

# **Evaluation of the Accelerated Reduction and Elimination of Toxics Initiative (ARET)**



**Final Report  
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***Review Branch***

**Environment Canada**

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- All the interviewees, including those from the private sector, non-governmental organizations, provinces, and Environment Canada staff who gave of their time to provide expertise, insight, comments and documentation crucial to this evaluation;
- The external members of the Advisory Committee who guided the evaluation, Justyna Laurie-Lean, from the Mining Association of Canada and Burkhard Mausberg, from the Canadian Environmental Defence Fund.

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**Acronyms used in the report**

ARET	Accelerated Reduction/Elimination of Toxics
ENGO	Environmental Non-Governmental Organization
NPRI	National Pollutant Release Inventory



## Executive Summary

ARET, which stands for Accelerated Reduction / Elimination of Toxics, is a voluntary, non-regulatory initiative that targets 117 toxic substances, including 30 that persist in the environment and may accumulate in living organisms.

In 1994, the ARET Stakeholders Committee, composed of representatives of federal and provincial governments and industry, issued a challenge to eight industry sectors to reduce, by year 2000, persistent, bioaccumulative and toxic substance emissions (List A-1) by 90 percent and all other toxic substance emissions by 50 percent.

The main focus of the evaluation has been on assessing the effectiveness of the initiative, that is the extent to which participation in ARET can be considered as being responsible for the reduction / eliminating emissions of toxic substances and is meeting reduction targets. This evaluation should help the Department make a decision about its continued support to the ARET initiative.

The overall conclusions of the evaluation are that:

- ARET participation was not one of the main factors in motivating industry to reduce releases of toxic substances; for instance, half of the reductions reported in 1997 were achieved before the beginning of ARET. However, it helped industry to focus its effort in reducing the emissions of toxic substances.
- Toxics have been reduced to a level that meets the ARET challenge targets three years ahead of time, except for A-1 substances;
- A1 substance target will likely not be met by year 2000;
- Between 1993 and 1996, ARET participants have reported in the National Pollutants Release Inventory (NPRI) a 58% reduction of overall emissions whereas non-participants have increased their emissions by 1%;
- A small percentage of ARET participants were responsible for the vast majority of the ARET reductions;
- Participants do not report all their releases of ARET substances to the ARET Secretariat;
- ARET could have had stronger linkages with other toxic substances management programs at the federal, provincial and regional levels;
- Environment Canada does not have in place an integrated information system to identify the best opportunities for using voluntary measures or participating in initiatives such as ARET.

**It is recommended that the Assistant Deputy Minister, Environmental Protection Service, develop an integrated information tool for decision-making on the management of toxic substances. This tool should comprise an inventory of substances of concern and emitters of those substances in order to better understand risks to human health and the environment as**

well as a national inventory of current tools in place to manage risks associated with these toxic and potentially toxic substances.

It is recommended that the Assistant Deputy Minister, Environmental Protection Service, ensure that Environment Canada's participation in any voluntary measure to manage toxic substances be conditional upon:

- the existence of strong motivation and commitment on the part of the emitters to go beyond "business as usual" to reduce toxic substances;
- compliance with the draft departmental policy framework for voluntary measures; and
- the existence of strong linkages with the other toxic substances policies, programs and tools.

Management Response

Work is underway on the development of a national inventory of toxic substances and substances of concern and the tools in place to manage risks associated with those substances. Further, work is also underway to determine how the Department would participate in a successor program to ARET. This would include "compliance" with the proposed criteria in the draft policy framework as well as linkages with other policies and programs including: the Toxic Substances Management Policy, the Pollution Prevention Strategy and the National Pollutant Release Inventory. Finally, the recommendation that the Department be able to identify strong motivation and commitment on the part of the emitters to go beyond "business as usual" is understood and will be pursued.

## Introduction

ARET, which stands for Accelerated Reduction / Elimination of Toxics, is a voluntary, non-regulatory initiative that targets 117 toxic substances, including 30 that persist in the environment and may accumulate in living organisms. ARET's purpose is to reduce potential adverse impact of these substances on human health and the environment.

ARET grew out of a proposal from a group called New Directions which came together in November 1990 to seek opportunities for improving decision-making processes on environmental issues. The federal Environment Minister received the New Directions Group recommendations to deal with toxic substances in September 1991 and responded by lending his support to a group that became known as the ARET Stakeholders Committee.

In the early 90's, the concept of voluntary measures was an uncharted territory. There was no model when ARET was developed and it was considered as a leading-edge initiative. One of the objective of the initiative, from a government perspective, was to initiate early action on toxic substances, without having full-blown risk assessment under the Canadian Environmental Protection Act. In this context, Environment Canada wanted to have in place an open process involving as many players as possible.

At the beginning, the Committee included representatives of industry, environmental non-governmental organizations, labour groups, and federal government departments. In September 1993, the environmental and labour representatives withdrew from the Committee, during deliberations concerning the methods to implement toxic reduction / elimination, in particular the reduction of the use of toxic substances.

ARET's long term goals are to virtually eliminate the emission of 30 persistent, bioaccumulative and toxic substances (list A-1 substances) and to reduce emissions of another 87 toxic substances to levels insufficient to cause harm. In 1994, the Stakeholders Committee issued a challenge to eight industry sectors to reduce, by year 2000:

- Persistent, bioaccumulative and toxic substance emissions by 90 percent;
- All other toxic substance emissions by 50 percent.

With the approach of the deadline for these short term targets, Environment Canada felt it was appropriate to assess ARET. This evaluation should help the Department make a decision about its continued support to the ARET initiative and its future participation in the Stakeholder Committee as well as its support to the ARET Secretariat. The evaluation was also requested at a stakeholder workshop, held in December 1997, involving representatives from ARET Stakeholder Committee and environmental non-governmental organizations (ENGOs).

The main focus of the evaluation has been on assessing the effectiveness of the initiative, that is the extent to which ARET participation can be considered to be responsible for the reduction / elimination emissions of toxic substances and is meeting reduction targets. The evaluation also analyzed the efficiency from an Environment Canada perspective, the participation in the initiative and the other impacts ARET might have had. The methodology used for the evaluation is described in Annex 1.

## Findings

The overall conclusions of this evaluation are that:

- ARET participation was not one of the main factors in motivating industry to reduce releases of toxic substances; for instance, half of the reductions reported in 1997 were achieved before the beginning of ARET. However, it helped industry to focus its effort in reducing the emissions of toxic substances.
- Toxics have been reduced to a level that meets the ARET challenge targets three years ahead of time, except for A-1 substances;
- A1 substance target will likely not be met by year 2000;
- Between 1993 and 1996, ARET participants have reported in NPRI a 58% reduction of overall emissions whereas non-participants have increased their emissions by 1%;
- A small percentage of ARET participants were responsible for the vast majority of the ARET reductions;
- Participants do not report all their releases of ARET substances to the ARET Secretariat;
- ARET could have had stronger linkages with other toxic substances management programs at the federal, provincial and regional levels;
- Environment Canada does not have in place an integrated information system to identify the best opportunities for using voluntary measures or participating in initiatives such as ARET.

The findings are presented under the broad categories of effectiveness, efficiency and overall participation in the initiative. Other impacts are also noted.

### Effectiveness

The evaluation found that participating in ARET was not one of the main motivating factors for industry to reduce their releases of toxic substances. Other factors such as regulations, modernization and business decisions were considered to be more important in the decisions made by industry about the management of toxic substances. Examples of these other motivating factors are the *Pulp and Paper Effluent Regulations* which were promulgated in 1992 but only became fully in effect in 1996 and technological upgrades made during expansion and major retrofits in the pulp and paper and smelting sectors. Also, some industries had gone beyond business as usual and had begun voluntary programs before ARET was implemented.



By 1997, the most recent year for which data are available, ARET had already met its 50% reduction target for toxic substances that are not persistent and bioaccumulative; however, the target of 90% for list A-1 substances is not yet and will not likely be achieved by year 2000.

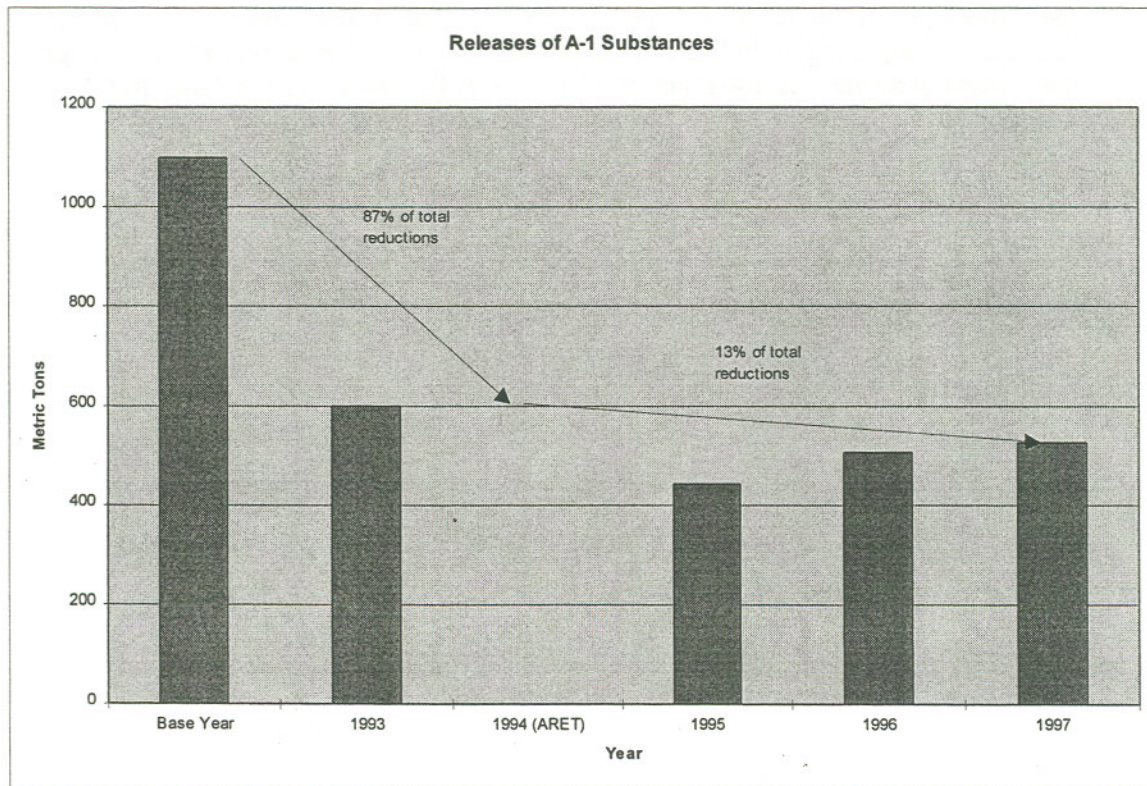
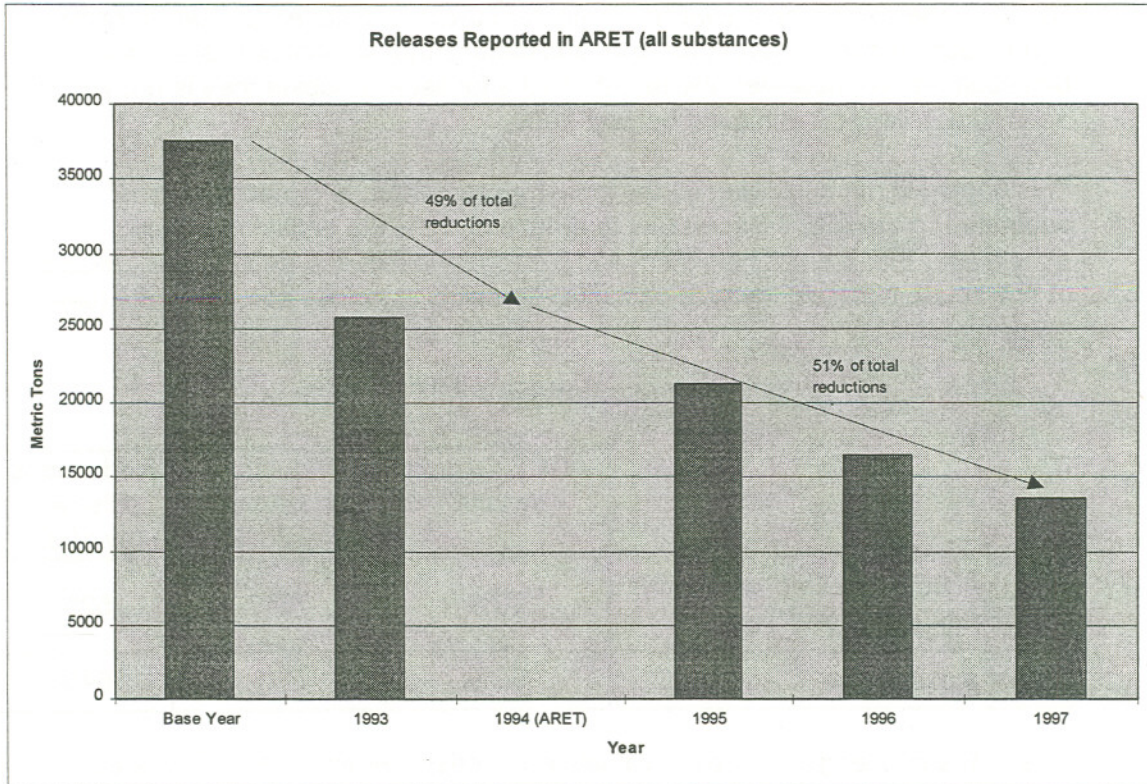
This finding is not surprising as the industry committed, in the action plans<sup>1</sup> submitted to the ARET Secretariat to reduce by 78% the emission of toxic substances that are not persistent and bioaccumulative and by 71% the emission of A-1 substances. Industry is on its way to achieving these commitments (see following table).

#### Reductions in ARET

	ARET Targets (by 2000)	Industry Commitments (by 2000)	Reductions achieved (by 1997)
List A-1 Substances (Persistent, Bioaccumulative and Toxic)	90%	78%	52%
Other substances	50%	71%	64%

One of the challenges faced in evaluating the effectiveness of ARET was that the base year used to establish targets was set before the implementation of ARET. Because of that, around 50% of reductions reported in ARET were achieved in fact before its creation. In the case of A-1 substances, it was found that 87% of the reductions reported were achieved before ARET was in place (see graphs below).

<sup>1</sup> In their action plans, the industry committed to meeting targets which may not be consistent with the ARET targets.



If the projected reductions are achieved by the end of the program in 2000, the percentage of reductions before ARET was in place will still represent a significant proportion of the total reductions (40% for all substances and 60% for A-1 substances)

Another challenge in measuring effectiveness was the validity of the data. All the evidences gathered suggest that data reported by industry reflect the reductions achieved. However, the margin of error of these data is likely highly variable due to the broad spectrum of methodologies used to measure releases.

### **Efficiency**

The ARET initiative is generally perceived by staff and stakeholders as a relatively small-cost undertaking for Environment Canada. The analysis indicates that the cost to the Department to date is around \$2 million dollars, most of which was spent on the development and start-up of ARET. The question of whether this was the most efficient use of Environment Canada's budget can be raised when considering that other factors played a more important role in reducing the releases of toxic substances for ARET participants.

The analysis also revealed that linkages with other toxic management tools, programs and policies could have been stronger. Three examples at the federal level are linkages with the Pollution Prevention Strategy, the Options Evaluation Process and the National Pollutants Release Inventory (NPRI).

- Although pollution prevention was one of the principles guiding ARET, no evidence was found to indicate that tools were developed to put the principle into practice. For instance, the issue of reduction of use versus reduction of releases was set aside early in the process notwithstanding the fact that reduction of use can be an important element of a pollution prevention approach.
- In the Options Evaluation Process, ARET was considered as a management tool by only a few issue tables. It was retained as the preferred management option in one case (dichloromethane) where the expected results were not achieved. As a consequence, a regulation is being drafted, leaving the impression that ARET could have been used to delay action on dichloromethane.
- The third example of weak linkages is with NPRI. Although there were motives to support the existence of two data bases on the releases of pollutants, the current trend seems to indicate that both data bases are now evolving in the same direction. It may not be efficient to have two different systems to maintain similar information, even if it is in support of different programs, with different objectives.

The weak linkages can be explained by the fact that these other initiatives were developed after or at the same time ARET was designed. However, any future voluntary program should reinforce these linkages.

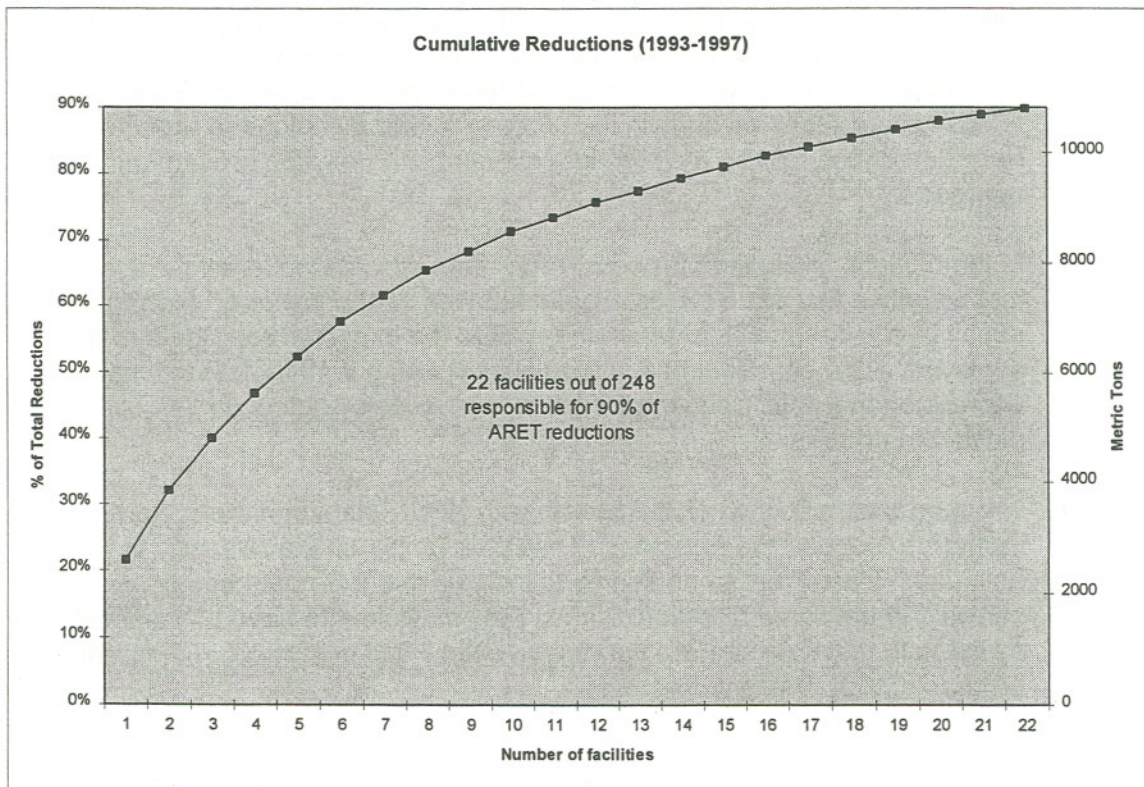
**Participation**

The third evaluation issue was the level and nature of participation in the initiative. This issue was analyzed from three perspectives: industry, ENGOs and other stakeholders.

**Industry**

The level of participation in ARET from industry exceeded the original expectations of those who designed the initiative. Even if there was broad participation, the evaluation found that reductions are concentrated in a few industrial sectors. Three out of eight sectors are responsible for 88% of the reductions reported to ARET since the base year, namely pulp and paper (57%), mining and smelting (23%) and chemical manufacturing (8%).

The analysis of the performance of individual companies and facilities conducted in the course of the evaluation (see graph below) found that 9% of reporting facilities are responsible for 90% of the reductions achieved since the beginning of ARET (between 1993 and 1997). This high level of reductions by a limited number of participants brings the question for the Department whether it should focus its effort on key industrial sectors or substances or support initiatives targeting maximum participation such as ARET.



The evaluation also found that, between 1993 and 1996, ARET participants have reported in NPRI a 58% reduction of overall emissions whereas non-participants have increased their emissions by 1%. This seems to indicate that, in general, ARET participants made a greater effort to reduce releases of toxic substances than non-participants, even for substances that are not on ARET lists<sup>2</sup>, thus demonstrating environmental leadership.

A continuing concern is the non-participation of some companies in ARET. The Stakeholder Committee and the Secretariat have made special efforts to attract those companies who are not currently participating, but with limited success. A further participation issue is that, even for those companies who do participate, it was observed that not all their emissions of ARET toxic substances are reported to ARET. The extent of selective reporting is difficult to assess as comparison was limited to NPRI data.

### ENGOS

The interviews and information gathered in the course of the evaluation indicated a general consensus amongst ARET stakeholders that ENGOS participation would increase the credibility of the initiative. Some ENGOS, in turn, might be willing to participate provided the initiative is set up and operated in a credible manner. One method to increase the credibility would be to invite ENGOS to participate in the development of voluntary initiatives and at key decision points.

### Other Stakeholders

The interviews also explored if other stakeholders should participate on the Stakeholders Committee. While there was an openness to having more participants around the table, it was not perceived as essential. There was an exception to this general observation when the participation of other levels of government was discussed.

The inclusion of provinces was considered essential because of their key role in controlling toxic substances. Some interviewees even raised the importance of having a national, not only federal, toxic substance management program.

Regional administrations and municipalities were also identified as important stakeholders. Their importance as emitters of ARET substances was underlined in many interviews and a few interviews also emphasized their role as regulator of toxic substances.

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<sup>2</sup> Only 49 substances are common to NPRI and ARET

### **Other impacts**

The evaluation also highlighted other impacts of the ARET initiative. First, the establishment of the list of substances helped industry to focus its effort in reducing the emissions of toxic substances. Second, ARET offered a forum to discuss and raise the profile of toxic substances within industry. This forum also helped improve relationships between the government and industry but at the same time, might have strained the relationships between the government and ENGOs.

### **Conclusions**

The thinking about voluntary measures has evolved over the years and there seems to be a consensus around the principles that should now guide them. Environment Canada is currently developing a policy framework for voluntary measures. This framework should assist in meeting departmental needs as well as address some of the recommendations of the Commissioner of the Environment and Sustainable Development in his 1999 Report on Managing Toxic Substances. These new elements should be taken into consideration when deciding about a renewed participation in ARET.

In addition, the evaluation findings demonstrate that the Department should not consider voluntary measures in isolation, but rather needs to understand how these measures fit into the overall strategy to manage toxic substances. At this point, this exercise is difficult to accomplish because the information relating to toxic substances and their management is scattered across the Department and therefore not easily accessible.

Also, there are opportunities to better focus the efforts to reduce releases of toxic substances through voluntary measures. Again, this is difficult to accomplish because of the accessibility of the information.

The evaluation points to the need for an integrated information system to allow for the identification of gaps and understanding of issues, thus permitting the identification of the best tools, including voluntary measures, for the management of toxic substances. The evaluation also shows the need for sound environmental indicators which could demonstrate in environmental terms the results achieved through the use of various toxic management tools.

Voluntary measures can have a role to play in the management of toxic substances and the implementation of proposed recommendations should help ensure they are used in the most efficient way and when it is most appropriate, thus supporting the achievement of environmental results.

## Recommendations

Based on the findings of the evaluation, **it is recommended that the Assistant Deputy Minister, Environmental Protection Service, develop an integrated information tool for decision making on the management of toxic substances.** This tool should comprise:

- an inventory of substances of concern and emitters of those substances in order to better understand risks to human health and the environment; and
- a national inventory of current tools in place to manage risks associated with toxic and potentially toxic substances.

Such information exists in part right now. Initiatives like the Options Evaluation Process, NPRI and ARET have resulted in the gathering of extensive information about emitters. However, this information is not complete and there is no comprehensive inventory of existing control tools for toxic substances.

The recommended information tool should be used to identify the best opportunities for using voluntary measures and other management tools as well as to determine if and how Environment Canada should continue to participate in ARET.

**It is recommended that the Assistant Deputy Minister, Environmental Protection Service, ensures that Environment Canada's participation in any voluntary measure to manage toxic substances be conditional upon:**

- the existence of strong motivation and commitment on the part of the emitters to go beyond "business as usual" to reduce toxic substances;
- the compliance with the draft departmental policy framework for voluntary measures; and
- strong linkages with the other toxic substances policies, programs and tools, including the National Pollutant Release Inventory, the Federal Pollution Prevention Strategy and the Options Evaluation Process.

### Management Response

Work is underway on the development of a national inventory of toxic substances and substances of concern and the tools in place to manage risks associated with those substances. Further, work is also underway to determine how the Department would participate in a successor program to ARET. This would include "compliance" with the proposed criteria in the draft policy framework as well as linkages with other policies and programs including: the Toxic Substances Management Policy, the Pollution Prevention Strategy and the National Pollutant Release Inventory. Finally, recommendations that the Department be able to identify strong motivation and commitment on the part of the emitters to go beyond "business as usual" is understood and will be pursued.

## **Annex 1 Methodology**

In order to guide this evaluation a plan was developed and an Advisory Committee, formed of one representative of each, the industry, ENGOs and Environment Canada, was established to oversee the conduct of the evaluation.

The evaluation methodology is based on multiple lines of evidence, including the following elements:

- Three technical case studies: pulp and paper, smelting and chemical manufacturing sectors
- Analysis of results of case studies
- Analysis of A-1 substances reductions
- Review of the electric utilities sector
- Analysis of ARET and National Pollutants Release Inventory data bases
- Interviews with industry participants and non-participants, ENGOs, Environment Canada staff and former staff and others ( $\pm 90$ )
- Review of documents ( $\pm 400$ )
- In-depth review of 20 industry reduction plans submitted to ARET.

Review Branch has a copy of case study reports (contact (819) 994-6639).