



Ambient Air Quality in Nova Scotia

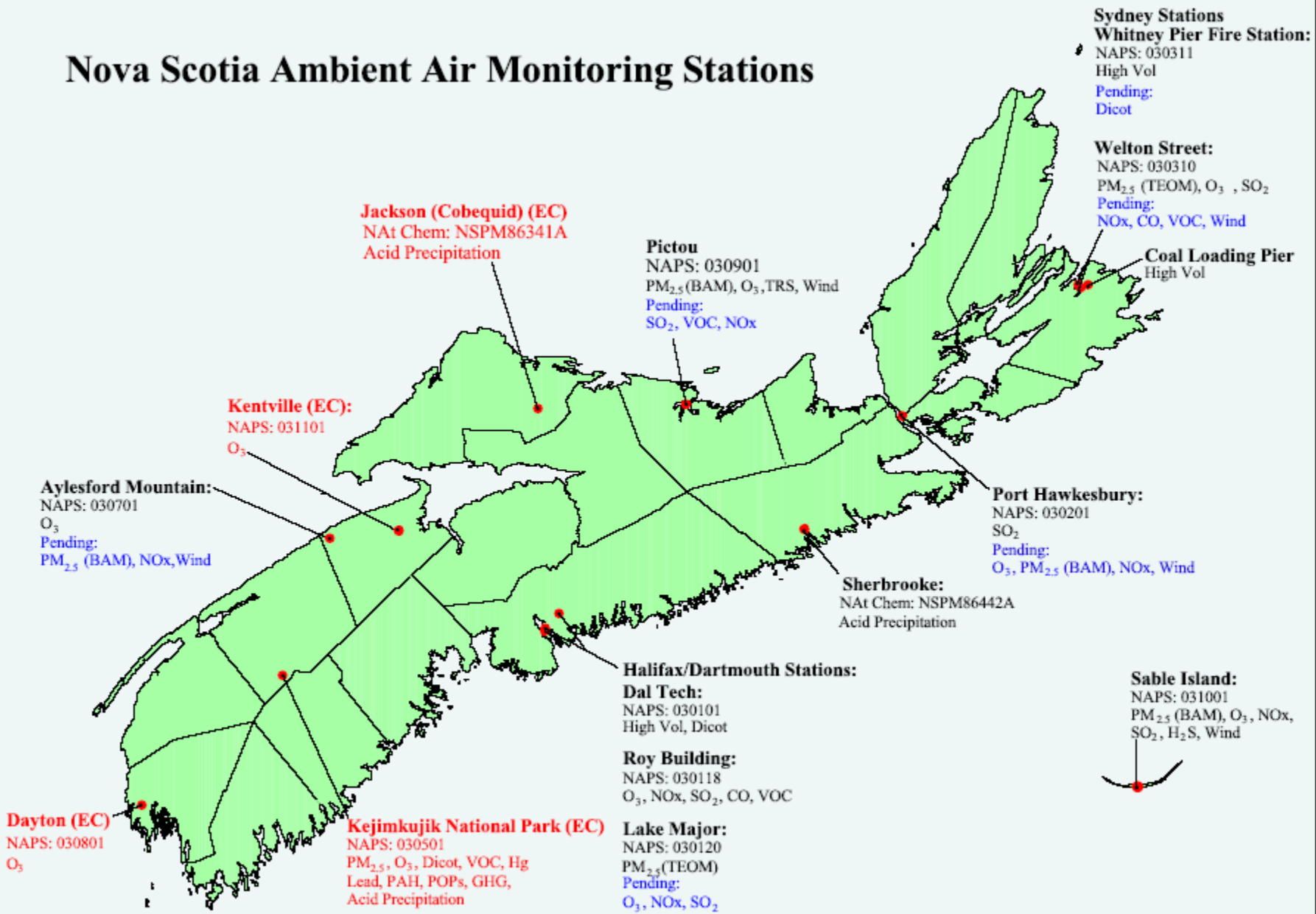
Science Forum on Air Quality
March 8, 2006

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Air Quality Branch, Nova Scotia Environment and Labour

What is the quality of the air in Nova Scotia?

- Common Air Pollutants:
 - Carbon monoxide (CO)
 - Ground-level ozone (O₃)
 - Nitrogen Dioxide (NO₂)
 - Fine Particulate Matter (PM_{2.5})
 - Sulphur Dioxide (SO₂)
- Sources of Air Pollution
- Ambient Measurements
- Provincial Standards and National Objectives
- Reporting: Air Quality Index (AQI)

Nova Scotia Ambient Air Monitoring Stations

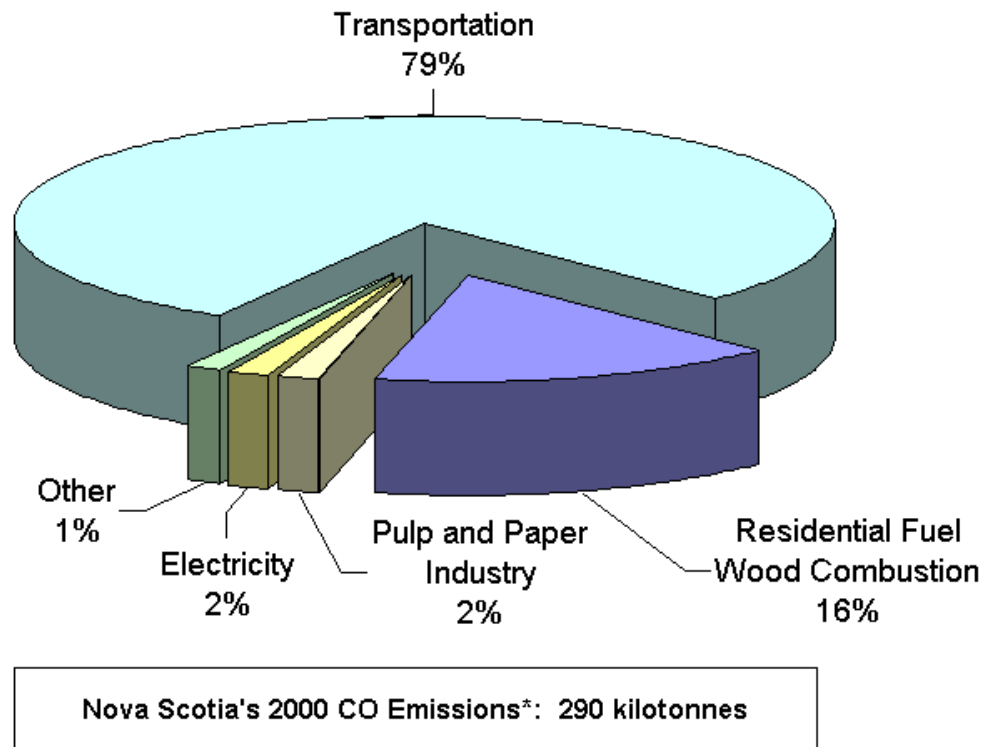


Produced By:
 Nova Scotia Environment and Labour
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Carbon Monoxide (CO) - Sources

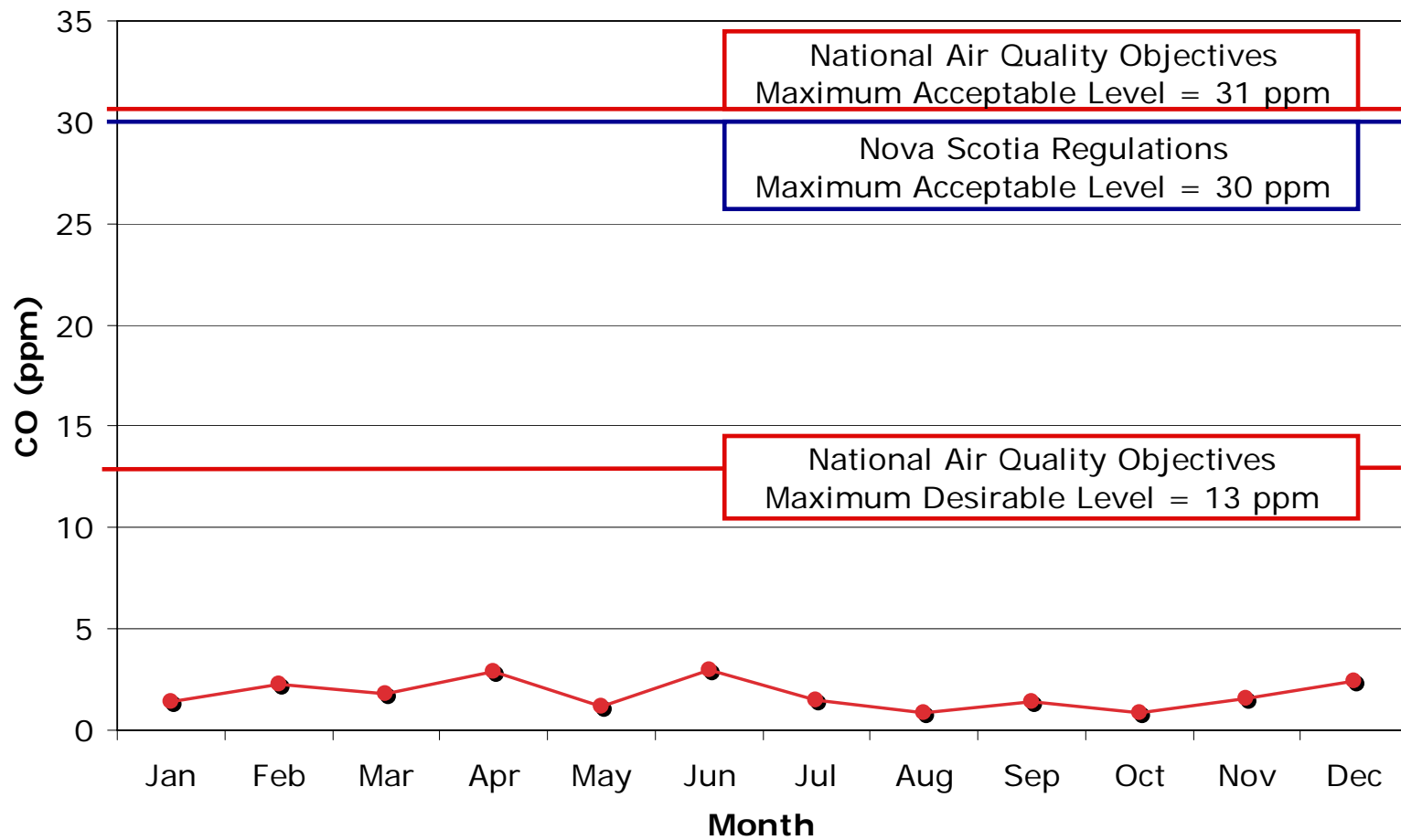
CO Emission Sources* in Nova Scotia (2000)



* Excluding Open sources

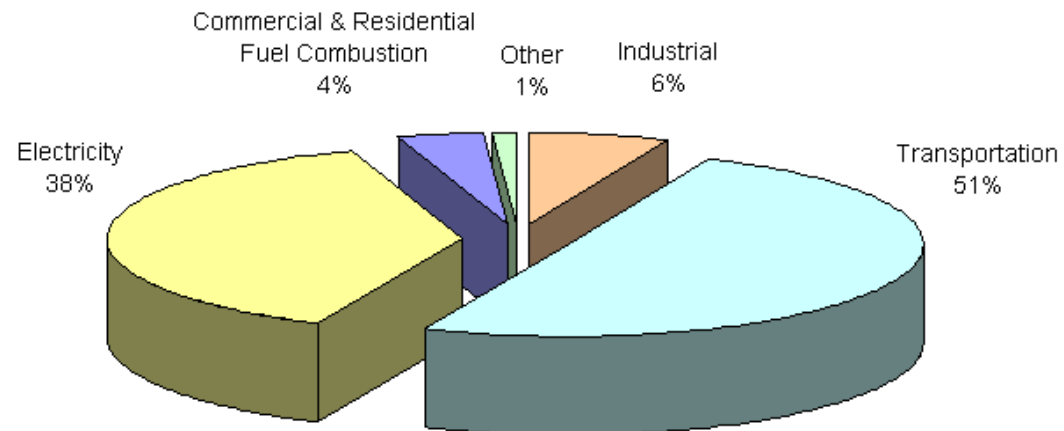
Source: Environment Canada, Pollution Data Branch (PDB), Final 2000 CAC Emissions Inventory (July 2004)

Monthly One-Hour Maximum Carbon Monoxide (CO) in Halifax, 2004



Nitrogen Oxides (NO_x) - Sources

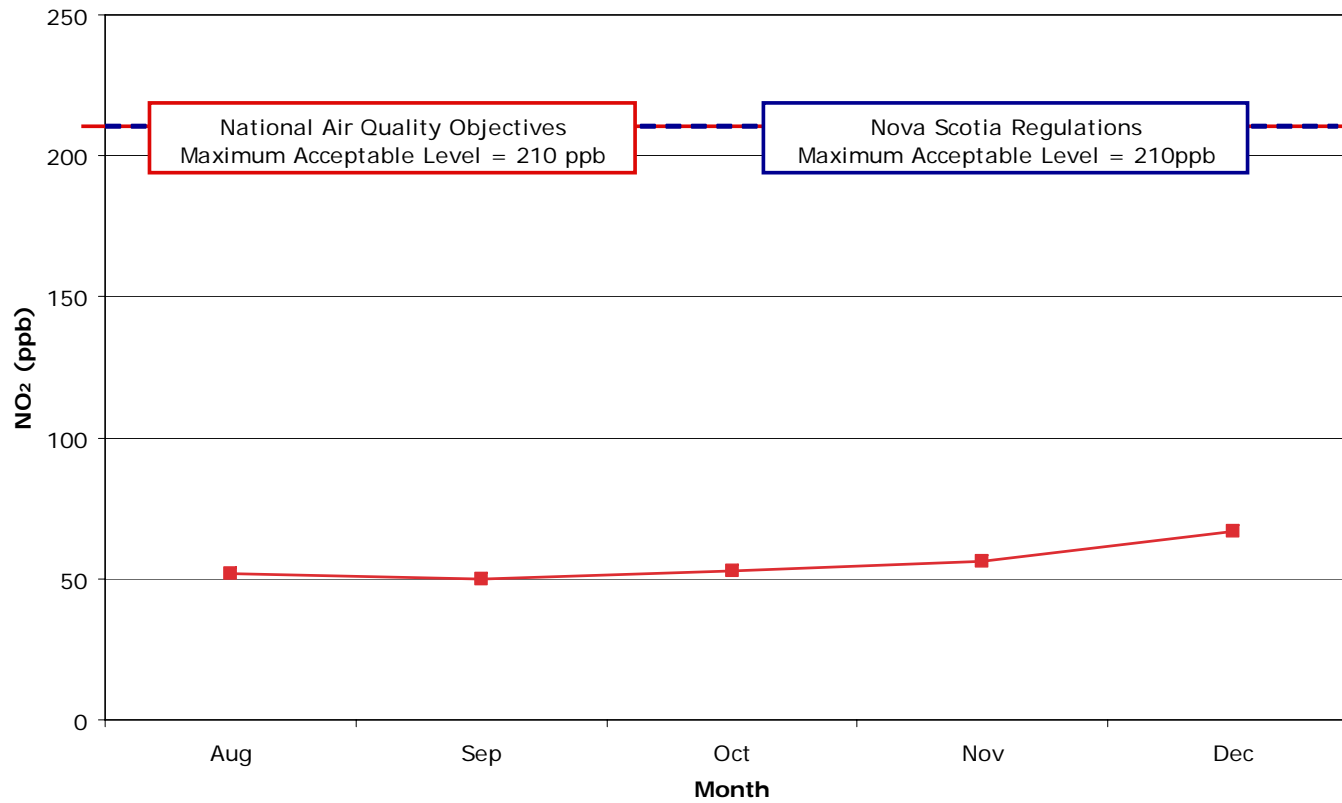
NO_x Emission Sources* in Nova Scotia (2000)



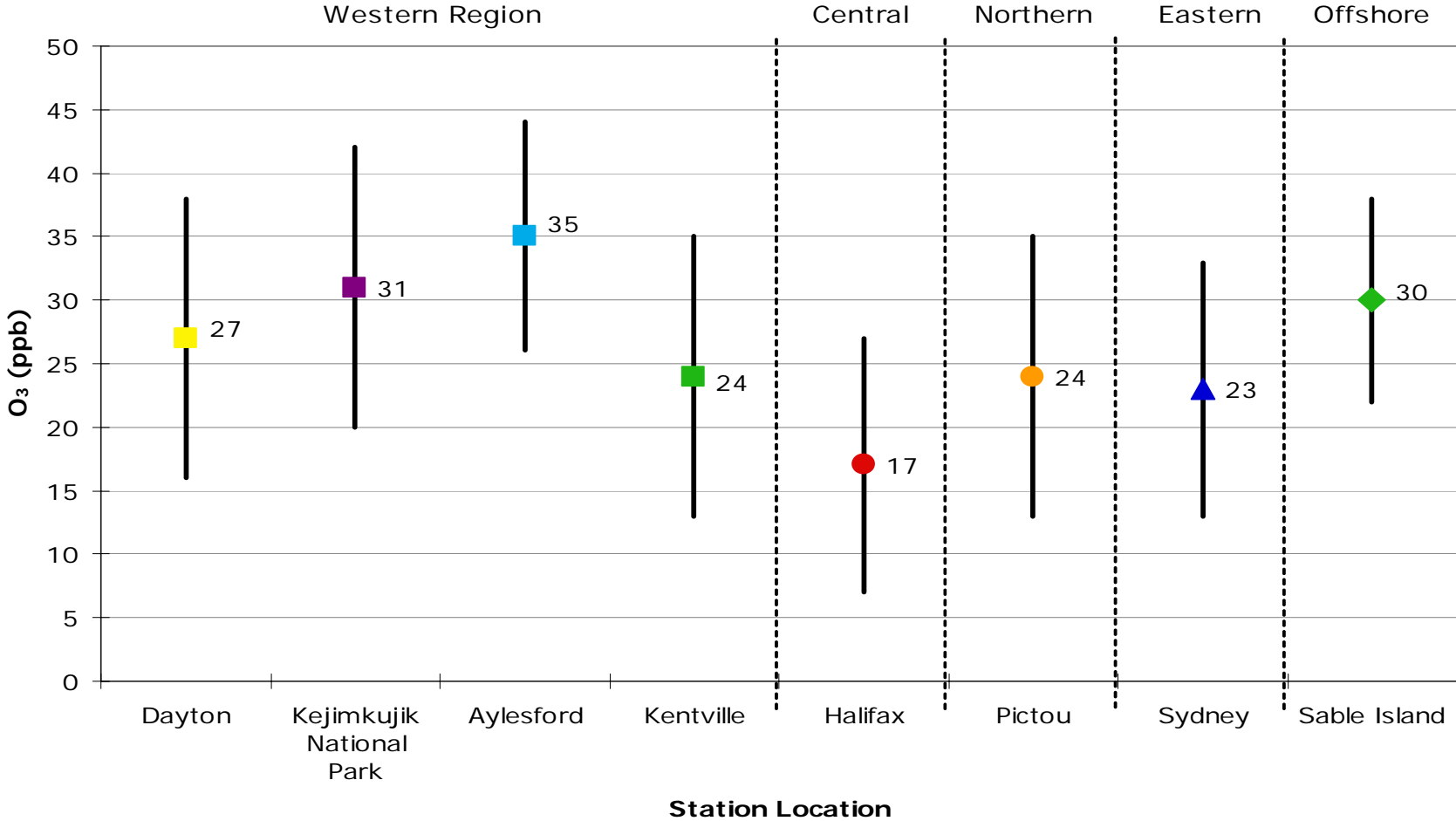
* Excluding Open sources

Source: Environment Canada, Pollution Data Branch (PDB), Final 2000 CAC Emissions Inventory (July 2004)

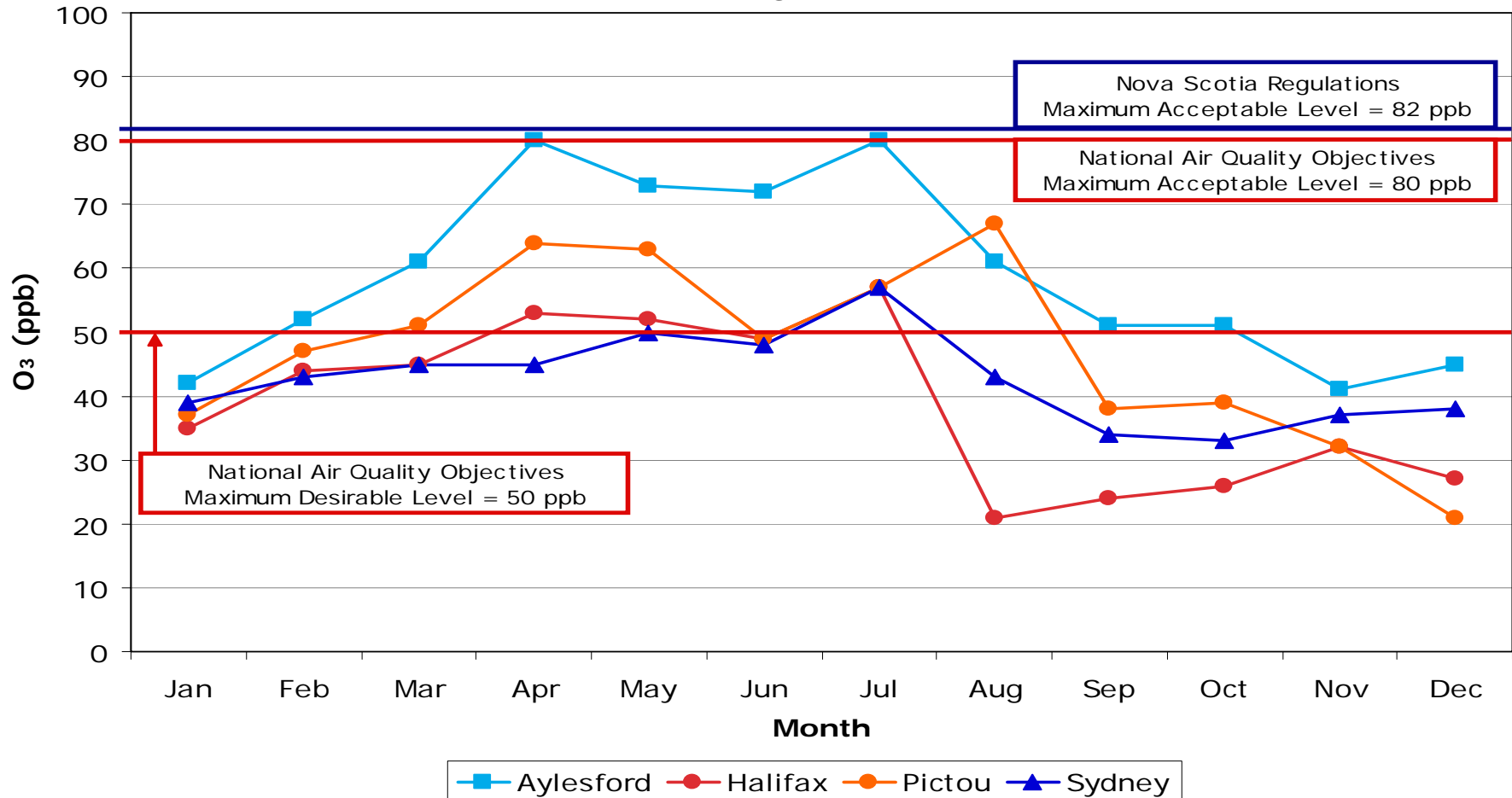
Monthly One-Hour Maximum Nitrogen Dioxide (NO₂) in Halifax, 2004



Annual Average Ground-Level Ozone (O₃) in Nova Scotia, 2004

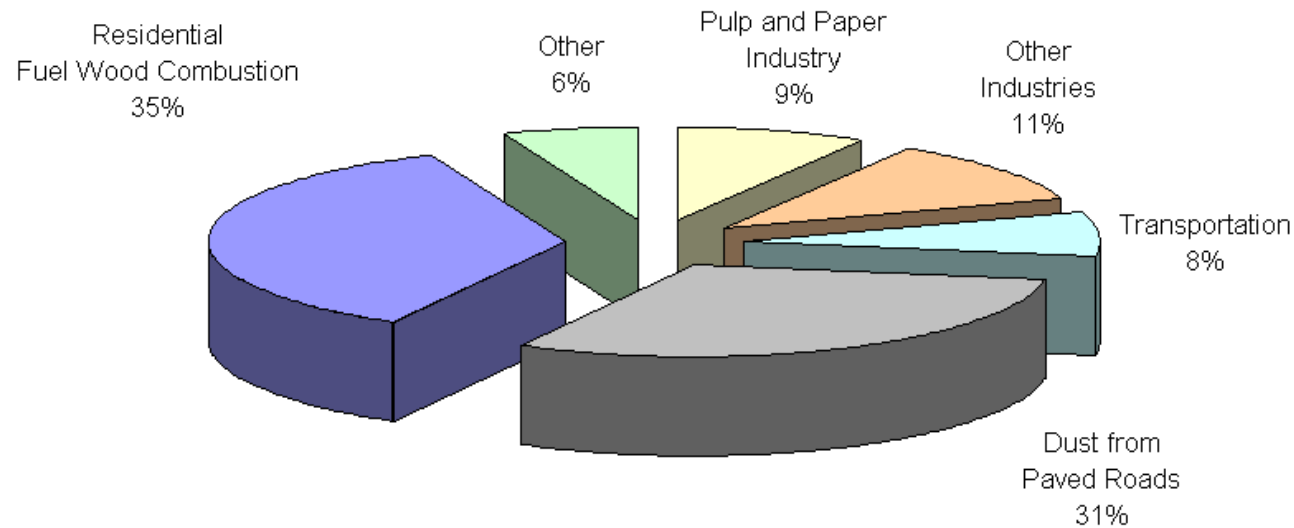


Monthly One-Hour Maximum Ground-Level Ozone (O₃) in Nova Scotia, 2004



Fine Particulate Matter (PM_{2.5}) - Sources

PM_{2.5} Emission Sources* in Nova Scotia (2000)



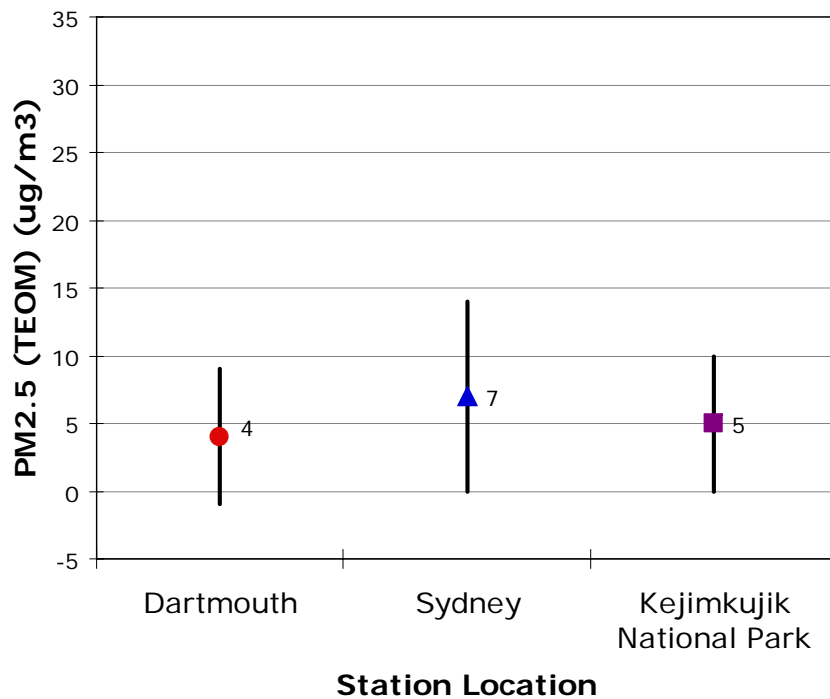
Nova Scotia's 2000 PM_{2.5} Emissions*: 21 kilotonnes

* Excluding Open sources other than Dust from Paved Roads and Construction Operations

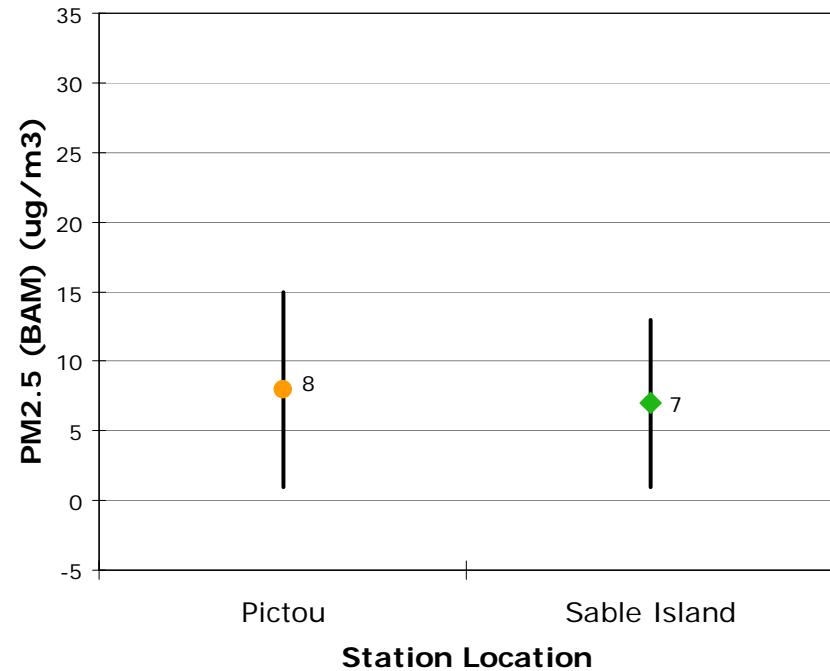
Source: Environment Canada, Pollution Data Branch (PDB), Final 2000 CAC Emissions Inventory (July 2004)

Annual Average Fine Particulate Matter (PM_{2.5}) in Nova Scotia, 2004

PM2.5 (TEOM) Annual Average in Nova Scotia

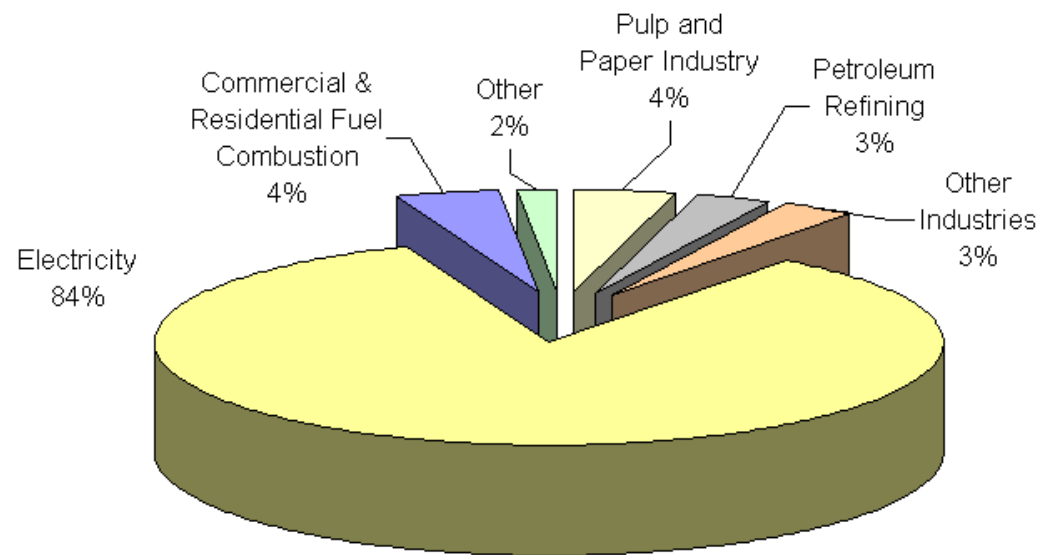


PM2.5 (BAM) Annual Average in Nova Scotia



Sulphur Dioxide (SO₂) - Sources

SO₂ Emission Sources* in Nova Scotia (2000)

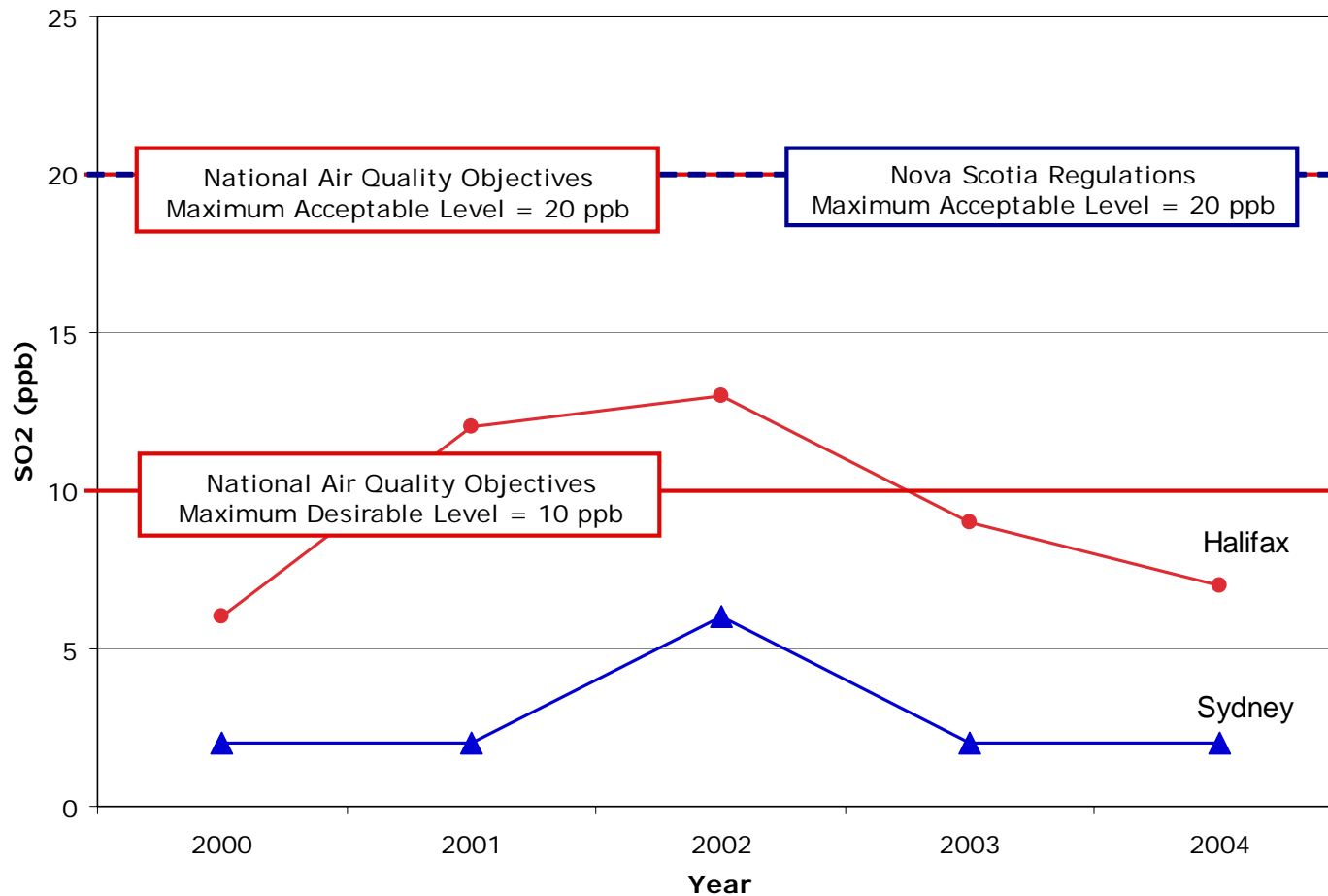


Nova Scotia's 2000 SO₂ Emissions*: 166 kilotonnes

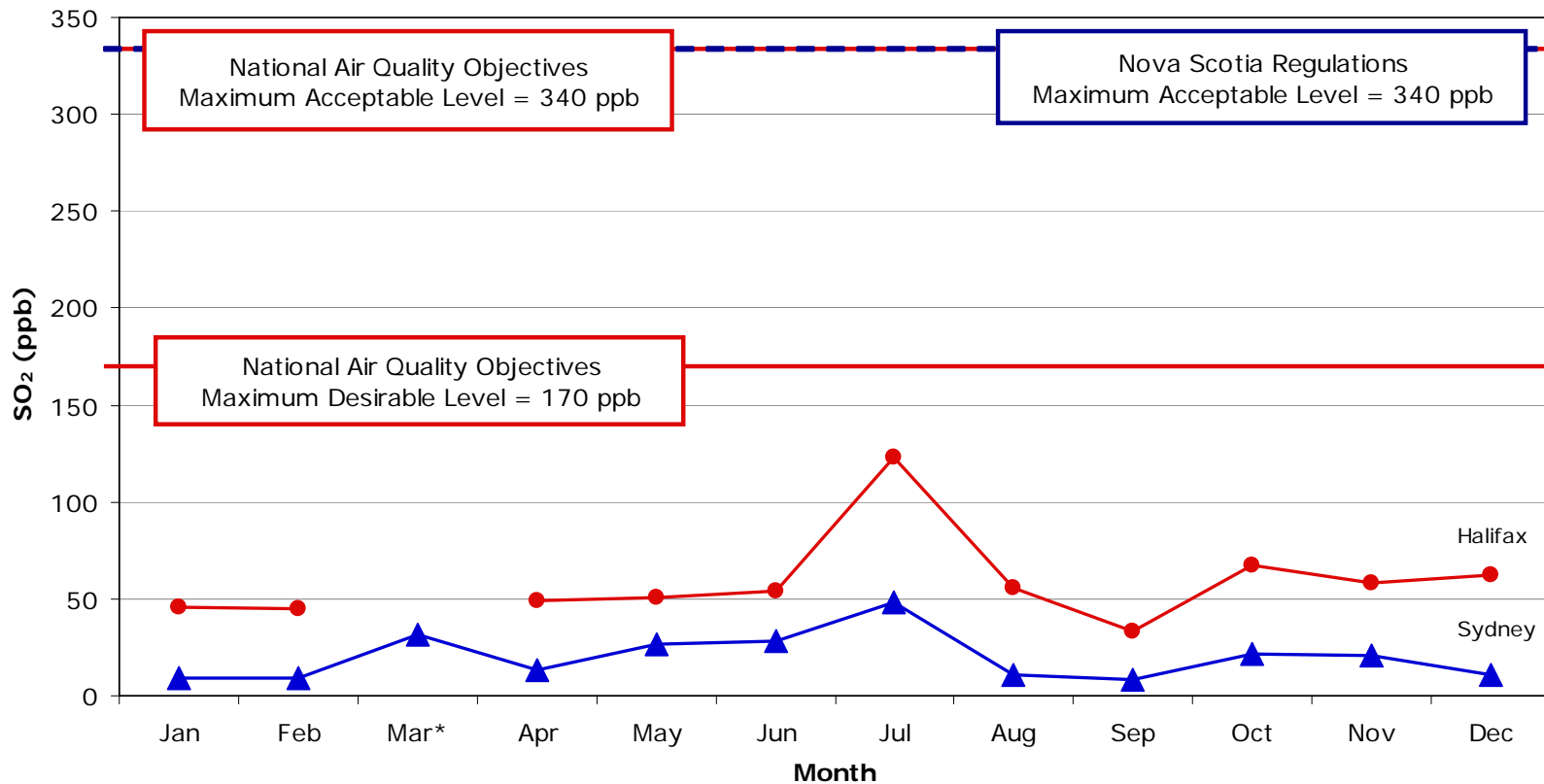
* Excluding Open sources

Source: Environment Canada, Pollution Data Branch (PDB), Final 2000 CAC Emissions Inventory (July 2004)

Annual Average Sulphur Dioxide (SO₂) in Nova Scotia, 1995-2004



Monthly One-Hour Maximum Sulphur Dioxide (SO₂) in Nova Scotia, 2004



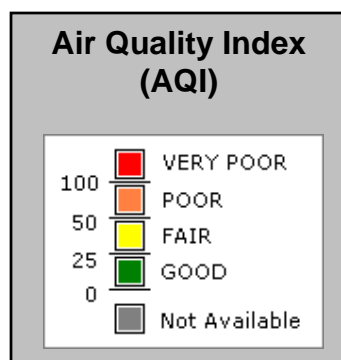
* Insufficient data available

Why is air quality data important?

This data is used:

- To report the quality of the air in Nova Scotia
- To provide information needed to make sound policy decisions to reduce air pollution
- To provide researchers with data to use in their studies
- To report an Air Quality Index (AQI) and smog forecasts (smog season from May to October)
- To help citizens make decisions about their daily activities

What is the Air Quality Index (AQI)?



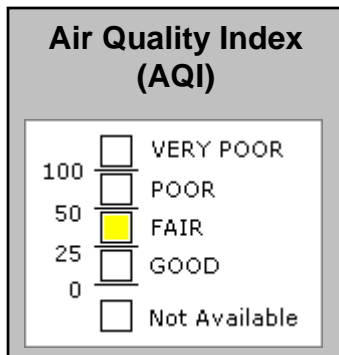
- A tool used to communicate the current quality of air
- A unit-less numeric scale (increasing from 0 to 100) that categorizes air quality as good, fair, poor or very poor
- Determined by the greatest pollutant average each hour (not a combination of pollutants)
- In Nova Scotia, the air quality is normally within the good category. Occasionally it is in the fair category.

How can you use the AQI?

- The current Air Quality Index is available on Environment Canada's website: <http://www.atl.ec.gc.ca/airquality>
- to help make decisions about your daily activities by



» Exercising and enjoying time outdoors when the AQI is good



» Taking protective action for yourself or those under your care when the AQI level increases

Air Quality Forecasts and Advisories

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Good AQI 0-25 | **Fair** AQI 26-50 | **Poor** AQI 51-100 | **Very Poor** AQI Over 100

Maximum forecast ground-level ozone until tomorrow night. Click on a forecast area for detailed information.

Issued Saturday October 23

Halifax Pollen Forecast

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- An air quality forecast is a prediction of what the air quality is likely to be over the next day
- It is similar to a weather forecast and even uses weather forecasts to make predictions.
- Environment Canada provides forecasts during Smog Season (May to October)
- Air Quality and Health Advisories are issued to the public when air quality is forecasted to be poor
- This information is available on this website: <http://www.atl.ec.gc.ca/airquality>

Limitations with current AQI

- AQI may not always reflect local conditions and personal exposure
- Some monitoring stations are not measuring all of the pollutants currently included in the AQI (O₃, SO₂, NO₂ and CO)
- Based on the highest pollutant, not cumulative effects of all pollutants
- Does not currently include PM_{2.5}
- Not able to compare AQI between provinces

- Nova Scotia is participating in work being done in Canada to develop a new national index that will improve on these limitations

Sources

- Environment Canada (2004). National Air Pollution Surveillance (NAPS) Network Air Quality in Canada: 2001 Summary and 1990-2001 Trend Analysis.
- Environment Canada (1995-2004). National Air Pollution Surveillance (NAPS) Network Annual Summary.
- Environment Canada (2004). Pollution and Data Branch (PDB). Final 2000 CAC Emissions Inventory.
- Nova Scotia Environment and Labour. Air Quality Data.