

EXECUTIVE SUMMARY

The ASAP's key goal is to achieve a 75 per cent reduction in the average number of times the 80 parts per billion (ppb) one hour ozone Ambient Air Quality Criterion (AAQC) is exceeded. To achieve this, the ASAP participants endorsed a 45 per cent reduction of Ontario's emissions of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) from 1990 levels by 2015. In addition, a commitment was made to reduce pollutants contributing to particulate matter by 10 per cent by 2015.

In August 2000, the ASAP progress report titled "Progress Through Partnership" was released. This report builds on that document, describing the progress that ASAP partners have made and evaluating past and anticipated actions to help guide anti-smog efforts in Ontario. Two themes - recognizing efforts and evaluating progress - guide the structure of this report, based on the ASAP framework for reporting progress that was endorsed by the ASAP Operating Committee in February 2001.

Recognizing Efforts: Highlights the activities of the ASAP partners - the industrial sector, transportation sector, as well as specific actions by ASAP government partners, non-government organizations and academic/research representatives. Initiatives that are both non-regulatory in nature (i.e., technology-related process improvements, public education, etc.) and regulatory (i.e., caps on electricity sector air emissions) are summarized to give an overview of the variety of work ASAP partners have undertaken since the ASAP was formed, and since 1998 when ASAP participants' progress was first surveyed.

Evaluating Progress: Looks at how Ontario is doing with respect to the goals for reductions of NO_x, VOCs, SO₂, and Particulate Matter (PM_{2.5}/PM₁₀). These pollutants are significant precursors of the two main components of smog, ozone

and fine particles (PM_{2.5}) in ambient air, as well as acid rain. Reducing these precursors will also advance Ontario's commitment to achieve the Canada Wide Standards for PM_{2.5} and ozone.

ASAP partners have made good progress toward achieving smog-reduction targets. Over a nine-year time frame, provincial emissions of NO_x, VOCs and SO₂ have decreased by 17 per cent, 20 per cent, and 50 per cent, respectively. Between 1998 and 1999, increases have occurred in NO_x and VOC emissions from off-highway engines, and some industrial point sources. SO₂ emissions have declined significantly over this year period, by almost 14 per cent.

Looking to the future, an analysis of forecasted estimates indicates that more work may be required to achieve anti-smog targets. As part of its Clean Air Plan for Industry announced in October 2001, the government is proposing to advance the target date for a 45 per cent reduction in province-wide NO_x emissions to 2010 from 2015. As well, the government is proposing to reduce province-wide emissions of SO₂ by 50 per cent by 2010, five years ahead of the initial 2015 target date. Depending on future reduction scenarios related to the transportation and manufacturing sectors, additional emission reductions required to achieve the NO_x target by 2010 would be in the range of 33 to 71 kilotonnes. The scenarios suggest that to achieve the emission target by 2015, a reduction of up to 57 kilotonnes would be required.

For VOCs, the estimated projections indicate that additional reductions in the order of 88 to 134 kilotonnes would be required to achieve the VOC emissions level target of 477 kilotonnes by 2010. To do so by 2015, additional reductions of 77 to 130 kilotonnes would be required.

ASAP initiatives have also helped Ontario to achieve SO₂ reductions towards its commitment of

442.5 kilotonnes (50 per cent of the Countdown Acid Rain Cap). Additional reductions of 102 to 109 kilotonnes would be required to meet the SO₂ target by 2010, and to do so by 2015, a reduction of 102 to 112 kilotonnes would be needed.

Work has continued in the area of particulate matter reductions and the extent to which we understand the impacts of ASAP initiatives on Ontario's air quality. A number of industry partners have made in-roads in reducing primary particulate emissions, and reductions of NO_x, VOCs and SO₂ have contributed to lowering secondary particulate. ASAP has spearheaded considerable research on understanding the sources and emissions of PM₁₀ and PM_{2.5} in Ontario. ASAP's research partner, the Centre for Earth and Space Technology (CRESTech), has been instrumental in advancing our progress in understanding this smog constituent.

Interpreting progress in reducing smog levels in Ontario requires an analysis of both ozone data as well as fine particles - the two constituents of smog. When data from a more extensive PM_{2.5} monitoring effort - over several years - are analyzed, the full smog problem may be tracked and better understood. In the interim, ozone exceedance data indicate that trends are influenced by meteorological influences and transboundary flows of pollution. Despite significant reductions in smog causing pollutants since 1990, the 1999 smog season saw the highest number of ozone exceedance days due to an increase in the number of hot days. And since more than 50 per cent of provincial ozone levels are due to the long-range transport of ozone and its precursors from the U.S., it is paramount that reductions of NO_x and VOCs here in Ontario be matched by efforts south of the border in order to achieve our provincial targets and improvement in air quality.

Since 1996, the Anti-Smog Action Plan (ASAP) has provided a unique forum for smog (ground level ozone and fine particulate matter) reduction in Ontario.