

# Lennox Generating Station

## Community Engagement Report

### *2024 Operations*







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# 1.0 Who we *are*

Ontario Power Generation (OPG) is the province's largest low-carbon power generator. We provide about half of Ontario's electricity through a diverse generating fleet, while investing in local economies and employing more than 11,000 people across the province and the United States.

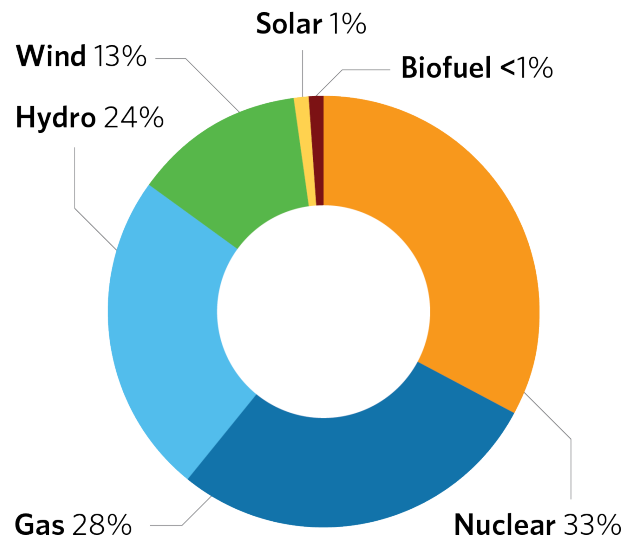
OPG's reliable and low-carbon fleet includes two nuclear stations, 66 hydroelectric stations, two thermal generating stations, one solar facility, and four combined-cycle gas turbine plants owned and operated by our subsidiary, Atura Power. OPG also owns two other nuclear generating stations in Ontario, which are leased on a long-term basis to Bruce Power L.P.

In the United States, OPG owns and operates 85 hydroelectric stations in 19 states through our subsidiary Eagle Creek Renewable Energy.

OPG is a commercial enterprise incorporated under the Business Corporations Act (Ontario) and is wholly owned by the Province of Ontario.

To achieve our vision of electrifying life in one generation, OPG and its family of companies are helping advance the development of new low-carbon technologies, including North America's first fleet of commercial, grid-scale small modular nuclear reactors (SMRs). We are investing in the refurbishment of our low-carbon and reliable nuclear and hydroelectric generating stations, and building the infrastructure needed to support electrification while keeping rates affordable. And we are progressing on the strategic goals outlined in our Reconciliation Action Plan, Equity, Diversity, and Inclusion Strategy, and Climate Change Plan. All of what OPG is doing will help Ontario meet increasing demand for electricity and support a growing economy.





<b>Nuclear</b>	12,184 MW or 33%
<b>Gas/Oil</b>	10,450 MW or 28%
<b>Hydro</b>	8,862 MW or 24%
<b>Wind</b>	4,943 MW or 13%
<b>Solar</b>	478 MW or 1%
<b>Biofuel</b>	287 MW or <1%

## 2.0 Thermal generation's role in Ontario's *electricity system*

### The importance of natural gas in Ontario's electricity grid

As of December 2024, approximately 71% of the transmission connected capacity from Ontario's industrial scale generating assets (not solely OPG) comes from non-emitting forms of power generation<sup>1</sup>.

Ontario's energy transition requires refurbishing existing low-carbon electricity assets and building new generation. These large infrastructure projects can take a decade to plan and build. In the interim, we need a bridging solution, and that's where gas comes in.

Natural gas electricity generation protects grid stability because of its flexibility—the units are easy to bring on and off the grid in times when demand is peaking and intermittent renewable generation is unavailable.

## **The role of Lennox Generating Station**

The Independent Electricity System Operator (IESO) is responsible for planning and competitively procuring resources that meet Ontario's power needs today and in the future. The IESO is required by reliability standards to ensure the province has enough resources to meet a minimum total system capacity level.

OPG currently operates Lennox GS, as well as a fleet of combined-cycle plants through our subsidiary Atura Power. A reliable grid, backstopped by gas, can enable economy-wide, greenhouse gas emission reduction in a manner that protects electricity ratepayers, maintains grid stability, and doesn't result in the need for a massive, costly overbuild of intermittent (weather-dependent) generation and battery energy storage systems.

Additionally, the ability of Lennox GS to operate on Residual Fuel Oil (RFO)

in place of natural gas when needed, further illustrates the need for this unique generating asset to serve as the alternative generating contingency for the natural gas generation reserve in Ontario. Without Lennox GS, the province would have far less risk mitigation capability associated with a fluctuating or unstable energy supply of natural gas. This could result in increased costs, a slower response time, and/or worsen the energy capacity shortfalls in Ontario for the foreseeable future.

Electricity is unlike any other commodity; it must be consumed as soon as it is generated, and supply must exactly meet demand every second, otherwise we risk blackouts. Battery technology enabling energy storage has advanced, but it is limited to four hours. Until we can economically deploy long-duration storage at scale, we have to build and maintain our natural gas electricity generation fleets to provide reliable peaking capacity.

## **Regulatory requirements for Lennox GS**

Ontario Regulation 419/05 (O. Reg. 419/050: Air Pollution – Local Air Quality), was revised on March 20, 2018. This regulation sets the standards for ground level concentrations of contaminants in Ontario resulting from local sources of air emissions (i.e.: facility emissions).

Pursuant to section 35 of O. Reg. 419/05, with respect to discharges from

the Lennox GS facility, the Ministry of Environment, Conservation and Parks (MECP) granted OPG site site-specific air standard approvals with respect to emissions of sulphur dioxide, sulphuric acid, and nitrogen oxide to comply with the regulation. Table 1 in this section provides the site-specific standard approvals with respect to emissions from these contaminants from the Lennox GS facility.

As part of the approved site-specific standards for Lennox GS, OPG was required to develop Action Plans to reduce facility emissions over 10 years. This Regulatory Compliance Pathway will ensure that Lennox GS operates in compliance with O. Reg. 419/05.

<sup>1</sup> Source: IESO's Media Release "Supply Mix and Generation". IESO (Independent Electricity System Operator) report available at: [\*Supply Mix and Generation\*](#)







Table 1: Site-specific standards for SO<sub>2</sub>, H<sub>2</sub>SO<sub>4</sub> and NO<sub>x</sub>

Contaminant	Contaminant Chemical Abstracts Service No.	Applicable Time Period	Site-specific Standard (µg/m <sup>3</sup> )	Site-specific Standard Averaging Period
Sulphur Dioxide (SO <sub>2</sub> )	7446-09-5	From the Date of Approval to March 14, 2028	2026	1-hour
		From March 15, 2028, to March 14, 2033	1430	1-hour
Sulphuric Acid (H <sub>2</sub> SO <sub>4</sub> )	7664-93-9	From the Date of Approval to March 14, 2028	7.6	24-hour
		From March 15, 2028, to March 14, 2033	5.4	24-hour
Nitrogen Oxides (NO <sub>x</sub> )	10102-44-0	From the Date of this Approval to March 14, 2033	839	1-hour

# 3.0 Action plan *status update*

## 3.1 Action plan progress to date

**Action Plan Item 1:** Make reasonable effort to procure and operate on natural gas over RFO.

**Status:** For 2024, a large majority of power generated by Lennox GS was through operation on natural gas. This is due to strategic advances in Lennox’s gas procurement process, allowing the station to run predominantly on natural gas over RFO.

**Action Plan Item 2:** Purchase RFO with a sulphur content no greater than 0.5%.

**Status:** RFO with a sulphur content no greater than 0.5% was purchased in 2024.

**Action Plan Item 3:** Lennox GS’s RFO inventory for electricity production with an annual average sulphur content no greater than 0.6% by 2028.

**Status:** Lennox GS will continue to procure RFO with a sulphur content of 0.5% or lower. The average sulfur content in RFO for 2024 was 0.59%, Table 3 outlines all sulphur concentrations from samples taken during 2024.

Table 2: RFO Purchase Analysis

Shipment	Sulphur Content by Weight (%)	Specific Gravity (g/cm <sup>3</sup> )	Calorific Value (kJ/L)
Shipment 1	0.499	0.97	41,814
Shipment 2	0.444	0.98	42,043
Shipment 3	0.477	0.96	41,982



Table 3: Lennox GS bi-weekly RFO tank samples results

2024 Sample Date	Sulphur Content by Weight (%)	Specific Gravity (g/cm <sup>3</sup> )	Calorific Value (kJ/L)
January 10th	0.70	0.98	42,352
January 24th	0.65	0.98	42,273
February 7th	0.69	0.98	42,386
February 21st	0.60	0.98	42,405
March 6th	0.73	0.98	42,389
March 20th	0.66	0.97	42,000
April 3rd	0.69	0.98	42,440
April 17th	0.58	0.98	42,299
May 1st	0.56	0.98	42,379
May 15th	0.57	0.98	42,349
May 29th	0.59	0.98	42,408
June 12th	0.56	0.98	42,431
June 26th	0.55	0.98	42,363
July 10th	0.53	0.98	42,523
July 24th	0.53	0.98	42,463
August 7th	0.56	0.98	42,470
August 21st	0.63	0.98	42,292
September 4th	0.66	0.98	42,373
September 18th	0.52	0.98	42,377
October 2nd	0.55	0.98	42,510
October 16th	0.53	0.98	42,430
October 30th	0.55	0.98	42,448
November 13th	0.59	0.98	42,350
November 27th	0.49	0.98	42,476
December 11th	0.54	0.98	43,157
December 25th	0.53	0.98	43,164
<b>Average</b>	<b>0.59</b>	<b>0.98</b>	<b>42,443</b>

### 3.2 Lennox GS operations – emissions summary

Table 4 details the emissions summary of Lennox GS based on actual station operations as reported through the site’s Continuous Emission Monitoring system (CEMs). The resulting contaminant ground level concentrations are determined by the maximum station contaminant emission rates throughout 2024, converted to a ground level concentration through use of a conservative dispersion factor. This dispersion factor was derived from the

advanced CALPUFF dispersion model used to assess Lennox GS’s emissions for the purpose of complying with O. Reg. 419/05.

Simply put, these concentration counts represent a conservative estimation of the number of times Lennox GS emissions could have resulted in ground level concentrations above the defined threshold levels set by the MECP for SO<sub>2</sub> and NO<sub>x</sub> throughout 2024, as required by the facilities Environmental Compliance Approval (ECA) 3847-4HVR3G. For the purpose of complying with O. Reg. 419/05

Table 4: References the SO<sub>2</sub> and NO<sub>x</sub> Emission rates and ground level concentrations for Lennox GS in 2024

	2023	2024	<p><b>For Reference</b></p> <p>O. Reg. 419/05 schedule 3 air standards (ground level concentrations ug/m3)</p> <p>SO<sub>2</sub> 1-hour = 100 ug/m<sup>3</sup> NO<sub>x</sub> 1-hour = 400 ug/m<sup>3</sup></p> <p>Lennox GS issued site-specific standards (replaces O. Reg. 419/05 air standards for facility regulatory compliance)</p> <p>SO<sub>2</sub> 1-hour = 2026 ug/m<sup>3</sup> (until 2028) based on the station max SO<sub>2</sub> emission rate of 2193 g/s</p> <p>NO<sub>x</sub> 1-hour = 839 ug/m<sup>3</sup> (until 2033) Based on the station max NO<sub>x</sub> emission rate of 911.5 g/s</p>
Gross power produced on RFO (MWhrs)	18,641	10,622	
Maximum 1-hour sulphur dioxide emission rate (g/s)	715	345	
Conservative estimate of maximum 1-hour SO <sub>2</sub> ground level concentration (ug/m <sup>3</sup> )	660	319	
Average 1-hour sulphur dioxide emission rates (g/s)	60	42	
Maximum 1-hour nitrogen oxide emissions rate (g/s)	152	97	
Conservative estimate of maximum 1-hour NO <sub>x</sub> ground level concentration (ug/m <sup>3</sup> )	141	90	
Average 1-hour nitrogen oxide emission rate (g/s)	9	8	
Number of predicted 1-hour sulphur dioxide ground level concentrations above:			
100 ug/m <sup>3</sup>	61	22	
320 ug/m <sup>3</sup>	8	0	
690 ug/m <sup>3</sup>	0	0	
Number of predicted 1-hour nitrogen oxide ground level concentrations above:			
400 ug/m <sup>3</sup>	0	0	

air standards, the site-specific standards represent the compliance requirements for Lennox GS operations. The ground level concentrations in Table 4 are for public information purposes only.

With reference to Table 4, the maximum and average 1-hour sulphur dioxide emissions from Lennox GS decreased in 2024, as compared to 2023. This decrease is attributed to Lennox GS operating predominantly on natural gas over RFO in 2024 (sulphur dioxide emissions only occur when Lennox GS is operating on RFO). Accordingly, the

reduction in RFO operations also resulted in a decrease of the conservatively predicted ground level concentrations of SO<sub>2</sub> above 100 ug/m<sup>3</sup> in 2024.

With respect to NO<sub>x</sub>, Lennox GS operation on either natural gas or RFO will result in NO<sub>x</sub> emissions, although NO<sub>x</sub> emissions resulting from natural gas combustion are less than RFO. Thus, the predominant operation of Lennox GS on natural gas resulted in reduced NO<sub>x</sub> emissions as compared to 2023 operations. Additionally, in 2024, Lennox did not provide peak power outputs as great as those provided

in 2023, resulting in a lower max 1-hour NOx emission rate from the station, with no corresponding conservatively predicted ground level concentrations of NOx above 400 ug/m3.

### 3.3 Lennox GS ambient air monitoring network

Lennox GS has been working diligently throughout 2024 to execute the MECP-approved ambient air monitoring plan. This plan consisted of installing two ambient air monitoring network stations and a meteorological tower at MECP-approved

locations, to assess real-time ground level concentrations of SO2 and NOx. The final locations of ambient monitoring stations were chosen based on areas with an increased frequency of O. Reg. 419/05 Schedule 3 air standard exceedances derived from CALPUFF modeling. Final installation of the monitoring stations and meteorological tower was completed in December 2024. Table 5 provides a summary of the data captured through the ambient air monitoring program, as required by the facility's ECA. There were no concentrations of SO2 or NOx at either station above the reporting thresholds outlined in the ECA.

Table 5: Ambient Air Monitoring Network Data Summary

Data Collection Period		Dec 1st, 2024 – Dec 31st, 2024					
<b>Ambient Monitoring Station 57010 “McIntyre Rd Site”</b>		<b>UTM Zone: 18T</b>		<b>353017 East</b>		<b>4896280 North</b>	
<b>SO<sub>2</sub> 5-Minute Concentrations (ug/m<sup>3</sup>)</b>	<b>Average</b>	<b>0</b>	<b>Maximum</b>	<b>13</b>	<b>Minimum</b>	<b>0</b>	
<b>Total Count of SO<sub>2</sub> Concentrations ≥ 100 ug/m<sup>3</sup>, Count = 0</b>							
Below is a breakdown of the ambient air monitoring data associated with each hourly average SO <sub>2</sub> Concentration > 100ug/m <sup>3</sup>							
<b>Total Count of NO<sub>x</sub> Concentrations ≥ 400 ug/m<sup>3</sup>, Count = 0</b>							
Below is a breakdown of the ambient air monitoring data associated with each hourly average NO <sub>x</sub> Concentration > 400ug/m <sup>3</sup>							
<b>Ambient Monitoring Station 57009 “Amherst Island Site”</b>		<b>UTM Zone: 18T</b>		<b>362334 East</b>		<b>4891616 North</b>	
<b>SO<sub>2</sub> 5-Minute Concentrations (ug/m<sup>3</sup>)</b>	<b>Average</b>	<b>0</b>	<b>Maximum</b>	<b>48</b>	<b>Minimum</b>	<b>0</b>	
<b>Total Count of SO<sub>2</sub> Concentrations ≥ 100 ug/m<sup>3</sup>, Count = 0</b>							
Below is a breakdown of the ambient air monitoring data associated with each hourly average SO <sub>2</sub> Concentration > 100ug/m <sup>3</sup>							
<b>Total Count of NO<sub>x</sub> Concentrations ≥ 400 ug/m<sup>3</sup>, Count = 0</b>							
Below is a breakdown of the ambient air monitoring data associated with each hourly average NO <sub>x</sub> Concentration > 400ug/m <sup>3</sup>							

# 4.0 Community engagement

## 4.1 Community liaison committee meeting

The first annual Community Liaison Committee (CLC) meeting was held on March 26, 2024, at Lennox GS.

Attendees included representatives from:

- Ministry of Environment, Conservation and Parks,
- Kingston, Frontenac, Lennox and Addington Public Health
- Lennox and Addington Stewardship Council
- Rotek Environmental Inc.
- C&S Environmental Consulting
- Lennox and Addington Community
- Ontario Power Generation

Provided here is an overview of the presented content and minutes of the CLC meeting, inclusive of questions, responses and action items, as required by the Lennox GS air ECA.

**Meeting Title:** Lennox Community Liaison Committee Meeting

**Location:** Lennox Administration Building

**Date:** March 26, 2024

**Time:** 1:00 pm to 3:00 pm

### Meeting Agenda and Discussion Items:

1. Roundtable Introductions
2. Overview of OPG and the Role of Lennox GS
3. Review of Lennox GS Site-Specific Standards & Environmental Compliance Approval
  - Summary by C&S Grant Environmental Consulting on O. Reg. 419/05 and Lennox site-specific standards
  - Review of compliance requirements
4. Summary of Action Plan status
5. 2023 Operations Summary
  - Provided review of operations data and 2023 Emission Summary Table
  - Question from participant: Concern raised regarding cumulative effects of NOx emissions.  
  
**Response:** While cumulative effects are possible, they are anticipated to be minimal. Lennox GS operates infrequently as a peaking station, rarely operating at high loads for sustained durations. The Ambient Air Monitoring Network will collect data on SO<sub>2</sub> and NO<sub>x</sub> emissions from the area collectively.
6. Ambient Air Monitoring Network
  - Outlined Ambient air monitoring network requirements

- Presented MECP approved station locations

#### 7. Public Notification System Update

- **Question from participant:** Why is NOx not included in the Public Notification System (PNS) alerts?

**Response:** From the CALPUFF modeling completed for Lennox GS it was determined that the main contaminant of concern resulting from station operations is SO<sub>2</sub>. Accordingly, the MECP issued an amended Environmental Compliance Approval for Lennox, requiring the station to develop a PNS to issue alerts related to SO<sub>2</sub> and power generation on RFO (SO<sub>2</sub> emissions only occur when operating on RFO). Furthermore, the action plans for Lennox GS will reduce both SO<sub>2</sub> and NO<sub>x</sub> emissions over time.

- **Question from participant:** What efforts have been made to broadcast PNS registration?

**Response:** The PNS has been developed and is currently online and will issue alerts when Lennox operates above a defined threshold level when operating on RFO. Text “Start” to 613-777-6476 to register for text alerts. Further effort will be made to broadcast the text registration process for the Lennox PNS once the ambient monitoring network has been installed in summer of 2024. The ambient monitoring network data is required to trigger the remaining alert functions established in the PNS.

#### 8. Introduction of the Lennox Community Engagement Report

#### 9. Review of the Draft Terms of Reference for the Community Liaison Committee meeting

- Presented the draft Terms of Reference for the CLC
- Action: Requested that all comments on the Draft Terms of Reference be provided to OPG by April 2nd, 2024

### 4.2 Public notification system communications

Two continuous ambient air monitoring network systems and a meteorological tower have been installed and a public notification system for the communities in the south of Lennox and Addington have been created.

This initiative was completed to ensure continued compliance under O. Reg 419/05. The MECP determined the locations for ambient air monitoring stations and meteorological tower. The ambient air monitoring stations are designed to collect data for SO<sub>2</sub> and NO<sub>x</sub>, which may originate from the operation of the Lennox Generating Station, or from other sources in the Lennox and Addington area. Information on the ambient air monitoring network stations and real-time data can be viewed on the following webpage: <https://la.rotetekreporting.ca>.

In addition, OPG has implemented a Public Notification System (PNS). The PNS will serve the public by notifying registered members when:

- Lennox Generating Station is operating on Residual Fuel Oil above megawatt thresholds set by MECP.
- Ambient Air Monitoring Stations detect SO2 emissions exceeding thresholds established by the MECP.

If you would like to receive alerts from Lennox’s PNS, please register by texting “Start” to 613-777-6476.

### 4.3 Public inquiries regarding Lennox operations

During the 2024 operations year, a total of six noise complaints were received between May 20, 2024, and June 18, 2024. The complaints were related to a control valve issue, which was subsequently resolved. Notably, there

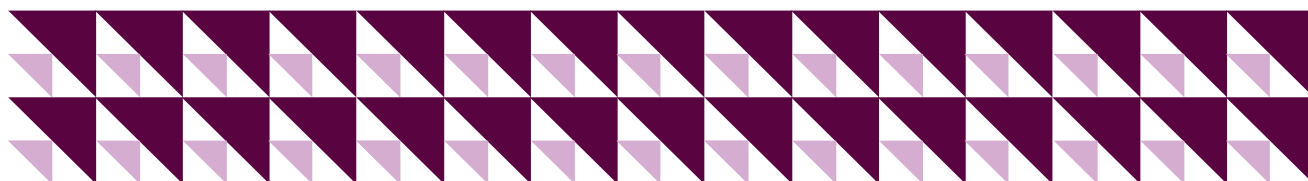
were no other public inquiries or concerns regarding air emissions from Lennox operations during this period.

## 5.0 Next steps

In 2025, Lennox GS will continue to execute its Action Plans to minimize environmental impact from station operations, while ensuring this unique generating asset is able to produce power when called upon to ensure reliability of Ontario’s electricity system.

Table 6: Lennox GS Action Plans

Item	Action Plan	Proposed completion date
1	Make reasonable effort to procure and operate on natural gas over RFO.	Immediately for the entire duration of the site-specific standard.
2	Purchase residual fuel oil with a sulphur content no greater than 0.5%.	Immediately for the entire duration of the site-specific standard.
3	An RFO inventory for electricity production with an annual average sulphur content of 0.6% or lower.	Five years from the date of Approval of this site-specific standard.





# Appendix – 1: Lennox GS emissions *summary table* (ESDM)

Table 7 is an excerpt from the annual update to the Lennox GS Emission Summary Dispersion Modelling (ESDM) report and is separated into two halves.

The top half of Table 7 details the emissions summary of Lennox GS operations under the worst-case operating scenario (all units operating at 525 MW each on RFO) aligned with worst case meteorology, according to a 5-year meteorology dataset approved by the MECP. The contaminant points of impingement (POI) under this scenario represent the maximum modelled ground level concentrations, which reflects the site-specific air standards for SO<sub>2</sub>, NO<sub>x</sub> and H<sub>2</sub>SO<sub>4</sub> approved by the MECP for Lennox operations.

The bottom half of Table 7 details the emissions summary of Lennox GS operations based on actual station operations as reported through the stations CEM's. The resulting contaminant Point of Impingements (POI) are derived from the maximum station contaminant emission rates as reported through the stations CEMs and converted to a POI through use of a dispersion factor, derived from the advanced CALPUFF model used to

assess the ground level concentrations from Lennox GS emissions.

As such, these POI's represent the maximum ground level concentrations achievable based on actual station

operations, assuming the most unfavorable meteorological conditions for the year occurred simultaneously, resulting in a conservative maximum ground level concentration for each assessed contaminant.

**Table 5: Lennox GS Emissions Summary Table**

Contaminant Name	CAS #	Averaging Period	Emission Rate (g/s)	Maximum POI Concentration ( $\mu\text{g}/\text{m}^3$ )	POI Limit ( $\mu\text{g}/\text{m}^3$ )	Limiting Effect	Percentage of POI Limit (%)
<b>Based on the Maximum Operating Condition and Emissions that Lennox GS is Capable of While Firing RFO</b>							
Nitrogen Oxides	10102-44-0	1-hour	911.5	839	400	Health	210%
		24-hour	911.5	147	200	Health	74%
Sulphur Dioxide	7446-09-5	1-hour	2,193	2026	100	Health	2026%
		Annual	43.9	6.4	10	Vegetation	64%
Sulphuric Acid	7664-93-9	24-hour	47	7.6	5	Health	152%
<b>Based on Continuous Emission Monitoring Data for SO2 and NOx in 2023</b>							
Calcium Hydroxide	1305-62-0	24-hour	5.0E-3	0.33	13.5	Corrosion	2%
Dioxins & Furans	-	24-hour	8.4E-8	1.4E-8	1.0E-7	Health	14%
Nitrogen Oxides	10102-44-0	1-hour	97	90	839	Health	11%
		24-hour	26	4.2	200		2%
Sulphur Dioxide	7446-09-5	1-hour	345	319	2026	Health	16%
		Annual	345	1.0	10	Vegetation	10%
Sulphuric Acid	7664-93-9	24-hour	3.3	0.5	7.6	Health	7%
Suspended Particulate	N/A	24-hour	8.5	1.4	120	Health	1%

# Appendix – 2: Key terms and *concepts*

Term	Description
ug/m <sup>3</sup>	Micrograms per cubic metre.
Sulphur Dioxide (SO <sub>2</sub> )	These are air contaminants regulated under O.REG. 419/05, concentration SO <sub>2</sub> air standard took effect on July 1, 2023, and can be reviewed on the Environment Registry Ontario Website ERO# 013-0903.
Nitrogen Oxides (NO <sub>x</sub> )	
Sulphuric Acid (H <sub>2</sub> SO <sub>4</sub> )	
Residual Fuel Oil (RFO)	Lennox GS boilers (combustion chambers) have been modified to allow for dual fuel operation (power generation on either RFO or NG). Potential exceedances of Schedule 3 air standards for SO <sub>2</sub> and H <sub>2</sub> SO <sub>4</sub> will not occur when the station is operating on natural gas.
Natural Gas (NG)	
Station Operation	Refers to the power generated by combustion of RFO or NG fuel at Lennox GS. Expressed as MWh, megawatt hours. Megawatt Hours Gross (MWh Gross) – the total power generated by the station.
Calorific Value (kJ/L)	Refers to the energy content in the form of heat energy per unit of volume for a given fuel (RFO or NG).
Sulphur Content in Fuel	Refers to the amount of sulphur in RFO, expressed as % by weight. For example – for 0.85% sulphur content in RFO this means that for 1 kilogram (kg) of RFO fuel there is 0.0085kg (8.5 grams) of sulphur. The sulphur content in RFO used by Lennox GS directly affects the amount of SO <sub>2</sub> & H <sub>2</sub> SO <sub>4</sub> present in station emissions. Thus, lowering the sulphur content present in RFO from 0.85% to 0.5% will effectively reduce the amount of SO <sub>2</sub> & H <sub>2</sub> SO <sub>4</sub> emitted by the station under the same operating conditions.
Air Dispersion Model (CALPUFF)	CALPUFF is an advanced air quality modeling system used to predict ground level air contaminant concentrations from Lennox GS operations, for comparison against Schedule 3 air standards (O.REG. 419/05). CALPUFF is the air dispersion model of choice for Lennox GS, due to the model's ability to accurately assess the meteorological effects associated with the facilities location on the shore of Lake Ontario.
Exceedance of Air Standard	Point of Impingement (POI) concentrations refers to the maximum ground level concentration predicted by the CALPUFF model for SO <sub>2</sub> , H <sub>2</sub> SO <sub>4</sub> & NO <sub>x</sub> . Frequency of exceedance refers to the number of hours (or days) in a year that the POI is predicted by CALPUFF to exceed the Schedule 3 air standards (O. Reg. 419/05) for both SO <sub>2</sub> & NO <sub>x</sub> . For example, assuming all 4 units at Lennox are operating on maximum load on RFO with a 0.85% sulphur content, CALPUFF predicts exceedances of the 100µg/m <sup>3</sup> SO <sub>2</sub> air standard 85 hours in a year, or 1% of the time.  $\text{Frequency of Exceedance} = \frac{85}{8760(\# \text{ of hours in a year})} * 100 = 1\%$

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