspectives* 107 (1999), 757.

<sup>29</sup> C. Arden Pope III et al., “Lung cancer, cardiopulmonary mortality, and long-term exposure to fine particulate air pollution,” *Journal of the American Medical Association* 287 (2002) 1132.

<sup>30</sup> L.D. Pengelly and J. Sommerfreund, *Air Pollution-Related Burden of Illness in Toronto: 2004 Update*, prepared for City of Toronto (2004); F. Dominici et al., “Fine particulate air pollution and hospital admission for cardiovascular and respiratory diseases,” *Journal of the American Medical Association* 295 (2006), 1127; D.W. Dockery et al., “An association between air pollution and mortality in six U.S. cities,” *New England Journal of Medicine* 329 (1993), 1753.

<sup>31</sup> Government of Canada, *Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity Regulations: Regulatory Impact Analysis Statement*, SOR/2012-167. <http://www.gazette.gc.ca/rp-pr/p2/2012/2012-09-12/html/sor-dors167-eng.html>

<sup>32</sup> *Human Health in a Changing Climate*, 120.

<sup>33</sup> M.S. O'Neill et. al., “Diabetes enhances vulnerability to particulate air pollution-associated impairment in vascular reactivity and endothelial function,” *Circulation* 111 (2005), 2913; R. Peled et. al., “Fine particles and meteorological conditions are associated with lung function in children with asthma living near two power plants,” *Public Health* 119 (2005), 418.

## Ambient NO<sub>2</sub> and SO<sub>2</sub>: direct impacts

Health Canada has recently concluded a literature review of the current state of research into the direct health impacts of airborne ambient nitrogen dioxide (NO<sub>2</sub>)<sup>34</sup> and sulphur dioxide (SO<sub>2</sub>).<sup>35</sup> These studies identify what has been learned by recent health investigations and research into exposure to ambient airborne NO<sub>2</sub> and SO<sub>2</sub>.

For SO<sub>2</sub>, the primary finding from the research highlights strong evidence of causality between acute (short-term) exposure and respiratory morbidity. Respiratory morbidity generally refers to the reduced health or function of the respiratory system, and includes health conditions such as asthma, bronchitis, and emphysema. A definitive causal relationship was also determined between short-term and long-term exposure to ambient NO<sub>2</sub> at levels commonly measured in Alberta and respiratory effects.

Monitoring data, corroborated by exposure modelling, shows that for most Canadians, exposure to SO<sub>2</sub> occurs during intermittent spikes in ambient concentrations. Exposure to NO<sub>2</sub> happens across Alberta, particularly in urban and heavily industrialized areas, and exposure is generally higher in the winter due to reduced pollution dispersion and increased pollution from home heating.

The SO<sub>2</sub> assessment identified a 10-minute human health reference concentration of 67 parts per billion (ppb). Exposure to concentrations greater than this for longer than 10 minutes would likely result in health impacts, especially for sensitive subpopulations. The current 1-hour Alberta Ambient Air Quality Objective (AAAQO) for SO<sub>2</sub> is 172 ppb, and does not reflect this new research by Health Canada. At this higher concentration, and over the longer 1-hour period, SO<sub>2</sub> exposure is likely to result in health impacts even when it does not exceed provincial standards.

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<sup>34</sup> Health Canada, *Human Health Risk Assessment for Nitrogen Dioxide* (2016).

<http://healthycanadians.gc.ca/publications/healthy-living-vie-saine/nitrogen-dioxide-dioxyde-azote/index-eng.php>

<sup>35</sup> Health Canada, *Human Health Risk Assessment for Sulphur Dioxide: Analysis of Ambient Exposure to and Health Effects of Sulphur Dioxide in the Canadian Population* (2016).

[http://publications.gc.ca/collections/collection\\_2016/sc-hc/H144-29-2016-eng.pdf](http://publications.gc.ca/collections/collection_2016/sc-hc/H144-29-2016-eng.pdf)

# 3. Failure of air quality management and regulatory processes to protect human health

## 3.1 Regulatory processes and regional airshed management

To construct and operate an industrial facility, a developer must prepare and submit an application to the appropriate regulator (Alberta Energy Regulator only for oil and gas, Alberta Utilities Commission for electricity generation projects, and Alberta Environment and Parks for both electricity generation and all other industrial activities requiring an environmental approval). These applications require an assessment of the proposed project's impact on ambient air quality, the results of which are used to determine the necessary air pollution controls to avoid and minimize deterioration of air quality. This is when mitigation of expected air pollution impacts can be addressed: before facilities are locked into a specific facility design. Once a project is constructed and operating, it is much more difficult to retrofit air pollution controls. Substantial due diligence should be undertaken through the regulatory process to ensure air emissions are maintained at the safest level possible, although evidence of such due diligence is not always clear. Once an approval for an industrial facility is issued, management of air quality then falls to the ongoing environmental monitoring and any reactive management of air pollution is driven from that monitoring.

Within each air zone are ambient air monitoring stations that continuously measure specific air pollutants. Rules are established to guide the location of ambient monitoring stations to provide a reasonable estimate of ambient air conditions and ensure monitored results are not overly influenced by local sources.<sup>36</sup> In contrast, attribution or compliance air monitoring stations are typically placed at industrial site

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<sup>36</sup> Government of Alberta, *Air Monitoring Directive Chapter 3: Ambient Monitoring Site Selection, Siting Criteria and Sampling System Requirements* (2016). <http://aep.alberta.ca/air/legislation/air-monitoring-directive/documents/AMD-Chapter3-SiteSelection-Aug03-2016.pdf>

boundaries to ensure compliance with facility approval requirements. Provinces and territories identify those air monitoring stations within their jurisdiction to report the achievement status of the Canadian Ambient Air Quality Standards against; these are designated as CAAQS reporting stations, but all communities with a population of 100,000 are required to have one or more CAAQS reporting station.<sup>37</sup>

Data collected from all ambient stations is reviewed for completeness and analyzed statistically.<sup>38</sup> Measurements related to uncontrollable air quality events such as forest fires or dust storms are removed from the data,<sup>39</sup> thus, results of the assessment relate only to man-made air pollution and the related meteorological conditions.

The results from each station are compared against the established Canadian Ambient Air Quality Standards. The highest value measured within a region establishes the region's achievement status. Depending on the region's status, different management actions are undertaken in relation to measured air quality.<sup>40</sup> These actions vary from initiation of an investigation to full action plans to reduce pollution levels.<sup>41</sup>

## 3.2 Disregard for modelled exceedances increases health risk to the public

For industrial facilities, the only point at which proactive air quality management can occur is through the project application process and resulting regulatory approvals granted under the Environmental Protection and Enhancement Act. These approvals include emission limits, required pollution control equipment, required operational procedures, allowable emission sources, stack design requirements, and monitoring requirements.<sup>42</sup> Each of these requirements is determined based on the results of air quality modelling included with an industrial application.

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<sup>37</sup> *Guidance Document on Achievement Determination Canadian Ambient Air Quality Standards for Fine Particulate Matter and Ozone*, 3.

<sup>38</sup> *Ibid.*, 6-15.

<sup>39</sup> *Ibid.*, 18-28.

<sup>40</sup> Canadian Council of Ministers of the Environment, *Guidance Document on Air Zone Management* (2012), 2.

<sup>41</sup> *Ibid.*, 7-10.

<sup>42</sup> Government of Alberta, *Using Ambient Air Quality Objectives in Industrial Dispersion Modelling and Individual Industrial Site Monitoring* (2013), 3.

Air quality modelling is used to determine the maximum ground level concentrations if the project is constructed and operated.<sup>43</sup> This modelling is compared against Alberta Ambient Air Quality Objectives (AAAQOs), to which all industrial facilities must be designed and operated to remain below.<sup>44</sup> These AAAQOs represent choices about the acceptable risk to health and ecosystems, and they attempt to balance the need to protect health and the environment with social, technological, economic, and political factors.<sup>45</sup> Therefore, the AAAQOs are inherently not fully protective of human and environmental health. If modelling shows that these objectives would be exceeded, the facility design should be enhanced to reduce the air pollution from the facility to maintain the objectives. However, in practice this is often not the case.

While exceedances of the AAAQOs have been modelled and presented in facility assessments under future development scenarios, there is little evidence that these findings result in design changes or rejection of a project that could lead to unsafe levels of pollution. Projects have provided assessments identifying exceedances but have still been approved because of the deemed economic benefits.<sup>46</sup> However, the AAAQOs already reflect a compromise that still allows for health impacts weighed against economic considerations in the public interest.<sup>47</sup> Therefore, approval of projects that are shown to exceed air quality objectives will result in increasing risk to the public over and above the levels already deemed appropriate to balance economic and health considerations.

### 3.3 Limited scope restricts understanding of cumulative air pollution effects

While air quality modelling is useful in understanding the air impacts associated with a single development, it is less useful to understand the cumulative air impacts associated with multiple developments within a large area or region. This is primarily due to the limitation of the geographic extent of the air quality assessments. Air quality modelling

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<sup>43</sup> Government of Alberta, *Guide to Content for Industrial Approval Applications* (2014), 25.

<sup>44</sup> Government of Alberta, *Alberta Ambient Air Quality Objectives and Guidelines Summary* (2013), 1.

<sup>45</sup> Government of Alberta, *Using Ambient Air Quality Objectives in Industrial Dispersion Modelling and Individual Industrial Site Monitoring* (2013), 4.

<sup>46</sup> Golder Associates, *TAMA Power Sundance 7 Approval Application: Air Quality Assessment* (2014), 47.

<sup>47</sup> *Using Ambient Air Quality Objectives in Industrial Dispersion Modelling and Individual Industrial Site Monitoring*, 4.

guidance provided by Alberta Environment and Parks only requires inclusion of industrial emissions sources within 5 kilometres of the proposed facility.<sup>48</sup> This limitation does not fully account for the resultant air pollution impacts of industrial projects around large urban centres.

Air pollution, including PM<sub>2.5</sub> can travel long distances,<sup>49</sup> and stacks at industrial facilities are specifically designed to maximize dispersion of air pollution to reduce the concentration immediately adjacent to the facility to less harmful levels.<sup>50</sup> This dispersion however also increases the distance that the pollution travels and potentially increases the number of people exposed. If there are few sources of air pollution in a broad region, dispersion can mitigate the acute impacts to ambient levels that would otherwise result. However, as is the case in urban central Alberta, when there are numerous sources of air pollution, maximizing dispersion can actually aggravate the cumulative impacts in more distant locations with problematic air quality. The cumulative air pollution from all sources can ultimately increase overall pollution loading and lead to unsafe pollution concentrations.

As the limitation of the necessary modelling restricts the sources of emissions considered, particularly downwind of a project, the final modelling results do not provide any perspective on the downwind cumulative impact of all air pollution sources. This ultimately allows large industrial projects to be constructed near locations that are already suffering from significantly deteriorated air.

This issue presented itself once again in the Alberta Utilities Commissions' decision to approve the 856 MW Sundance 7 gas-fired power plant in June 2015.<sup>51</sup> While the air quality modelling provided by the project developer did go beyond the minimum requirements of the air quality modelling guidelines, only a 40-square-kilometre area was presented for air quality impacts.<sup>52</sup> The subsequent impact to air quality in the City of Edmonton and outlying communities, or even an evaluation of what the current state of air quality is at those locations, was thus excluded from consideration. Air pollution

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<sup>48</sup> Government of Alberta, *Air Quality Model Guideline* (2013), 17.

<sup>49</sup> National Research Council of the National Academies, *Global Sources of Local Pollution: An Assessment of Long-Range Transport of Key Air Pollutants to and from the United States* (2009), 18.

<sup>50</sup> Robert F. Phalen and Robert N. Phalen, *Introduction to Air Pollution Science: A Public Health Perspective* (Jones & Bartlett Learning, 2013), 35.

<sup>51</sup> Alberta Utilities Commission, *Decision 3183-D01-2015: TransAlta MidAmerican Partnership Sundance 7 Power Plant*, June 2015, 65.

<sup>52</sup> TAMA Power Sundance 7 Approval Application: Air Quality Assessment, 3.

can travel much further than 40 kilometres, especially when released in tall stacks and at high velocities, and this is demonstrated by more extensive modelling undertaken by Environment and Climate Change Canada that shows how SO<sub>2</sub> and NO<sub>x</sub> are transported and deposited across Alberta.<sup>53</sup>

Sundance 7 was approved despite modelled exceedances of the AAAQOs; no consideration was made for the current air quality condition in nearby urban centres. The plant was the third new NO<sub>x</sub>-emitting gas-fired generating facility approved in the Capital region since 2014, after the 1,050-MW Genesee 4 and 5 facility (southeast of Wabamun) and the 400-MW Heartland facility (northeast of Fort Saskatchewan), shown in Figure 6. Both Sundance 7 and Genesee 4 and 5 are also located at sites with pre-existing coal-fired electricity facilities, also large emissions sources. Meanwhile, 1,126 oil and gas wells have also been approved since 2010 within the Capital region, also shown in Figure 6. These approvals shows that the regulatory processes intended to protect the public interest are not adequately considering the cumulative impact of adding more air pollution in airsheds already struggling to meet the air quality objectives that reflect a compromise of human health for economic considerations. This continues to contribute to worsening air quality and continued exceedances of standards, rather than providing solutions to bring airsheds into attainment. Therefore, the system does not adequately or proactively protect human health.

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<sup>53</sup> Pembina Institute, “New images of air pollution in Alberta,” October 8, 2015. <https://www.pembina.org/blog/new-images-of-air-pollution-in-alberta>

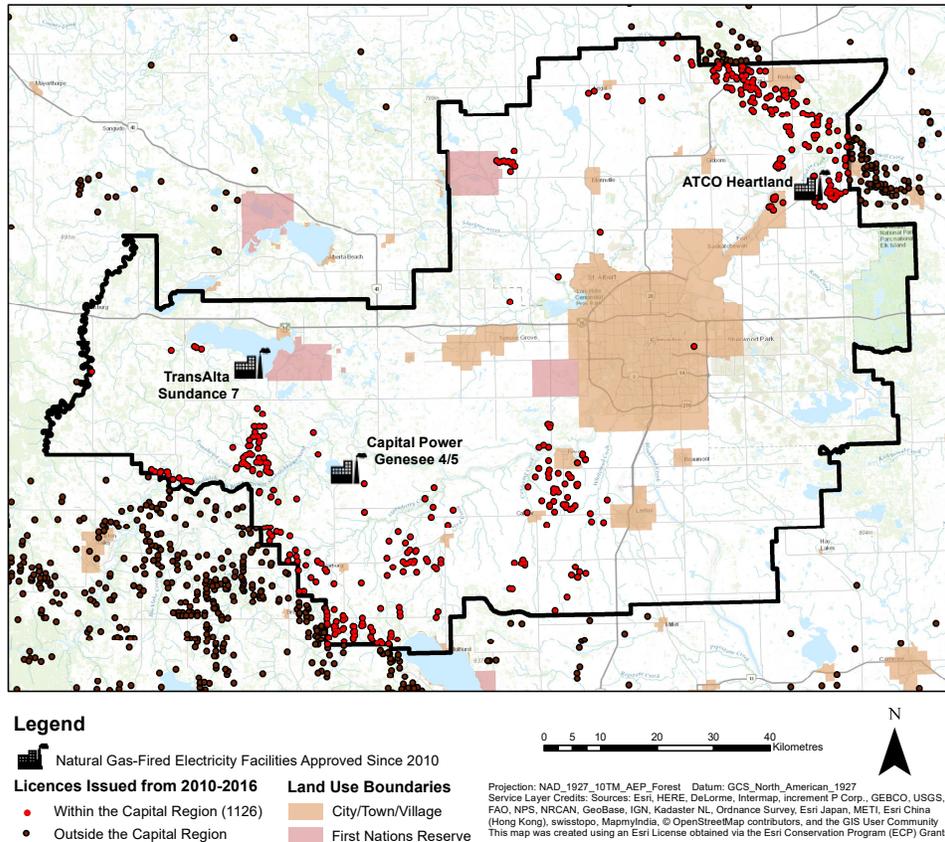


Figure 6. Oil and gas wells and natural gas-fired electricity facilities approved in the Capital Region airshed since 2010.

Red and black dots represent approved oil or gas wells.

For both Red Deer and the Edmonton Capital Region, NO<sub>x</sub> and SO<sub>2</sub> emissions will be considerably reduced as a result of the transition away from coal-fired electricity in Alberta. Most of Alberta’s coal units lie in these regions and emissions from the Wabamun area plants in particular can impact air quality in these areas. However, approvals were issued for Genesee 4 and 5, Sundance 7 and ATCO’s Heartland project (on the other side of Edmonton) based on in-service dates that come before any coal unit is made to close or reduce pollution under existing law.

### 3.4 Reactive air management frameworks fail to address necessary proactive management

Ideally, if an extensive assessment of a facility’s impact has been undertaken and the appropriate mitigation controls required, ongoing monitoring should confirm that

normal operations of a facility under common meteorological conditions will not result in exceedances. However, ambient air monitoring in the province has shown that there have been exceedances of the AAAQOs despite the industrial approval systems requirements.<sup>54</sup>

While better up-front decision-making on project applications using a precautionary approach would be more effective at addressing these exceedances before they occur, instead regional air management plans and frameworks have been developed to try to address increasing ambient air pollution to help avoid an exceedance. These air management frameworks, similar to the Canadian Ambient Air Quality Standards, establish ambient pollution thresholds for specific pollutants which if exceeded require a defined response. The responses are intended to help understand the contributors of a pollution measurement and reduce the ambient pollution concentration to avoid exceeding established limits and provide the best protection of human and environmental health.<sup>55</sup>

These frameworks establish the necessary steps to take in response to all environmental air monitoring results, and are helpful in illustrating the government's intention for the industrial air quality management system. However, since the responses are defined by measured air monitoring data, the approach is inherently reactive and does not reduce the risk to the public. Once air quality is measured, the public has already been exposed. If those measurements are in excess of protective levels, than exposure to them will impact public health.

This reactive approach has been in place since 2000 with the implementation of the Canada-wide air quality standards,<sup>56</sup> and monitoring results and action plans have been developed and reported accordingly since that time.<sup>57</sup> Unfortunately, reporting shows that the measured ambient air quality throughout this period has continually deteriorated despite management response plans being in place to maintain air quality

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<sup>54</sup> Government of Alberta, *airdata: exceedance reports*, accessed July 6, 2016.  
<http://airdata.alberta.ca/aepContent/Reports/ExceedencesMain.aspx>

<sup>55</sup> Government of Alberta, *Lower Athabasca Region: Air Quality Management Framework for Nitrogen Dioxide and Sulphur Dioxide* (2012). Plans have yet to be completed for all regions in Alberta.

<sup>56</sup> Alberta Environment and Parks, "Particulate Matter and Ozone Management History," July 28, 2016.  
<http://aep.alberta.ca/air/management-frameworks/canadian-ambient-air-quality-standards-for-particulate-matter-and-ozone/particulate-matter-and-ozone-management-history.aspx>

<sup>57</sup> *Ibid.*

at safe levels.<sup>58</sup> It is therefore unsurprising that when the new, more stringent Canadian Ambient Air Quality Standards were implemented in 2015, much of the province ended up in higher management levels, particularly the Red Deer region, which has exceeded the standard.<sup>59</sup> This illustrates how this reactive approach — if not supported by good up-front decision-making — has not and will not be successful in keeping ambient pollution at safe levels.

The absence of upfront decision-making to meet air quality objectives was most recently illustrated in the Alberta Utilities Commission’s decision to approve the Sundance 7 electricity plant in 2015.<sup>60</sup> The project developer identified that the “Capital Region Air Quality Management Framework trigger for management actions was ... [at] Level 4 for the year 2010-2012” for fine particulate matter at monitoring stations near the project.<sup>61</sup> Despite this level requiring plans for pollution to be reduced under the framework,<sup>62</sup> the Alberta Utilities Commission approved the project. This decision is counter to stated government policy and adds additional air pollution to a region where the province is supposed to work to reduce air pollution to deal with existing problems.

Exacerbating existing problems is not compatible with genuine effort to address those problems — once new emissions sources are added, later reducing those incremental additions can be much more complex and expensive than avoiding the additions in the first place. Under the U.S. Clean Air Act, the EPA applies strict rules related to any new emissions sources that contribute to pollution in regions that are in nonattainment for those pollution sources, including that the new sources meet a lowest achievable emission rate (LAER) standard and offset the new emissions increase with reductions from existing sources in the same vicinity to provide a net air quality benefit. This means that new sources are helping to achieve attainment, rather than exacerbating exceedances.<sup>63</sup>

The three most recent natural gas-fired electricity generating facilities approved in the region — Genesee 4 and 5, Heartland and Sundance 7 — have voluntarily applied best

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<sup>58</sup> See series of Particulate Matter and Ozone Management Fact Sheets from 2001-2012 available from Alberta Environment and Parks, “Particulate Matter and Ozone Management History,” July 28, 2016.

<sup>59</sup> *Alberta: Air Zones Report 2011-2013*.

<sup>60</sup> *TransAlta MidAmerican Partnership Sundance 7 Power Plant*.

<sup>61</sup> *TAMA Power Sundance 7 Approval Application: Air Quality Assessment*, 28.

<sup>62</sup> Government of Alberta, *Capital Region Air Quality Management Framework* (2012). 7.

<sup>63</sup> U.S. Environmental Protection Agency, “Nonattainment NSR Basic Information”, <https://www.epa.gov/nsr/nonattainment-nsr-basic-information>.

available technology economically achievable (BATEA), but were not made to offset their emissions additions with decreases from other emitters in the vicinity. In fact, they were approved with in-service dates before any coal-fired generating units are made to retire or apply additional NO<sub>x</sub> and SO<sub>2</sub> controls under existing law.

Crucially, in the United States, any new emissions sources in areas that have failed to maintain air quality below standards must provide an opportunity for public involvement.<sup>64</sup> The Genesee 4 and 5 and Heartland facilities, meanwhile, were approved without a public hearing, partly a result of limited access to participation in these processes, described next.

### 3.5 Lack of access to participation in project approval hearings to raise cumulative air quality concerns

Authority to review new electricity generation facilities is split between Alberta Environment and Parks and the Alberta Utilities Commission (AUC). There is opportunity for civil society to provide written submissions to both, but whether written submissions are considered and how they are assessed in either forum is not very transparent. At the same time, access to participation at hearings themselves is very limited.

The AUC has a broad public interest mandate. It “regulates the utilities sector, natural gas and electricity markets to protect social, economic and environmental interests of Alberta where competitive market forces do not.”<sup>65</sup> It is an independent, quasi-judicial body whose underlying goal is to “ensure that the delivery of Alberta’s utility service takes place in a manner that is fair, responsible and in the public interest.”<sup>66</sup> In deciding on an application for a new generation facility, the AUC is statute bound to “give considerations to whether construction or operation of the proposed ... power plant ... is in the public interest, having regard to the social and economic effects of the ... plant ...

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<sup>64</sup> Ibid.

<sup>65</sup> Alberta Utilities Commission, “What we do.” <http://www.auc.ab.ca/about-the-auc/what-we-do/Pages/default.aspx> (accessed July 5, 2016)

<sup>66</sup> Alberta Utilities Commission, “Who we are.” <http://www.auc.ab.ca/about-the-auc/who-we-are/Pages/default.aspx> (accessed July 5, 2016)

and the effects of the ... plant ... on the environment.”<sup>67</sup> These mandates and standards, focused on the triple-bottom-line pillars of public interest, show that the AUC is — by law — the central arbiter for balancing competing elements of the public interest when it comes to electricity generation.

As such, AUC approvals processes are an appropriate locus for participatory opportunities for civil society concerned about the public impacts of new generation projects. However, in determining standing for hearings on power plant applications, the Alberta Utilities Commission’s current practice fails to incorporate perspectives and information that is relevant to the public interest, including the public’s interest in minimizing their exposure to air pollution disbursed broadly across Alberta.

The AUC applies a standard of standing that strictly requires a concerned person to be directly and adversely affected. In doing so, the AUC unnecessarily emphasizes geographic location and property rights over other interests and relevant parameters of impact on the public. It also strictly requires those who are directly and adversely affected — which itself is narrowly applied — to be the concerned party opposing an application. Taken as a whole, this approach fails both: 1) to receive information and perspective from relevant public interest groups with applicable expertise or a genuine interest on behalf of the public; and 2) to address dispersed rather than concentrated impacts mediated through the environment.

This is seen in both:

1. the AUC’s standing provisions and broad approaches to interpreting its standing provisions; and
2. two decisions from recent years denying standing to organizations attempting to raise issues of cumulative environmental effects, which enabled approvals for two major, polluting power plants without a hearing.

### General standing principles

Section 9(2) of the Alberta Utilities Commission Act sets out the parameters under which it grants “standing to intervene” in its application processes. It states:

“If it appears to the Commission that its decision or order on an application may directly and adversely affect the rights of a person, the Commission shall

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<sup>67</sup> Government of Alberta, *Alberta Utilities Commission Act*, R.S. 2007, c. A-37.2.  
<http://www.qp.alberta.ca/documents/Acts/A37P2.pdf>

- (a) give notice of the application in accordance with the Commission rules,
- (b) give the person a reasonable opportunity of learning the facts bearing on the application as presented to the Commission by the applicant and other parties to the application, and
- (c) hold a hearing”.<sup>68</sup>

In several of their written decisions denying standing, the AUC has outlined their interpretation of this statute and the guidance given by the Alberta Court of Appeal. Different denials have had minor variations on the following text:

“The test set out in this section is whether a person seeking intervener status has shown that the person has rights and that those rights may be directly and adversely affected by a decision of the Commission on an application. This is a two-part test; the first part is a legal one, and the second is a factual one. The legal test asks whether the claimed right or interest being asserted by the person is one known to the law. The factual part asks -whether the Commission has information which shows that the application before the Commission may directly and adversely affect those interests or rights. This part of the test requires a weighing of the evidence and a consideration of whether that evidence establishes a sufficient location or connection between the proposed project and the right asserted.”<sup>69</sup>

In this approach, we see the restrictions that the AUC applies to its interpretation of its legislated standing test. It shows that it restricts the category of interests that it recognizes to those that are “known to the law” and in turn applies this category in a very limited manner. As we see below, it is reluctant to open this category beyond rights or interests that are focused and creations of law (particularly, property) to include natural rights or interests that are distributed across society (like human health).

We also see restrictions in the second part, namely whether there may be a direct and adverse effect on those interests or rates. Here, the AUC makes clear this is an issue of sufficiency – which itself runs counter to the language of “may ... affect” – that can be

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<sup>68</sup> Government of Alberta, *Alberta Utilities Commission Act* Statutes of Alberta, 2007 Chapter A-37.2 S.9(2).

<sup>69</sup> Alberta Utilities Commission, *AUC Letter to Residents Coalition Ruling on Standing and Public Hearing Process for the H.R. Milner Power Plant Expansion Project*, Proceeding ID 203, Application No. 1604766, (2011), para 11; see also Alberta Utilities Commission, *AUC Letter to Interested Parties Ruling on Standing and Public Hearing Process for the Genesee Generating Station Units 4 and 5*, Proceeding No. 2996, Application No. 1610202, (2014) paras 22-26.

met with location or “connection”. The requirement for “connection” is somewhat vague — it is difficult to ascertain from the AUC’s decisions which connections are sufficient. But the geographic location route is clearer because the AUC places great import on this parameter. The Commission makes explicit its emphasis on geographic proximity in characterizing its approach to its standing provisions:

“Typically, this test is met by a person who owns or occupies land in proximity to a proposed development, and who substantiates an interest, with a direct bearing on his or her lands or other right known to law, which could be directly and adversely impacted by a decision of the Commission with respect to the application. ... Matters of interest to parties living some distance from a proposed project and matters of general interest to persons in Alberta do not typically meet the statutory test for standing unless they are able to show that their rights may be directly and adversely impacted by a decision of the Commission with respect to the application.”<sup>70</sup>

Two examples of power plant applications impacting central Alberta’s air quality

### *Milner Expansion*

In 2009, Maxim Power filed an application to construct and operate a 500-MW coal-fired unit at the existing HR Milner Generating Station. This application brought forward a number of individuals, corporations, and public interest organizations who requested standing and opposed the project. The AUC refused standing to each of these parties. As such, this new coal-fired facility was approved without a hearing. Two of the groups whose standing was rejected were particularly concerned about environmental impacts: the Alberta Wilderness Association and the Pembina Institute. Their rejections reveal some of the inadequacies of participatory access to the regulatory processes dealing with such a large and environmentally impactful project.

In its statement of intent to participate, the Alberta Wilderness Association asserted its mandate and track record as well as identifying four major concerns with the proposed project. One of these concerns was over the increase in GHG emissions that would be brought about by the project. Another was over a lack of cumulative impacts assessment for the area.

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<sup>70</sup> Alberta Utilities Commission, *H.R. Milner Power Plant Expansion*, Proceeding ID 203, Application No. 1604766, (2011), para 20.

In response to this statement of intent to participate, the AUC denied standing for the following written reasons:

“In relation to the first part of the test, the Commission finds that the AWA has not shown that it has a legal interest or right. Therefore, the Commission’s decision on the application will not have a direct and adverse affect on the AWA. Furthermore, the AWA stated that it was not basing its request for standing on its assertion that it had members in the local area of the proposed power plant. As the AWA has not met the first part of the standing test, the Commission denies the AWA standing in relation to this application.”<sup>71</sup>

The Pembina Institute filed a statement of intent to participate, objecting to the project on the basis of its greenhouse gas emissions and effects on climate change, as well as air emissions and effects on water and fish habitats. Finally, Pembina claimed that it had members in Edmonton and the Drayton Valley area who would be affected by the increased greenhouse gas and pollutant emissions.

After this initial submission, Pembina then entered in to a Resident’s Coalition with local land owners and asked to be considered as a single intervener group. However, this effort soon collapsed when the two most important land owners (those closest to the project) signed letters stating they were not part of the group and did not intend to participate in the application process.<sup>72</sup>

The Commission then decided Pembina’s standing on its own merits rather than as a member of the Resident’s Coalition. It stated that:

“In regard to the Pembina Institute, and in relation to the first part of the test, the Commission finds that the Pembina Institute has not shown that it has a legal interest in the vicinity of the proposed power plant. Furthermore, no member of the Pembina Institute resides or has a legal interest which may be directly and adversely affected in relation to the proposed power plant.”<sup>73</sup>

Based on this explanation, it is difficult to discern whether air quality concerns for Pembina Institute members and staff could ever constitute a “legal interest in the

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<sup>71</sup> Alberta Utilities Commission, *AUC Letter to Alberta Wilderness Association Ruling on Standing and Public Hearing Process for the H.R. Milner Power Plant Expansion Project*, Proceeding ID 203, Application No. 1604766, (2011), para 7.

<sup>72</sup> *AUC Letter to Resident Coalition*, (2011), para 9.

<sup>73</sup> *AUC letter to Resident Coalition*, (2011), para 14.

vicinity” of the plant — or what range of distance would allow clean air to be considered a recognized legal interest. The AUC does not explain what would be sufficient for an air quality concern to pass the standing test.

### *Genesee 4 & 5*

In 2014, Capital Power Generation Services submitted an application to construct and operate two additional natural gas-fired generation units adjacent to their existing Genesee Generating Station. In response to this application, the AUC received seven submissions. Of these submissions, the Strawberry Landowners Air and Water Group (SLAWG) and the Pembina Institute attempted to raise environmental impacts and cumulative effects. The Commission was not satisfied that any of these parties met the standing requirement to trigger a hearing and therefore decided that a hearing was not required.<sup>74</sup> The project was approved without a hearing.

The concerns raised by SLAWG ranged from water usage to air quality but, according to the AUC, they failed to substantiate these concerns. Because the nearest member of SLAWG lived more than nine kilometres from the project, the AUC required a higher standard of evidence for demonstrating these concerns.

“In circumstances such as this, **where the nearest member of the SLAWG lives more than nine kilometres from the project**, it was incumbent upon the SLAWG to establish a connection between the concerns expressed and the anticipated effects associated with the proposed power plant approval. In the Commission’s view, the general concerns expressed by the SLAWG members provide an insufficient basis for granting standing, especially given the nature of the project and its **distance from the lands owned by SLAWG members.**”<sup>75</sup>

On the basis of the two-part test described above, SLAWG seemed to have failed the second part. According to the AUC, SLAWG failed to establish a factual basis for asserting that their property rights would likely be directly and adversely affected, lacking a “connection” between their concerns and the plant’s anticipated effects. In particular, the focus of this insufficiency seems to be around causality — demonstrating the connection between the plant’s anticipated effects and their concerned impacts. This connection or causality would have been assumed for landowners that were closer

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<sup>74</sup> Alberta Utilities Commission, *AUC Letter to Interested Parties Ruling on Standing and Public Hearing Process for the Genesee Generating Station Units 4 and 5*, Proceeding No. 2996, Application No. 1610202, (2014), para 48.

<sup>75</sup> *AUC Letter to Interested Parties* (Proceeding ID No. 2996), 2014, para. 39 (emphasis added).

in geographic proximity — but beyond the radius applied by the Commission, they must instead be substantiated. In fact, the geography is so important to the standing determination that it is proffered both to put the burden of establishing connectedness on the landowners (“incumbent upon the SLAWG to establish a connection...”) and to heighten the burden by requiring a degree of specificity (precluding “general concerns” from providing sufficient basis for standing).

The Pembina Institute expressed concerns about regional air quality impacts as well as water use and quantity. These concerns primarily related to the cumulative impacts from the heightened number of existing and proposed power plants in the area. The Pembina Institute also submitted that its Edmonton office, staff, and board members are located in the same airshed as the proposed plant and the approval of this project could directly and adversely affect its interests. In particular, the Pembina Institute submitted:

[T]he Pembina Institute has specific concerns about the proposed Genesee units 4 and 5 and their impact on regional air quality that could directly and adversely affect the Pembina Institute’s interests. These concerns relate to the cumulative impacts from the increasing concentration of fossil-fuel-fired generation facilities in the West Central region, particularly through the contribution to air contaminants in the region and in communities downwind. The three large generation stations in the region have cumulative contributions to poor regional air quality in downwind communities; **the human health impacts from this would both directly and adversely impact staff and members of the Pembina Institute.**

The Pembina Institute has **volunteer board members, staff members and individual members who reside in the West Central airshed region and in Edmonton.** The Pembina Institute has an office in Edmonton. The additional Genesee units have the potential to further increase the high local concentration of nitrogen oxides (NO<sub>x</sub>). This concentration of emissions affects a large area of the province, contributing to the secondary formation of particulate matter in downwind communities, including airsheds with recent PM exceedance events, particularly in and around Edmonton. Therefore, **the proposed facility could adversely impact the air quality in Edmonton and directly and adversely impact the Pembina Institute and its members in the region, unless**

mitigating actions are taken within the airshed to address incumbent generation air emissions.<sup>76</sup>

In its ruling the Commission determined that:

The Commission understands that the Pembina Institute’s application for standing is premised upon the potential impacts of the project on its members and employees that live and work in Edmonton and the surrounding areas. However, in its submissions the Pembina Institute did not specify which members or employees it was representing and did not explain or describe the rights it was asserting on their behalf.

In the Commission’s view, the Pembina Institute provided insufficient information to allow it to rule on either part of the standing test. Specifically, it is not clear to the Commission what rights or interests the Pembina Institute is asserting or how those rights or interests may be directly affected by the Commission’s decision on the project. As noted by the Alberta Court of Appeal in the Dene Tha decision, the Commission needs ‘some facts to go on’ to determine if there is some degree of location or connection between the work proposed and the right asserted. In this case the Pembina Institute provided neither.<sup>77</sup>

For the first part of the test — whether there was an interest or right asserted — it was insufficient, according to the AUC’s decision, to assert that members lived in the same overburdened airshed as the power plant or immediately downwind from the plant. It is not clear what might have been sufficient. For instance, would it be enough if the Pembina Institute had specified the identities of members and employees, along with their addresses? The Pembina Institute’s statement of intent to participate laid out the evidence that air emissions from the Wabamun area impact Edmonton’s air quality — but with airshed issues, it is very rare that a specific address within Edmonton would be relevant to determining whether they have an interest in air quality that might be impacted from air pollution. It is not clear where in the city an address would be immune from these air impacts — i.e., where their interest in air quality “may *not* be directly and adversely affected”.

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<sup>76</sup> Pembina Institute, Statement of Intent to Participate (Proceeding ID No. 2996), March 28, 2014, 1-2 (emphasis added).

<sup>77</sup> AUC Letter to Interested Parties (Proceeding ID No. 2996), 2014, paras 40-41.

This decision reflects a reluctance to consider distributed impacts to broader public interests, like human health, when compared to the presumption of a right or interest impacted where land is in close enough proximity to the power plant.

## 4. Conclusions

The human impacts of industrial air emissions and releases are very often distributed impacts across a large population. Particularly with air emissions from large industrial facilities like power generators — where wide dispersal of air pollution is often aided by large smokestacks — it is possible that no single, specific individual is impacted in a specific way. Rather, the impact to human interests is general by its very nature, with resulting impacts felt less acutely but more broadly across a large proportion of the public. These impacts can also occur at considerable distance from the pollution source when it intersects with other pollution sources cumulatively resulting in potentially hazardous pollution levels.

Cumulative impacts such as these highlight the importance of good upfront decision-making for large development projects. To do this requires a thorough evaluation of all potential impacts, no matter how broadly they are dispersed. As a result of using an arbitrary limitation of scope or generalization (such as those embedded in Alberta's Ambient Air Quality Objectives) on several occasions projects have been approved even when potential cumulative environmental impacts are predicted.

For this reason, standing tests that, in their text or in their interpretation, either require or emphasize impact specificity and locational proximity (or place a greater or insurmountable burden where these parameters are not met) fail to accommodate information and perspectives from impacted communities about these issues. This narrow limit exercised by these relevant regulatory tribunals for participatory access prevents participation by organizations that represent the public's interest in and right to a healthful environment.

The most effective and transparent method to confirm that a comprehensive evaluation of environmental impacts of a project has been completed is to include more public input into the evaluation, beyond the narrow range of participation currently considered. It is unreasonable to expect government to be aware of all public interests associated with a development. Important additional insight and mitigation guidance can be gained through including individuals and groups with a genuine public interest in the development.

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