



**ENVIRONMENT DIRECTORATE
ENVIRONMENT POLICY COMMITTEE**

Working Party on National Environmental Policy

VOLUNTARY APPROACHES: TWO CANADIAN CASES

The ARET programme and the environmental management agreement between Environment Canada, the Ontario Ministry of the Environment and the steel company Dofasco Inc.

The report discuss the Canadian "Accelerated Reduction/Elimination of Toxics" (ARET) program and the environmental management agreement that the federal department of the environment (Environment Canada) and the Ontario provincial Ministry of the Environment negotiated with the steel company Dofasco Inc.

The original draft was prepared by Mary Jane Middelkoop, François Bregha and John Moffet of the consultancy firm "Stratos", Ottawa, Canada. This revised version includes a number of comments submitted by Environment Canada.

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FOREWORD

At its first meeting, 23-24 April 2001, the Working Party on National Environmental Policies under OECD's Environment Policy Committee agreed to start new work on voluntary approaches used in environmental policy, building on a few selected case studies. These case studies were each to be prepared by external consultants – discussing two concrete cases of voluntary policy approaches in Canada, United States, Japan and Denmark respectively.

The present is a revised version of the case study that discussed the Canadian “Accelerated Reduction/Elimination of Toxics” (ARET) program and the environmental management agreement that the federal department of the environment (Environment Canada) and the Ontario provincial Ministry of the Environment negotiated with the steel company Dofasco Inc. The original draft was prepared by Mary Jane Middelkoop, François Bregha and John Moffet of the consultancy firm “Stratos”, Ottawa, Canada. The two parts of the document were originally prepared as separate reports.

This revised version includes a number of comments submitted by Environment Canada.

The case studies will – together with other available material – feed in to a final project report on the use of voluntary approaches in environmental policy that is expected to be published in 2003.

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VOLUNTARY APPROACHES: TWO CANADIAN CASES

The “Accelerated Reduction/Elimination of Toxics” Program and the Environmental Management Agreement negotiated between Environment Canada, the Ontario Ministry of Environment and the steel company “Dofasco Inc”.

EXECUTIVE SUMMARY

Canadian authorities became increasingly interested in voluntary approaches in the 1990s ...

In the 1990s, Canadian public authorities became increasingly interested in experimenting with alternatives to traditional regulatory approaches to environmental protection. Two examples of this interest are the Accelerated Reduction/Elimination of Toxics (ARET) program, and the multiparty environmental management agreement (EMA) with a large steel company (Dofasco Inc.).

... and launched, for example, the ARET program ...

The ARET program was launched in the mid-1990s, and while it was by no means the first voluntary initiative in Canada, it represented the first formal, pollution-related government-issued ‘challenge’ program. An initiative of its nature and magnitude was largely untested at the time, and the Canadian government was both commended and criticised for its willingness to issue such a challenge. The program was well received by industrial groups but did not win the support of the NGO community, many of whom wanted government to concentrate its efforts on regulating industry.

... challenging industry to virtually eliminate the release of 30 persistent, bioaccumulative and toxic substances and reduce the release of another 87 to harmless levels.

The broad objectives of the program were to virtually eliminate the release of 30 persistent, bioaccumulative and toxic substances, and to reduce the release of another 87 toxic substances to harmless levels. The program attracted participants from nine major industry sectors, most of which were large emitters of ARET substances, and therefore vulnerable to possible government regulation under the Canadian Environmental Protection Act (CEPA) of 1988. By 2000, 318 facilities from 171 companies had joined ARET, including a few government facilities.

Releases of the substances were reduced by approximately 75%, although much of the reductions occurred before the program.

ARET participants reduced releases of ARET substances by approximately 75%. How much of this reduction can be attributed to ARET is difficult to determine. Most ARET participants were involved in several other voluntary initiatives at the time, making it impossible to disaggregate the individual contribution of each instrument. Federal and provincial regulations also played a role in reducing toxic industrial emissions. Finally, Environment Canada’s evaluation of ARET noted that, in some cases, more than half of the reductions had been achieved prior to the formal launch of the program.

Despite some shortcomings and uncertain impact, the program was successful in improving communication between government and industry, and in assisting industry in focusing on toxic substances. The program was to be renewed in 2000, but as of 2002 a formal successor program to ARET had not been formally launched.

An Environmental Management Agreement negotiated with Dofasco in 1997...

Another example of a non-regulatory approach to environmental policy came in 1997, when Environment Canada and the Ontario Ministry of the Environment negotiated a five-year Environmental Management Agreement (EMA) with the steel company Dofasco Inc.

... was the first agreement environmental authorities made with an individual company.

It was Dofasco Inc. that proposed the concept of an EMA. Although the federal and provincial governments had negotiated several sector-based environmental management and/or performance agreements with specific industry sectors, they had not yet done so with individual companies.

The EMA set environmental performance targets beyond existing regulatory requirements ...

The EMA represented a new level of commitment from an individual firm, and set the standard for stronger relationships between government partners and a member of the steel manufacturing sector. The EMA set environmental performance targets that went beyond existing regulatory requirements, and placed several federal and provincial objectives under one comprehensive agreement. The EMA also provided a single mechanism through which Dofasco could deal with government agencies.

... addressing a wide range of environmental issues – and allowing government to introduce new regulation in case of non-compliance.

The targets established in the agreement address a wide range of environmental issues, including air quality, energy usage, water quality and waste management. The Agreement includes a provision that allows the government to override the terms of the EMA with appropriate regulation in the event that Dofasco fails to meet its commitments. This clause provides the federal and provincial government with the necessary authority and control over the activities of the private sector party, and ensures that the firm is aware that the EMA does not preclude it from meeting its regulatory obligations.

The EMA has helped the firm to manage environmental aspects in a more comprehensive manner ...

Since signing the EMA, Dofasco has made significant improvements in environmental performance. Although the firm is involved with numerous other voluntary initiatives – making attribution of impacts difficult – it can be argued that the EMA has helped the firm to manage environmental aspects in a more comprehensive manner. Dofasco is now managing its performance at a system-wide level, often achieving multiple benefits from single improvements or alterations in the production process.

... and the costs of the EMA to public authorities have been low.

The EMA was relatively inexpensive to develop and implement. The single industry player, as well as the minimal involvement of government after the Agreement was established, all contributed to keeping the cost of the EMA low for both the federal and provincial governments. The EMA itself drew largely on existing regulatory and other requirements, and did not require extensive scientific study to establish the targets.

PART I: THE “ACCELERATED REDUCTION/ELIMINATION OF TOXICS” PROGRAM

1. Introduction and Background Information

1.1 Voluntary Approaches in Environmental Policy

1. In an age of growing concern over human health and the environment, policy makers are seeking efficient and effective solutions to increasingly complex environmental problems beyond traditional command and control regulations. To provide an incentive for continuous improvement and to encourage innovative solutions to environmental challenges, public authorities are turning to alternative policy instruments to achieve their objectives. These approaches include voluntary programs, economic incentives, tradable permit schemes, and recognition programs, all aimed at achieving the same environmental objectives with greater efficiency and continued public acceptance.

2. When the Canadian government launched it in the early 1990s, the ARET program (“Accelerated Reduction/Elimination of Toxics”) was regarded as innovative. Although some voluntary initiatives had been piloted in Canada, ARET represented the first formal, pollution related government ‘challenge’¹ program. An initiative of its nature and magnitude was largely untested at the time, and the Canadian government was both commended and criticised for its willingness to issue such a challenge. The program was well received by industrial groups, yet it did not capture the imagination of the NGO community, many of whom wanted government to concentrate its efforts on regulating industry. The challenge extended from 1994 to 2000. During that period, industry participants significantly reduced their releases of toxic substances.

3. The ARET program represents an early attempt at introducing a voluntary approach to help address complex environmental problems. It was useful for the results reported through the program, but perhaps more so for the opportunity it provided interested parties in Canada to get hands on experience with developing and implementing such a program. Much was learned and much can be shared from various reviews that were done in Canada of the ARET program. This case study will describe the process that led to the development of the ARET program, its key elements, factors influencing its effectiveness, the overall success and efficiency of the program, and some of the key lessons that can be learned from the program.

¹ Environment Canada issued the ‘Challenge’ by distributing a formal letter to industry, inviting them voluntarily to meet the release reduction targets established by the multi-stakeholder ARET Committee.

1.2 Description of the ARET Program

1.2.1 Program Origin and Development

4. The ARET program was aimed at reducing and eliminating releases of 117 toxic substances with potential adverse impacts on human health and the environment. The program grew from an initiative of the New Directions Group (NDG) – an independent, voluntary network of individual corporate executives and environmental NGO leaders that initially formed to provide a co-operative, non-adversarial forum for addressing significant environment-economy issues.

5. The NDG formed at a time when there was increasing public concern over the impacts of persistent toxic substances in the environment. Reports issued by the Canada / United States International Joint Commission (IJC) in the early 1990s were making clear links between a wide number of toxic substances and human health. Additional scientific studies reinforced the Commission's findings, demonstrating that persistent, toxic substances were capable of causing far-reaching, adverse effects on human health and the environment (IJC, 1992).

6. Canada's overall strategy for dealing with environmental protection issues grew in the late 1980s and early 1990s to one that would rely on many policy tools and instruments, as long as these proved to be effective and efficient. The notion of optimising the use of alternatives to regulation was part of a larger government-wide effort to review the use of regulation, and to seriously consider alternatives. It was during this period that Canada adopted a federal regulatory policy that made it a requirement for government departments to consider viable alternatives to regulation when addressing public policy issues.

7. For environmental protection purposes, the *Canadian Environmental Protection Act, 1988* gave the federal government the authority to assess substances and to control those substances that met the criteria for being added to the Act's List of Toxic Substances (LTS). Once on the LTS, toxic substances were controlled primarily through regulation. The process leading to regulation involved creation of a Priority Substances List (PSL) and the subsequent mandatory assessment of substances added to the PSL. Two PSL lists were created through large multi-stakeholder processes that involved the review of about 700 substances against set criteria such as persistence, bioaccumulation, toxicity and presence in the Canadian environment. PSL 1 contained 44 substances or groups of substances and PSL 2 contained 25. Preventive and control measures were also undertaken through the federal Fisheries Act, other federal environmental or health related Acts, and through provincial legislation, including facility permitting activity.

8. Given the recommendations put forth by the NDG, the government's willingness to test the effectiveness of non-regulatory instruments, and the openness of leaders in industry and environmental groups to experiment too, a window of opportunity existed to develop ARET.

9. The federal Environment Minister responded quickly to the recommendations of the NDG by establishing the National Pollutant Release Inventory (NPRI),² and by setting up a multi-stakeholder committee to design a voluntary program to encourage industry to reduce toxic releases. The committee focused on persistent, bioaccumulative toxics (PBTs), and was tasked with (a) establishing criteria for

² The NPRI is a national inventory of releases of pollutants. In general, the owner or operator of a facility must report releases to Environment Canada for inclusion in the inventory if he meets the criteria for reporting unless specifically exempted. Beginning with the year 2000, the NPRI modified some of its reporting rules to include toxic substances emitted in smaller quantities. Criteria air contaminants, such as NO_x, SO₂, VOCs were added in 2002. For general information: (http://www.ec.gc.ca/pdb/npri/documents/Citizen'sguide_e.pdf) and (http://www.ec.gc.ca/pdb/npri/documents/aboutnpri1998_e.pdf).

defining toxicity, (b) compiling a list of target substances based on these criteria, and (c) devising a means by which industry could address its toxic releases (Pollution Probe, 1999).

10. Over a three-year period, the multi-stakeholder committee – which originally included representatives from industry, health, labour and aboriginal groups, government, and ENGOs – came to a consensus on criteria for toxicity, persistence and bioaccumulation. After screening 2000 substances and reviewing 450 against the criteria, the Substance Selection Sub-Committee agreed to 117 substances that were known to have significant impacts on the environment and/or human health. These substances were selected on the basis of a set of scores related to toxicity, persistence and bioaccumulation, using data obtained from the Canadian Ontario Ministry of Energy and the Environment (now the Ontario Ministry of the Environment), and the Michigan Department of Natural Resources in the United States. The committee categorised the substances according to their intrinsic properties (persistence, bioaccumulation, toxicity), but without consideration of whether these substances were used in Canada and, if so, what risks they posed to the environment or health (Environment Canada, 1994). After the program started, it became evident that 30 substances on the ARET list were not, in fact, used in Canada.

11. While the committee had been successful in developing a list of ARET substances, it was not able to come to a consensus on how industry should achieve the desired release reductions. During deliberations, environmental and labour representatives withdrew from the ARET Committee due to disagreements with industry representatives over the priority being given to the reduction versus the elimination of targeted substances. NGOs also urged the committee to consider recommending the use of regulations to achieve reduction targets when voluntary efforts would prove inadequate, and voiced disapproval over the absence of workplace safety concerns. They also felt that government should have provided more leadership within the Committee. Although the withdrawal of ENGO and labour representatives may have weakened the multi-stakeholder committee, the government and industry members agreed to proceed with the process.

12. In 1994, the ARET Committee (representing industry and government) issued the “ARET Challenge,” calling for “virtual elimination” of PBT substances, as well as significant release reductions of all other substances listed by the ARET Committee. Three federal government departments (Environment, Industry and Health) sponsored the program, and the Canadian Council of Ministers of the Environment (representing all the provincial and territorial governments) subsequently endorsed it.

1.2.2 Program Objectives

13. The multi-stakeholder committee set ARET’s objectives and targets, giving priority to release reduction, rather than elimination of use.

14. The program categorised the 117 ARET substances into five lists, based on the criteria for toxicity, persistence and bioaccumulation established by the Committee:

1. List A-1 for 30 substances that meet the persistence, bioaccumulation and toxicity criteria;
2. List B-1 for the 8 substances that meet the toxicity and bioaccumulation criteria;
3. List B-2 for 33 substances that meet persistence and toxicity criteria;
4. List B-3 for 44 substances that meet only the toxicity criteria; and
5. List A-2 for 2 substances where consensus was not reached as to whether all three PBT criteria were met, thus a ‘best efforts’ reduction target was established.

15. The broad long term goals of the program were (1) virtual elimination of release of the 30 persistent, bioaccumulative and toxic substances (List A-1); and (2) reduction of the other 87 toxic substances to levels of insufficient harm (Environment Canada, 2000). In support of these goals, the committee established the following environmental performance targets:

1. Reduction of persistent, bioaccumulative and toxic substance releases by 90 percent by year 2000;
2. Reduction of all other toxic substance releases by 50 percent by year 2000; and
3. Best efforts for reduction of List A-2 substances.

1.2.3 Participant Obligations

16. The ARET program attracted participants from nine major industry sectors: aluminium; chemical manufacturing; chemical specialties; electric utilities; mining and smelting; oil, gas and petroleum products; other manufacturing; pulp, paper and forest products; and steel. With the exception of “other manufacturing”, these sectors were all large emitters of ARET substances, and therefore vulnerable to possible government regulation under CEPA 1988. By 2000, 318 facilities from 171 companies had joined ARET, including a few government facilities. Participants stated their release reduction commitments in publicly available Action Plans, identifying the ARET substances being emitted, the release reduction targets set by the company, and the base year from which progress would be measured. Participating companies reported annually on their progress to the ARET Secretariat (established by Environment Canada), which compiled an annual report (Pollution Probe, 1999).

1.2.4 Alterations

17. The ARET challenge ended in 2000 without any significant alterations to its form from its inception. It still continues to function informally as a reporting mechanism for several companies, some having ARET targets that extended beyond 2000.

2. Environmental Effectiveness

2.1 Achievement of Environmental Objectives and Targets

18. The ARET program set clear, measurable reduction targets that represented a consensus between government and industry (Queen’s University, 1996). The most recent assessment (2000) indicates that ARET participants achieved the following results:

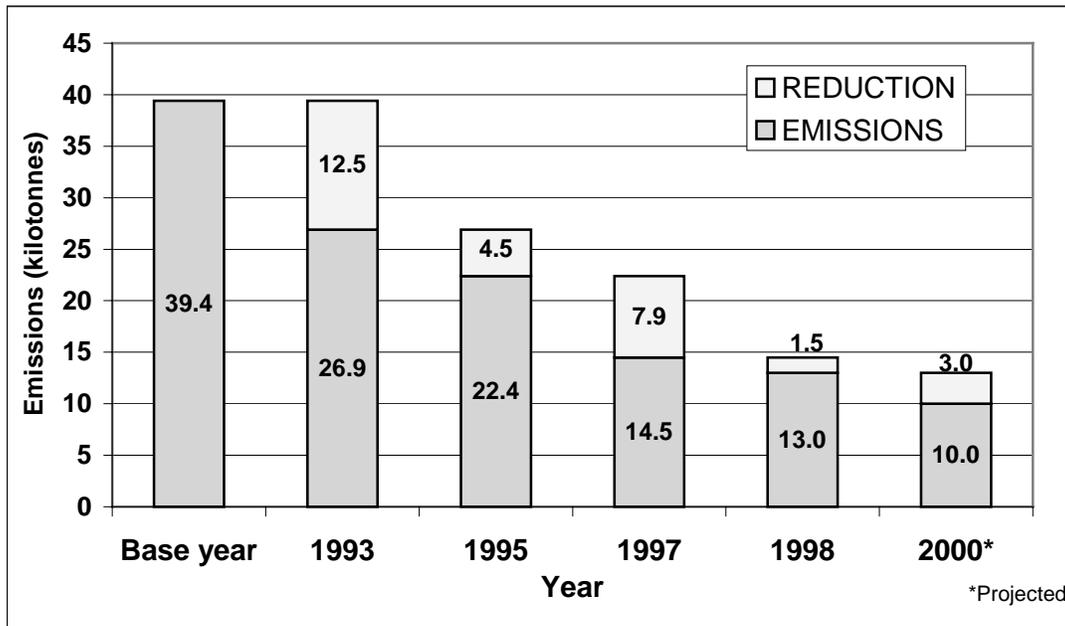
Table 1. Reductions in ARET Substances

	ARET Targets by 2000	Industry Commitments by 2000	Reductions Achieved by 2000 (Draft data)
List A-1 Substances	90%	78%	61%
List A-2 Substances	“best efforts”	N/A	72%
List B-1, B-2 and B-3	50%	71%	72%

Source: Environment Canada, 2000; Environment Canada, 2000a.

19. As the above table indicates, participants exceeded their release reduction targets by 22% for substances in Lists B-1, B-2 and B-3. Although there were no precise targets set for substances on List A-2, member companies achieved reductions of 72%. For List A-1 (persistent, bioaccumulative and toxic) substances, participants achieved a substantial reduction against targeted levels. Altogether, ARET participants are projected to reduce releases of ARET substances by approximately 75%.

Figure 1. Actual and Projected Emissions from ARET Participants



Source: Environment Canada (<http://www.ec.gc.ca/ARET/homee.html>).

20. It should be noted that participants were allowed to select a base year at their own discretion (the only limitation being that it had to fall some time after 1987). Thus reductions in releases made prior to participation in the ARET program were included in some participants' progress reports. As a result, Environment Canada's evaluation of ARET noted that, in some cases, more than half of the reductions had been achieved prior to the launch of the program (Environment Canada, 2000a). This flexibility had been the quid pro quo to industry agreeing to the ambitious reduction targets Environment Canada had proposed.

2.2 Performance Measurement

21. Participating facilities submitted performance information to the ARET Secretariat for inclusion in a comprehensive annual report. The ARET Secretariat gathered data from the facility, company, and sector level. But, despite the fact that companies regularly reported to the ARET Secretariat, no reporting protocols were developed to guide how information should be collected or presented. As well, no measurement protocols were established, allowing companies to measure release reductions by taking samples at the "end of the pipe", or for example, to calculate their releases based on a set of formulas and release coefficients. With regard to measurement protocols, this was consistent with North American legislated pollutant release/pollutant transfer programs at the time. To its credit, the Mining Association of Canada (MAC) made a concerted effort to establish consistent measurement protocols for its association members, and over time were able to achieve consistent reporting practices. Environment Canada's evaluation of ARET found that the lack of measurement protocols was problematic, indicating that the

“margin of error of these data is likely highly variable due to the broad spectrum of methodologies used to measure releases” (Environment Canada 2000a, p11). The evaluation also noted:

1. Participants were free to choose which of the 117 substances to report;
2. The percentage reductions reported for each substance were based on an unspecified subset of the total number of participating companies;
3. The data in the reports were inconsistent and incomplete;
4. Protocols to measure and estimate releases of a substance were not prescribed, which meant that the results were not necessarily comparable;
5. Actual reductions were not verified and therefore may have differed from what was reported; and
6. The base year against which reductions were measured could vary from company to company.

22. A federal audit of the toxic substances management process in Canada confirmed that, as a reporting instrument, ARET had areas that it needed to address so that ARET-type programs could be accepted as legitimate tools for the management of toxic substances.

23. Verification of results was regarded by some as one of the program’s main weaknesses. Although the program required a senior manager’s signature on all emissions reports, a formalized, independent verification mechanism was not an element of the program. Program supporters argued that the signature of a senior company official added a level of personal accountability that reports made under regulatory programs do not usually have. That requirement also helped maintain program awareness at the senior management level in participating companies. On the other hand, some claimed that the absence of formal verification mechanisms undermined the program’s credibility (Environment Canada, 1999).

2.3 Influence of Other Policy Instruments on Environmental Performance

24. As mentioned earlier, it was the federal government’s strategy to use a wide array of policy instruments to achieve its goals with regard to toxic substances. Over the duration of the ARET program, regulation continued to have an impact, as did the annual reports of the National Pollutant Release Inventory and those of the Commission on Environmental Co-operation, provincial programs, municipal bylaws and other influences noted below.

25. Regardless of its precise impact on releases reductions, ARET acted as a motivating force to achieve reductions – sometimes at a faster rate than what might have been observed without the ARET program. Although many industry representatives claimed that they would have made environmentally beneficial technological improvements in the absence of ARET, the program provided additional motivation to implement the changes more quickly. The ARET list served as a highly visible and credible reference point, and helped participants focus their efforts on key substances of concern. More generally, the program helped foster a pro-active attitude towards toxics reductions by motivating participants to continuously improve their performance. On their own, regulations may have been unable to engender such an attitude.

26. Participants in the ARET program achieved significant reductions in toxic substance releases (totalling 27,875 tonnes by 2000³). A report completed by a Canadian environmental NGO noted that attribution of reductions to the ARET program is difficult in this instance, largely because “toxic release reductions presumably have resulted from a series of factors, such as regulations, the threat of regulation, changes in industrial processes, market demands and other business decisions” (Pollution Probe, 1999, p49).

27. During Environment Canada’s review of the program, chemical companies participating in ARET maintained that the Responsible Care[®] Program – a voluntary product stewardship program that is a condition of membership in the Canadian Chemical Producers Association (CCPA) – was the primary driver in reducing their releases. The pulp and paper industry, on the other hand, indicated that federal and provincial regulations introduced around the same time as the ARET program had been instrumental in driving their release reductions, citing regulations related to the reduction of dioxins and furans, the reuse of biosludge, and various provincial regulations aimed at reducing odour-related air releases as having been particularly important (Gunn et al., 1999).

28. The pulp and paper industry also indicated that public opinion was a significant motivating factor for implementing technological changes during the period of the ARET challenge. Some of its release reductions could also be attributed to upgrades made during facility expansions and retrofitting, as well as to routine technological upgrades. Additional factors such as threats of consumer boycotts organized by European environmental groups, and participation in other voluntary programs also motivated the pulp and paper sector to improve its environmental performance (Gunn et al., 1999).

29. In a broader sense, for many participants, release reductions were driven by: a) the prospect of possible regulation under the *Canadian Environmental Protection Act*, and b) ongoing enforcement of the Federal *Fisheries Act*, which prohibits the deposit of deleterious substances in waters frequented by fish, unless specifically permitted by regulation (Auditor General of Canada, 1999).

30. Over ARET’s life, a greater number of substances fell under CEPA regulations. Throughout this period, provincial regulations, pollution prevention programs, and sector-specific Memoranda of Understanding (MOUs) were also being implemented, further driving results in the “best efforts” component of the ARET program. Some of the relevant sector-specific initiatives that played a role in promoting release reductions included (Environment Canada, 2001):

1. The *Canadian Automotive Manufacturing Pollution Prevention Program* – a partnership between member companies, Environment Canada and the Ontario Ministry of Environment intended to reduce persistent toxic substances generated or released by members of the Canadian Vehicle Manufacturers Association;
2. An *MOU* between the Canadian Chemical Producer’s Association, the provinces of Ontario and Alberta, and the federal departments of Environment, Industry, and Health aimed at preventing and reducing the release of chemical substances under the association’s Responsible Care[®] Program;
3. *Ontario’s Metal Finishing Industry Pollution Prevention Project* – a partnership between the metal finishing industry, their associations, and the federal and provincial governments aimed at promoting site-specific pollution prevention plans;
4. *Environmental Management Agreements* – a negotiated agreement between Dofasco Inc. and Algoma Steel with Environment Canada and the Ontario Ministry of Environment and Energy (now

³ Draft numbers provided by Environment Canada in January 2002; data not yet approved by stakeholders.

the Ontario Ministry of the Environment) that established targets for abatement in air, water and waste management.

31. In short, the toxic substance management process in Canada was supported by numerous policy instruments during the period of the ARET challenge. As several ARET participants were also involved in the initiatives listed above, it was impossible to disaggregate the individual contribution of each instrument.

2.4 Threat of Regulation

32. As is noted above, the introduction of federal (and, in some cases, provincial) release reduction regulations for some sectors prior to or during the period of the ARET challenge may have played a more direct role in the resulting release reductions than ARET. In addition, interviews conducted for Environment Canada's evaluation of the program confirm that some facilities and sectors agreed to respond to the ARET challenge because of a desire to get a head start on prospective regulations. In other cases, participants sought to pre-empt such regulations by demonstrating that their voluntary efforts would make regulation unnecessary. Several companies had made it company policy to stay ahead of impending regulations, investing in new technology as well as research and development activities to prepare for possible changes in the regulatory environment (Gunn et al., 1999).

2.5 Promoting Dynamic Efficiency

33. One of the greatest benefits of a voluntary pollution control program is the ability to encourage flexibility and innovation (Heathcote, 2002). The ARET program offered operational flexibility that allowed for lower production costs, lower transaction costs, and faster diffusion of new technologies and best management practices than what might have been expected under a regulatory regime. A survey of industry participants conducted in 1999 revealed that most of the emission reductions in the pulp and paper industry and the metals sector were attributed to technological upgrades and major retrofits made during expansions, as well as "routine" technological upgrades (Gunn et al., 1999). In some cases, the installation of pollution control measures was "directly related to ARET" (Gunn et al., 1999, p6), but not all companies attributed technological changes directly to their participation in the program. In other cases, the decision to invest in environmental technology R&D was correlated with the threat of regulation, or existing regulatory and other requirements and initiatives (e.g. industry initiatives such the CCPA's Responsible Care[®] Program).

34. While the extent to which the ARET program encouraged technological innovation and investment in R&D is unclear, it can be said that the voluntary nature of the program allowed participants to invest in technology at a more opportune time in their business cycles than might have been the case under regulations, and to incorporate environmental requirements into the continuous technological upgrade process.

3. Economic Efficiency

3.1 Abatement Costs

35. The ability of participants to set facility-specific goals was one of the strengths of the ARET program. The scheme did not require the installation of a specific technological solution, enabling companies to come up with the most efficient means and timing of achieving individual release reductions. The inherent flexibility of the program allowed participants to "identify operational inefficiencies and

make the necessary technological process changes to streamline operations and reduce releases” (Marbek Resource Consultants, 1999, p10).

36. The specific marginal abatement costs for individual polluters are unknown, but in general it can be said that the costs varied significantly across companies and facilities, and over time (*e.g.* many ARET participants indicated that they faced rising marginal abatement costs and diminishing environmental returns as they moved close to and beyond ARET targets).

3.2 *Distributional Effects*

37. Since the program was non-prescriptive, total abatement costs (and cost savings where pollution prevention action provided net benefits) were determined by the level of commitment made in its respective Action Plan. Inevitably, some firms made more aggressive reduction targets than others, depending on factors such as their individual capacity (*e.g.* trained staff, environmental management system, financial resources) (Environment Canada, 2000), corporate objectives and individual circumstances (*e.g.* regulations and competitiveness considerations).

4. Implementation

38. The evaluation performed by Environment Canada provides a good overview of implementation as captured in the following four paragraphs (Environment Canada, 2000a, p12,13):

“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...found that 9% of the 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 into question for the Department whether it should focus its efforts 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 greater effort to reduce releases of toxic substances than non-participants, even for substances that are not on the ARET lists, thus demonstrating environmental leadership.” (note that 49 substances were common to NPRI and ARET during that time period)

“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.”

4.1 Free-Riding

39. For free-riding to occur, firms must either decline to participate in a voluntary program, or participate but fail to adhere or commit to all program requirements. Free-riding can undermine voluntary initiatives by allowing non-participants or non-performers to receive the benefits of collective action (e.g., improved reputation, pre-emption of government regulation) without incurring any of its costs.

40. Some participants focused their emission reduction efforts on fewer ARET substances than they used. These companies were free riding because they were able to garner equal credit as full program participants. Other companies in participating sectors did not take up the ARET challenge. Given the very high levels of participation industry associations achieved, there were few such free riders. The most recent ARET progress report indicates that 91% (Environment Canada, 2000) of the members in nine industry associations were involved with ARET⁴.

4.2 Regulatory Capture

41. While industry dominated the design and implementation of the program itself, there is little evidence, that that role translated into actual capture of the regulatory process at Environment Canada and Health Canada.

5. Administration and Transaction Costs

5.1 Program Development

42. The ARET program was developed by a multi-stakeholder committee (the ARET Committee) consisting of government, industry, and NGO representatives. The total cost to government of program development, from September 1991 to the issuance of the ARET Challenge in March 1994, was approximately \$1,040,000. Of this amount, Environment Canada contributed \$940,000, and Industry Canada \$100,000 (Queen's University, 1996). During this time, Environment Canada devoted limited person-hours to the initiative, amounting to "less than two person-years" (Bregha and Moffet, 1997, p2). These costs were seen as lower than what would have been expected under a traditional regulatory process, for both government and industry (Munn, 1998).

43. For most participants in the multi-stakeholder committee, ARET appears to have been "more organizationally expensive than monetarily expensive"(Queen's University, 1999, p12). The most significant expenses were related to time spent on the negotiation process, including preparation for meetings and subcommittee meetings, travelling, actual meeting time, and ongoing communications. Although some industry sectors assumed the costs of participation within their normal operations, direct monetary costs were an important issue for stakeholders belonging to non-profit organisations who could not afford to re-allocate their staff over long periods of time. These representatives did not receive any *per diem* rates for participation, although Environment Canada did reimburse travel expenses for members of non-profit organisations, as well as provide limited funding for basic research (Queen's University, 1999). The difficulties associated with participating in a process of this magnitude should not be overlooked. Without sufficient resources, non-profit organisations found it extremely difficult to maintain participation in the multi-stakeholder committee.

⁴ This does not include members of the Alliance of Manufacturers and Exporters Canada; it does include those companies with action plans as well as those that have declared support for ARET and have no or negligible ARET releases.

5.2 *Implementation*

44. After the ARET Challenge was issued in 1994, the program was managed through the ARET Secretariat. The Secretariat's role in administering the program consisted primarily of convening regular meetings of the ARET stakeholders, acting as an information clearinghouse that received reported releases from ARET participants, and publishing the annual reports. A departmental review of the ARET program indicated that the cost to Environment Canada from the end of the negotiation stage to the year 2000 (5 years) amounted to approximately \$1 million (Environment Canada, 2000a, p11).

45. Once the program was developed, administrative costs incurred by participants also were minimal. Some companies even indicated that they had incurred "no costs from participating in ARET since they already collected data for other programs, regulations or internal EMS." (Gunn et al., 1999, p8) Other firms indicated that while there were some administration costs associated with participation in the program – particularly related to reporting – they remained negligible.

46. ARET's costs were significantly lower than what would have been observed under a regulatory or voluntary regime with stringent reporting requirements. Environment Canada's decision to accept NPRI submissions for the purpose of ARET reporting also reduced administration costs associated with ARET, as participants who submitted forms to NPRI did not have to submit a similar form to ARET.

5.3 *Administration Costs Associated with Other Policy Instruments*

47. Although the administration costs associated with ARET were relatively low, it is uncertain if it was the most cost-effective solution for achieving the stated environmental objectives. An internal review conducted by Environment Canada concluded that "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" (Environment Canada, 2000a, p11). Given that developing and experimenting with alternatives to regulation was part of an overall federal toxics management strategy, this statement needs context. The administrative costs of ARET were a very small fraction of government expenditures associated with the development and implementation of environmental protection regulations and other policy instruments over the period of time that ARET existed. These expenditures provided valuable insight into the design of future voluntary efforts which was a significant and needed step in the government's strategy.

6. **Voluntary Approaches versus Other Policy Instruments**

48. The ARET Program was designed to complement regulation and other policy instruments in Canada. It was introduced and managed accordingly. This approach to ARET was accepted by all interested parties at the time. Government was interested in determining if ARET would be effective in reducing releases of substances that were potential threats to human health and the environment. Industry wanted to show that reductions in releases could happen outside of the regulatory framework. And environmental groups did not believe that voluntary initiatives would afford the level of environmental protection that is provided for by regulation.

49. On this basis, it was clear that it was too early to consider using ARET as an alternative to regulation in Canada, and ARET was launched as a tool that would be a complement to regulation. Over the duration of ARET, work progressed on the development of many other policy instruments now found both inside and outside of legislation. For example, CEPA 1999 was drafted during the mid-1990s, and it provides for mandatory preparation and implementation of pollution prevention plans, environmental emergency planning, development of waste reduction plans, and authority to create regulations governing

deposit-refund systems as well as emission trading systems. Outside of legislation, Environment Canada developed programs promoting the use of environmental management systems and pollution prevention planning in small and medium sized enterprises, extended producer responsibility programs and product stewardship initiatives with industry sectors and the provinces.

50. On the other hand, Canada has used very few fiscal instruments to achieve environmental policy goals compared to certain OECD countries. Canada continues to study the possibility of using economic instruments to manage toxic substances, and this policy option remains open for future consideration.

7. Policy Mixes

51. Although some voluntary approaches are rigorous enough to be run independently, most policy instruments are more effective when coupled with other measures, such as regulations, economic incentives, information mechanisms or recognition programs. The ARET program complemented many other Canadian toxic management tools such as the mandatory NPRI reporting program, the Federal Pollution Prevention Strategy, Pollution Prevention MOUs, and the various toxics risk management processes under CEPA. As noted in previous sections, although no direct effort was made to integrate ARET into the federal strategy for the management of toxic substances, the existence of many other policy instruments during the ARET years clearly promoted the achievement of results that participants reported under ARET.

7.1 Relationship between ARET and Other Policy Instruments

52. The toxic substance management process in Canada involves several federal statutes and policies as well as numerous provincial initiatives. At the federal level, the government controls releases of toxic substances through mechanisms such as *CEPA*, the *Fisheries Act*, the *Pesticides Products Act*, and various *MOUs*, as well as the federal Pollution Prevention Strategy, and various technology support programs (e.g., pulp and paper modernisation program). The chemical sector was also involved with the Responsible Care[®] Program – a voluntary initiative that encourages companies to reduce releases, strive for continuous improvement, and achieve greater community involvement. All these initiatives work towards reducing the volume of toxic substances that reach the environment, whether through reduced releases or complete elimination.

53. Given the multitude of instruments aimed at reducing the release of toxic substances, measuring the contributions of each individual policy initiative is difficult, if not impossible. Determining the influence of other factors, such as changes in industrial processes, shifting market demands, and other business trends, is even more complicated. As a result, ARET's influence on industry behaviour, and consequently release reductions, remains difficult to quantify.

8. Discussion and Conclusions

54. At the time ARET was being developed, Canada had little experience with voluntary approaches. It was one of the first voluntary instruments to be established in Canada, and represented an innovative and ambitious approach to a complex environmental problem. Although the program may appear deficient in some aspects by today's standards, it was innovative in 1994. Conceived by a non-governmental organisation and designed by a multi-stakeholder committee, ARET was one of the first programs to issue an environmental challenge to the entire industrial community.

55. Industry participants considered ARET to be a “best efforts” program, rather than a binding reduction program. Evaluations of ARET as a rigorous reduction/elimination scheme revealed many weaknesses, but evaluating it against this higher standard also made the program appear less successful than it actually was. Although the ARET process did not have the enforceability of its regulatory counterpart, it arguably helped achieve reductions for a wider range of substances and over a shorter time horizon than would have been possible under regulation alone.

56. More importantly, ARET helped industry focus on the importance of toxics management. The ARET list identified some of the most toxic substances used by industry, and provided companies with a focal point for reduction and elimination efforts. ARET also provided industry and government with practical experience related to alternative policy instruments, and heightened awareness of environmental issues in key industry sectors. Furthermore, ARET’s influence extended to several key industry sectors, providing greater scope than many of the other existing sector-based MOUs and pollution prevention programs.

57. However, the weaknesses identified in the various reviews of ARET gave industry few “bragging” opportunities. As well, the reviews provided sceptics of voluntary programs much ammunition with which to criticise industry claims. Participants as a result reaped few reputational benefits from their efforts.

58. Since the ARET program was launched, studies of the effectiveness of voluntary instruments have assisted efforts in designing voluntary programs. Principles such as those subsequently developed by the New Directions Group (in 1997) and the Federal Commissioner for Environment and Sustainable Development (in 1999) are captured in Environment Canada’s *Policy Framework for Environmental Performance Agreements* (June 2001). The principles and design criteria discussed in the policy framework form the basis of negotiation of such agreements and will be the basis of future ARET-type programs:

Principles:

- Effectiveness - Environmental Performance Agreements must achieve measurable environmental results;
- Credibility - the public must have confidence in the approach and in the parties’ capacity to deliver on their commitments;
- Transparency/Accountability - all parties to an Environmental Performance Agreement must be publicly accountable for the commitments they make and for the performance against the commitments; and
- Efficiency - Environmental Performance Agreements should be no more expensive to the parties than alternatives for equivalent environmental results.

Design Criteria:

- Senior Management Commitment
- Clear Environmental Objectives & Measurable Results
- Clearly Defined Roles & Responsibilities
- Provision for Consultation
- Public Reporting

- Verification of Results
- Incentives & Consequences
- Continual Improvement

59. “How these criteria are reflected in individual agreements will vary with the nature and objectives of the agreement. For example, Environmental Performance Agreements addressing issues that could be regulated may have stronger provisions for public reporting and verification than those dealing with matters that go beyond what can be regulated. Alternatively, performance agreements may be put in place to build capacity and therefore could have a stronger commitment to continual improvement.” (Environment Canada, 2001a, p7)

**PART II: ENVIRONMENTAL MANAGEMENT AGREEMENT NEGOTIATED BETWEEN
ENVIRONMENT CANADA, THE ONTARIO MINISTRY OF ENVIRONMENT AND THE
STEEL COMPANY “DOFASCO INC”**

1. Introduction and background information

1.1. Canadian Voluntary Approaches in Environmental Policy

60. Canadian voluntary approaches are used to address a wide range of environmental issues, including the management of toxic substances, greenhouse gases, smog, and conservation issues. Voluntary programs in Canada are administered by several organisations, including industry associations, non-governmental organisations and federal and provincial governments, and typically encourage members of industry and the public to exceed performance expectations associated with regulatory and other requirements. Although government and NGOs often disagree over their use and effectiveness, their role in Canadian environmental policy is being increasingly recognised. Most recently, Canada has formalised voluntary environmental management agreements with individual firms. In 1997, the federal department of the environment (Environment Canada) and the provincial Ministry of the Environment negotiated an environmental management agreement (EMA) with a steel company, Dofasco Inc., which became the first Canadian firm to sign a facility-specific voluntary environmental agreement with the federal and provincial governments.

61. To understand the policy environment under which the EMA evolved, some historical context needs to be provided – beginning with the introduction of new legislation in the late 1980s. In 1988, the Federal Parliament adopted the *Canadian Environmental Protection Act* (CEPA) to update the Federal government’s (Environment Canada and Health Canada) responsibility for identifying and regulating toxic substances. The Act afforded the Federal government the authority to assess and control the release of toxic substances into the environment. While this process was on-going, a significant number of harmful substances remained unregulated, and this triggered a response from several prominent interest groups. The New Directions Group – an independent, voluntary network of individual corporate executives and environmental NGO leaders – recognised the regulatory gap concerning toxic substances, and inspired the development of the voluntary Accelerated Reduction/Elimination of Toxics (ARET) program.

62. The ARET program was national in scope, and challenged the broad industry community to reach environmental performance targets that had been set by a multi-stakeholder committee.

63. One of the sectors participating in the ARET program was the steel manufacturing sector. Sixteen substances released, produced or used by the Canadian steel manufacturing sector were assessed as toxic under Section 11 of CEPA (Environment Canada, 1997). While most of the 18 members of the industry sector were involved in ARET as well as several other voluntary programs, the release of these and other toxic substances continued to have a negative impact on human health and the environment. Furthermore, the Federal government had yet to determine a means of reducing the release of these toxic substances. To assess potential options for the management of these substances in the steel sector, the Federal government launched a Strategic Options Process (SOP). The process began in 1995, and included representatives from

several federal departments, as well as provinces, industry, and environmental non-government organisations (Environment Canada, 1997).

64. The process reviewed options related to current regulations and voluntary programs, enhanced voluntary programs, enhanced national and provincial toxic management programs, market-based instruments, and additional federal regulations. The final report, which presented the recommendations of stakeholders to the Ministers of Environment and Health, was issued in 1997. The report recommended the development of an Environmental Code of Practice for the sector, and determined that enhanced voluntary measures would prove most effective in achieving desired environmental objectives. Although members of the steel manufacturing sector had demonstrated their willingness to participate in voluntary programs, the SOP report indicated that the then-existing current voluntary measures would not be capable of achieving the desired environmental objectives. These programs did not address all CEPA toxics and areas of concern, and the voluntary commitments were not legally binding. Furthermore, not all firms participated in voluntary programs, and the failure to establish minimum environmental standards for all facilities in the sector created the appearance of an uneven playing field (Environment Canada, 1997).

65. Although the SOP was a multi-stakeholder process, the only active industry participants from the steel manufacturing sector were Dofasco Inc.⁵ (an integrated steel mill), and Atlas Specialty Steels (operating 2 non-integrated steel mills).

66. In 1995, the sector contributed over eleven billion dollars in sales to the Canadian economy (Environment Canada, 1997), with integrated steel mills accounting for approximately 56% of the country's steel manufacturing production capacity. Dofasco's Hamilton facility was one of four integrated steel mills in the province of Ontario, with the other mills being operated by Stelco Inc. (in Hamilton and Nanticoke, Ontario), and Algoma Steel Inc. (Sault Ste. Marie, Ontario). Stelco holds approximately 44% of the integrated steel mill sector's production capacity, followed by Dofasco (30%) and Algoma (22%). QIT-Fer et Titane in Sorel, Québec, accounts for the remaining 4% of the sub-sector's production capacity (Environment Canada, 1997).

1.2 Establishment of Environmental Management Agreements

67. In 1996, Dofasco Inc. approached Environment Canada and the Ontario Ministry of Environment and Energy (MOEE) expressing interest in the development of an Environmental Management Agreement (EMA). At the time of the Agreement, Dofasco's consolidated revenues were approximately \$3 billion, with a significant portion of revenues coming from its steel manufacturing plant in Hamilton, Ontario – the focal point of the EMA. Although the federal and provincial governments had negotiated several sector-based environmental management and/or performance agreements with specific industry sectors, they had not done so with individual companies prior to the development of the EMA with Dofasco Inc.

68. The EMA represented a new level of commitment from an individual firm, and set the standard for stronger relationships between government partners and a member of the steel manufacturing sector. The EMA set environmental performance targets that went beyond existing regulatory requirements, and placed several federal and provincial objectives under one comprehensive agreement. The EMA also provided a single mechanism through which Dofasco could deal with government agencies.

69. Algoma Steel Inc. – an integrated steel mill located in Sault Ste. Marie, Ontario – recently finalized a similar environmental management agreement with Environment Canada and the Ontario

⁵ Dofasco Inc. was also involved with the New Directions Group (NDG).

Ministry of the Environment. Since the Agreement is only in its beginning stages, it will not be discussed at length. Instead, a brief description is provided in Box 1.

Box 1: Environmental Management Agreement with Algoma Steel Inc.

An Environmental Management Agreement (EMA) between Environment Canada, the Ontario Ministry of the Environment (MOE) and Algoma Steel Inc. (ASI) was signed in January 2001 (<http://www.ec.gc.ca/epa-epe/Algoma/en/index.cfm>). [See Environment Canada (2000c)]. The EMA commits ASI to environmental initiatives that exceed existing regulatory requirements, and focuses on issues related to air and water, PCB and mercury disposal, and waste management. A commitment to study the sediment contamination with the federal and provincial environment ministries, and to implement action if warranted, was also included. The Agreement establishes specific, measurable, and time bound performance targets, and will be integrated with Algoma's existing environmental management system. The EMA is set to expire in 2005.

Under the terms of the Agreement, Algoma will provide semi-annual progress reports to the MOE and Environment Canada. The reports will include facility-wide emission inventories, and will provide detailed information on the advancement of the goals and objectives of the EMA.

The Agreement was developed in response to recommendations of the 1997 Strategic Options Process (SOP) – a multi-stakeholder initiative that developed a set of recommendations for improved environmental performance in the steel sector. As part of the EMA, ASI will formally adopt the Environmental Code of Practice – a set of guidelines that emerged from the SOP.

The EMA will encourage the company to focus its efforts on the targets established in the Agreement, and will help the firm to develop a comprehensive approach to environmental management that is in line with company policies and objectives. The firm will continue to meet its obligations under applicable Federal and provincial regulations, and will remain committed to voluntary programs. Algoma becomes the second firm in the Canadian integrated steel mill sector to sign an Environmental Management Agreement.

1.2.1 Program Origin and Development

70. Among the largest steel manufacturers in Canada, Dofasco has made significant contributions to the Canadian economy. Unfortunately, these operations can also have a negative impact on human health and the environment. The process of transforming raw materials into iron and steel products is complex and capital intensive, and often involves the release of toxic substances such as benzene, polycyclic aromatic hydrocarbons (PAHs), lead, mercury, (only from transformers, no information that it is released from process), dioxins and furans.

71. Following the completion of the Strategic Options Process, the federal and provincial governments realised that the regulatory alternative could be both costly and time consuming, and that voluntary pollution abatement measures would have to be enhanced if they were to be effective. Dofasco also recognised the potential fiscal benefits⁶ of participating in enhanced voluntary measures, and wished to streamline its environmental objectives under a single, overarching environmental management plan. The firm also hoped to build on its participation in several local multi-stakeholder environmental committees (*e.g.* Hamilton Harbour Remedial Action Plan), as well as its experience with numerous other voluntary pollution prevention and reduction programs.

⁶ A senior environment manager at Dofasco indicated that the Agreement allowed the firm to space out their capital spending in a manner that coincided with the regular financial cycle. The ability to plan investments over an eight-year period provided Dofasco with a fiscal incentive to participate in the co-operative Agreement.

72. The terms of the agreement were negotiated with minimal involvement from external parties. The minimal amount of public input received during the negotiation phase sparked criticism from environmental groups who claimed that the Agreement lacked credibility without extensive stakeholder involvement. But, while representatives from Dofasco conceded that there was limited public involvement during the drafting of the Agreement, they noted that the “presence and participation of a respected local environmental community representative” (Seth and Stirling, 1997, p2) allowed for a balanced discussion on key issues and priorities. Furthermore, by limiting participation from external parties during the negotiation process, Dofasco and the government parties were able to come to a consensus on key issues without having to continuously seek approval from a broader stakeholder committee. This helped to expedite the process, and allowed Dofasco to set environmental objectives without immediate scrutiny from the public. By including an environmental expert in the negotiations, Dofasco was aware of stakeholder expectations, and made efforts to address stakeholder concerns in the drafting of the Agreement. Since the public was provided with a 30-day consultation period along with an open discussion forum in the city of Hamilton, Dofasco felt that it provided the public with an opportunity to comment on the final provisions of the Agreement.

73. Once the Agreement was finalised, Dofasco, EC and the MOE agreed to meet annually to assess progress towards objectives, and to review any matter relevant to the continuing execution of the Agreement (Dofasco Inc., 1997). The parties also agreed that the EMA could be amended in the event that new issues were identified, or if certain elements of the Agreement were deemed ineffective. To settle any disagreements between or among the parties, a resolution committee was established, consisting of Dofasco’s General Manager (Environment), the Regional Director of the MOE (West Central Region), and EC’s Regional Director of the Environmental Protection Branch (Ontario Region). The Agreement was established for an 8-year time frame, expiring in 2005.

1.2.2 Program Objectives

74. The general objective of the EMA is “to protect and enhance the natural environment, and to advance the prevention and abatement of releases from Dofasco’s steel manufacturing facility in Hamilton, Ontario” (Seth and Stirling, 1997, p1). The Agreement establishes environmental performance targets that go beyond the company’s regulatory requirements, and is designed to allow implementation through

Dofasco’s existing environmental management system. The EMA sets specific abatement targets for a wide range of environmental issues in the areas of air, water and waste management, focusing in particular on toxic substances, including a commitment to study the sediment contamination with the federal and provincial environment ministries, and to implement action if warranted. The EMA also encourages continued community involvement, and aims to accelerate the firm’s progress towards existing regulatory and other requirements.

Box 2: Targets

The Environmental Management Agreement with Dofasco is based on continuous improvement, and sets targets for key parameters in the following areas:

- Air Quality
- Energy Usage
- Water Quality
- Waste Management
- Environmental Management Systems
- Community Activities

(Source: Dofasco Inc., 2001a)

1.2.3 Participant Obligations

75. By signing the EMA, Dofasco is committed to the provisions outlined in the terms of the Agreement. Dofasco must continue to meet all existing federal and provincial regulatory and other

requirements, and recognises that participation in this Agreement does not preclude it from meeting the requirements of future regulations. The federal and provincial government representatives are required to meet annually with the firm to discuss progress towards the targets in the EMA, and provincial authorities will make efforts to exempt Dofasco from the requirement to file manifests for waste generated and treated within Dofasco's Hamilton facility.

2. Environmental Effectiveness

76. Prior to the establishment of the environmental management agreement, Dofasco was involved in numerous negotiated agreements aimed at improving environmental performance. But, despite efforts to reduce its overall impact on human health and the environment, the Great Lakes Environment Commission indicated that Dofasco remained the largest single source of benzene emissions in the Great Lakes (Lukasik, 1997). In addition, Dofasco's facility in Hamilton was one of the key sources of pollution for the highly contaminated Hamilton Harbour.

2.1 Achievement of Environmental Objectives and Targets

77. While the targets set in Dofasco's EMA are ambitious, it was initially unclear how the firm would respond to the actual wording of the Agreement. The Agreement states that Dofasco Inc. will use "all reasonable efforts" (Dofasco Inc., 1997) to meet some of the objectives, giving it the appearance of a 'soft' commitment. While Dofasco states that it *intends* to meet the requirements outlined in the EMA, it does not formally state that it *will* meet all requirements. Furthermore, the voluntary nature of the Agreement means that it cannot be enforced by the MOE or Environment Canada. The results to date, however, indicate that the EMA has been effective: the firm has made significant progress towards the environmental performance targets established in the Agreement, and in some instances has exceeded expectations. As of the most recent progress report (May, 2001), Dofasco reports that "in every area of the Agreement, Dofasco is meeting all commitments and targets" (Dofasco Inc. 2001a, p1). Highlights of Dofasco's environmental performance are included in Table 2, below.

78. Progress towards the targets established in the Agreement is measured against 1993 performance levels (or 1990 levels in the case of energy, GHG emissions, and NOx emissions). As a result, Dofasco was able to claim reductions during years that it was not subject to the terms of the Agreement (prior to 1996). After reviewing the performance information, it is clear that much of the progress made towards the targets in the EMA was in fact completed prior to 1996. While this might appear to diminish the accomplishments of the Agreement, it should be noted that reductions in releases of PAHs and Benzene increased significantly *after* the EMA came into force. Although reductions in energy use and NOx emissions occurred less rapidly after implementation of the EMA, it is possible that the reductions made prior to 1996 involved only minimal investment and resources. After relatively simple adjustments have been made, marginal abatement costs tend to escalate – offering a potential explanation for the slower progress between the years of 1996 and 2000. It is unclear what activities contributed to the reductions observed between 1996 and 2000, making it difficult to identify the EMA's contribution to improvements in environmental performance. A summary of reductions is provided in Table 3, below.

Table 2. Environmental Commitments at Dofasco Inc.

Commitment	Status
Reduce Polycyclic Aromatic Hydrocarbons (PAHs) from 1993 levels by 30% by the end of 2000 and 50% by the end of 2005	Achieved reduction of 65% by the end of 2000; Well ahead of 2005 commitment
Reduce benzene emissions from 1993 levels by 50% by end of 1997 and 80% by end of 2000	\$9.4 million benzene reduction project has reduced emissions by 83%
Reduce Specific Energy Consumption by annual average of 1% between 1990 and 2000	Averaged 2.0% annual reduction in Specific Energy Consumption since 1990
Enhance 5,000 square metres of property through greenbelting by end of 1999	5,000 square metres enhanced by greenbelting by end of 1998; more than 34,000 square metres greenbelted since 1995
Meet provincial Municipal-Industry Strategy for Abatement (MISA) targets	Meeting all loading limits; in 2000 Dofasco exceeded two pH limit checks, resulting in 99.9% compliance rate
Participation in Hamilton Harbour Remedial Action Plan (HHRAP)	Dofasco continues involvement in this and other community-based organizations committed to harbour remediation
Increase use of recyclables	Used 1.6 million tonnes of scrap in 2000, up 6% from 1999
Destroy 100% of stored, drummed PCBs by end of 2000	Accomplished in first quarter of 1999. In addition, Dofasco safely removed 33 PCB transformers from service and destroyed 46,500 kg of liquid PCBs in 2000
Reduce by 50% aggregate Accelerated Reduction and Elimination of Toxics (ARET) parameters from 1990 levels by 1998	Accomplished by 1998; exceeded expectations and achieved a 61% reduction to date

Source: Dofasco Inc (2001).

Table 3. Change in Emissions of Key Substances and Energy Use at Dofasco Inc

	Change from Base Year to 1996	Change from 1996 - 2000
PAHs	0.0%	-64.7%
Benzene	+1.5%	-83.3%
Energy	-15.2%	-5.0%
GHG emissions	-24.4%	+1.1%
NOx emissions	-26.7%	-14.5%

Source: Dofasco Inc. (2001a).

2.2 Performance Measurement and Reporting

79. According to the terms of the Agreement, Dofasco must “continue to measure and estimate releases to the natural environment (air, water, and land), and to make such data available to EC and the MOE as requested, or as required by law” (Dofasco Inc., 1997). Dofasco will prepare an annual environmental performance report, and will make the report available to all who request a copy. At present, environmental performance information can be found in a section of the firm’s Annual Report, which includes a copy of the firm’s National Pollutant Release Inventory (NPRI)⁷ report to Environment Canada. Lacking from the EMA is any formal monitoring and verification requirements.

80. Although the Agreement requires Dofasco to provide publicly available annual performance reports, the progress of the Agreement is reviewed in private. Nonetheless, progress reports are available on the company’s website,⁸ and include information related to the firm’s submission to ARET and the

⁷ The NPRI is a federal program that provides a national report on the release of pollutants from Canadian facilities. All owners and operators of facilities that meet the criteria established by the Canadian Environmental Protection Act must report to the NPRI. For more information, see http://www.ec.gc.ca/pdb/npri/documents/Citizen'sguide_e.pdf.

⁸ When this case study was started, Dofasco’s progress reports could not be located on the company’s web site, or through Environment Canada or the Ministry of the Environment. By the time this paper was

Visible Emissions Reduction Program, Dofasco's Annual Environment Report, the firm's response to the CSPA Statement of Commitment and Action, and an update on activities related to the Hamilton Industrial Environment Association. The Agreement initially relied on local media coverage to inform the public, but while Dofasco could benefit from positive media attention, it has not chosen the media as a vehicle for distributing environmental performance information related to the Agreement. Concerns by Hamilton residents over the impact of Dofasco's operations on the local environment have led to only minimal media coverage on the progress of the EMA.

2.3 *Influences on Environmental Performance*

81. Dofasco's environmental performance is influenced by numerous other policy instruments, including federal and provincial regulations, economic instruments, and a wide range of voluntary programs. Environmental performance is also influenced by factors such as improvements and changes to the production process, technological upgrades, and the increasing viability of alternative fuels.

82. The Canadian Steel Producers Association (CSPA) as a whole has been active in encouraging improved environmental performance of its member companies. The industry association has created a Statement of Commitment and Action (SCA) on the Environment, which commits members of the CSPA to continuous improvement through enhanced voluntary action and greater co-operation with regulatory agencies. The SCA covers a period to December 31, 2003, and aims to assist member companies with achieving Canadian environmental protection objectives, and in responding to recommendations such as those outlined in the Steel Sector Strategic Option Process (SOP). The SCA also establishes a clear statement of steel sector priorities, including the development and implementation of an environmental management system, the establishment of air emission targets, and goals and objectives related to water and waste management (CSPA, 1998).

83. The Strategic Options Process also led to the development of an Environmental Code of Practice for Integrated Steel Mills, cf. Environment Canada (2000b). This Code of practice is more comprehensive than just environmental performance standards for air, and includes for example pollution prevention plans, ambient air monitoring, waste management, etc. The recent EMA with Algoma Inc. requires the firm to adopt the provisions of the Code. Since the EMA with Dofasco was negotiated prior to development of the Code and the release of the SOP report, there is not a provision in the Agreement related to the Environmental Code of Practice. With Algoma working towards effective implementation, Dofasco will be pressured to follow suit. Some of the targets in the EMA exceed the recommended performance standards in the Code, but a direct comparison is in some cases hampered by the use of different units. The Code may nevertheless serve to even the playing field among members of the integrated steel mill sector, and could provide Dofasco with a competitive advantage.

84. By signing the EMA, Dofasco had hoped to gain a greater degree of policy certainty. However, Dofasco's involvement in the EMA does not preclude it from meeting existing or new regulatory and other requirements. If Dofasco does not formally adopt the principles of the Code, it is still expected to make progress towards achievement of its minimum performance standards – especially if Algoma continue to make efforts to achieve these voluntary standards.

completed, however, the detailed progress reports were posted on Dofasco's environment web site ([http://www.dofasco.ca/ENVIRONMENT AND ENERGY/body_environ_frameset.html](http://www.dofasco.ca/ENVIRONMENT_AND_ENERGY/body_environ_frameset.html)).

2.3.1 Voluntary Instruments

85. Dofasco participates in a wide range of voluntary initiatives (see Box 3). Through participation in these voluntary initiatives, Dofasco has committed itself to a range of environmental performance improvements that are administered by several different organisations and more than one level of

Box 3: Voluntary programmes
Dofasco Inc. participated in the following voluntary programs and multi-stakeholder initiatives at the time the Agreement was negotiated:

Hamilton Air Quality Stakeholder Committee;
Hamilton Air Quality Initiative;
Ontario Smog Plan;
Canadian Industry Program for Energy Conservation (CIPEC);
Accelerated Reduction and Elimination of Toxics (ARET);
Voluntary Challenge and Registry (VCR);
Saint Lawrence Vision 2000 Program;
Steel Sector Strategic Options Process;
Hamilton Harbour Remedial Action Plan;
Bay Area Implementation Team;
Bay Area Restoration Council;
Hamilton Industrial Environment Association;
Hamilton-Wentworth Region Vision 20/20 Program;
Federal Provincial Task Force on Dioxins and Furans

Source: Dofasco Inc. EMA, sec 7.1, <http://www.dofasco.ca>

government. As such, disentangling the contribution of each voluntary initiative is difficult, if not impossible. The Environmental Management Agreement will make this even more difficult, as it attempts to focus its efforts in a more comprehensive manner, often combining the principles and guidelines of more than one voluntary approach to achieve a single objective.

2.3.2 Regulations

86. In addition to voluntary programs, the steel sector is subject to federal and provincial regulations and legislation related to toxic substances, benzene emissions, solid waste disposal, and other releases to the air and water. This includes provisions under federal legislation, such as the *Canadian Environmental Protection Act* (CEPA), and the *Fisheries Act*, and provincial legislation such as the *Ontario Environmental Protection Act* (EPA), the *Ontario Drinking Water Standards* and the regulations falling under Ontario's Municipal-Industrial Strategy for Abatement (MISA).

2.4 Threat of Regulation

87. One of the strengths of the Agreement is the inclusion of a regulatory backstop. The Agreement includes a provision that allows the government to override the terms of the EMA with appropriate regulation in the event that Dofasco fails to meet its commitments. The provision provides the federal and provincial government with the necessary authority and control over the activities of the private sector party, and ensures that the firm is aware that the EMA does not preclude it from meeting its regulatory obligations. The threat of regulation is formalised in the Agreement itself, and provides Dofasco with an incentive to meet voluntary environmental performance targets.

88. The process of developing a regulation could prove lengthy, and it is uncertain if the government could respond within a reasonable time frame. Furthermore, the Canadian Environmental Law Association has suggested that the “presumption by the regulated industries is that the government would be pre-empted or would hesitate to regulate industries on matters that are covered under the voluntary agreement” (Muldoon, 1997, p4).

89. For the Canadian steel manufacturing industry, releases to the environment will continue to be problematic. A large fraction of the releases from integrated steel mills are the result of fundamental reactions during the manufacturing process, making elimination of these substances virtually impossible.

As such, the threat of additional regulation remains high. Involvement in the environmental management agreement has allowed Dofasco to introduce pollution abatement controls over an extended time frame, and in a manner that is consistent with its financial cycle. The policy certainty afforded to Dofasco also allows for the establishment of long-term environmental management plans. In the event that regulations are introduced, firms that have not achieved the necessary environmental performance standards may be forced to do so without the flexibility granted to Dofasco, and now Algoma Steel Inc. Dofasco's proactive approach of implementing pollution prevention and abatement programs has also given the firm a positive public image, earning it recognition as a Dow Jones "Sector Leader" in its Sustainability Index.

2.5 Promoting Dynamic Efficiency

90. The operational flexibility granted to Dofasco allows the firm to explore new ways of achieving environmental performance targets. As an example, the company established pilot plants to assess potential water treatment technologies and processes in 2000, and it is currently assessing the practicality of constructing an electricity co-generation facility in Hamilton, Ontario (Dofasco, 2000). While it is uncertain how instrumental the EMA has been in encouraging investment in research and development and innovation, the Agreement provides the firm with the opportunity to invest in technology over a flexible time scale, and in the most efficient manner – lowering the risks associated with investment.

3. Economic Efficiency

91. The costs associated with improving environmental performance and maintaining compliance with regulations and negotiated agreements can be significant. While the Agreement offers some flexibility in achieving environmental performance targets, the capital costs associated with installing new technology can be very high in capital-intensive operations such as steel mills.

92. Since Dofasco has the opportunity to select the most efficient means for achieving environmental performance objectives, total abatement costs under the EMA may be significantly lower than what might be expected under a less flexible approach (*e.g.* regulations).– the EMA establishes targets that allows the firm to select from a broad range of pollution abatement options. Although there are interim targets to meet, investments can be made over the life of the Agreement (8 years), and according to a long-term environmental management plan. However, economic instruments like tradable permits or taxes would also have provided flexibility in how targets were to be met.

93. Since Dofasco is subject to numerous voluntary and regulatory requirements, it is difficult to attribute abatement activities solely to involvement in the EMA. Dofasco spent approximately \$5.7 million to decrease benzene emissions by 50% in 1997 (Auditor General of Canada, 1999), and the company also invested more than \$2.3 million in 2000 on dust abatement activities. While these activities are noteworthy, it is unlikely that the EMA was the primary driver. The Agreement is a complementary policy instrument that aims to improve compliance with existing requirements. The EMA strengthens the commitment by the company to meet targets set under the SOP and the provincial Municipal-Industrial Strategy for Abatement, and aims to improve facility-wide environmental performance. The EMA also encourages Dofasco to achieve multiple benefits through single abatement activities, improving overall cost efficiency.

94. The cost to government is relatively low in this instance. Government partners meet with industry representatives to discuss progress, as well as the need to make any changes to the Agreement. The low administration costs provide government with a relatively inexpensive means of realising environmental objectives. The Agreement also aims to achieve multiple benefits through its comprehensive approach to pollution prevention and control, further improving cost efficiency. Nonetheless, it should be noted that the

transaction costs associated with environmental management agreements will increase if new EMAs are negotiated. Additional EMAs could place significant resource constraints on both the federal and provincial governments, making it an inappropriate policy instrument for sectors with numerous players.

4. Practical Implementation

95. The environmental management agreements between Environment Canada, the Ontario Ministry of the Environment and members of the integrated steel mill sector offer a unique example of co-operation between different levels of government and individual firms. Environmental targets and priorities were established collaboratively, and the expectations of all parties were outlined in the text of the Agreements. But, despite the high degree of co-operation that was achieved between government parties and individual firms, some NGOs have criticised the lack of transparency during the negotiation phase for tarnishing the Agreement's credibility. In addition, the Dofasco Agreement contained provisions that granted the firm a limited degree of regulatory relief in the form of relaxed requirements under provincial waste management regulations (ECO, 1997, p54), generating concerns over the effects the Agreement might have on other areas of environmental performance.

4.1 Free-Riding

96. Voluntary approaches are often associated with problems of free-riding, where firms can receive benefits from participating in a particular program without making any significant contributions. However, it is difficult to argue that free-riding occurs in a highly concentrated industry where the status of each member is known. Rather, by not negotiating similar Agreements, the remaining integrated steel mills in Ontario and Quebec have drawn attention to themselves. In this sector such as this, inaction is as visible or more visible than action. Dofasco (and now Algoma) has set a standard by which the rest of sector can be measured, and are pushing environmental performance forward.

4.2 Regulatory Capture

97. For EMAs to be successful, industry partners must have an incentive to abide by the terms of the Agreement. The relief offered to Dofasco in the form of reduced record-keeping requirements under provincial waste regulations, as well as the consolidation of certificates of approval, were concessions proposed by the firm in return for additional voluntary emission reductions. This relief from regulatory obligations, along with the 'best efforts' nature of the Agreement, has caused some critics to suggest that the EMA reflects the wishes of industry, rather than government. The Canadian Environmental Law Association argues that negotiated agreements such as the EMA with Dofasco result in a situation where governments will "act on what industry is willing to do rather than on the basis of what needs to be done in terms of the protection of human health and the environment" (Muldoon, 1997, p4).

98. While the degree to which regulatory capture has occurred is unclear, the fact that the EMA is backstopped by the threat of regulation suggests that government partners have indeed maintained control over the process. In addition, there have been no claims that the regulatory relief offered to Dofasco Inc. has compromised human health or the environment, making it less likely that regulatory capture has occurred.

5. Administrative/Transaction Costs

99. The EMA is typical of most voluntary approaches in that it was relatively inexpensive to develop and implement. The single industry player as well as the minimal involvement of government after the

Agreement was established all contributed to keeping the cost of the Agreement low for both the federal and provincial governments. The Agreement itself drew largely on existing regulatory and other requirements, and did not require extensive scientific study to establish environmental performance targets.

100. The EMA took less than a year to develop, and involved only a minimal time commitment on the part of both government and industry. Apart from expenses related to reporting requirements, participation in the Agreement did not significantly increase administration costs, and in some instances (*e.g.* relaxed reporting requirements under provincial waste management regulations), these costs were actually lowered. The lack of monitoring and verification requirements also kept administrative costs low.

101. Although the administration costs associated with this scheme are relatively low compared to a regulatory approach, it should be noted that a similar voluntary program could have been far more costly. If the design of the EMA had included an extensive consultation phase, and the Agreement itself had included monitoring and verification mechanisms as well as enforcement measures in the event of non-compliance, administration costs would have been significantly higher. The current EMA did not include an extensive consultation phase, nor does it include monitoring and enforcement mechanisms.

102. As long as the federal and provincial governments can rely on the goodwill of the industry participant, the administration costs can remain low. However, if the firm does not maintain its good standing, the Agreement's effectiveness is compromised, and the government partners will have to adopt further measures if they want to ensure compliance with the agreement. Under these circumstances, the scheme could become quite costly – especially if it becomes necessary to regulate. Furthermore, applying this model to other sectors could prove problematic. The transaction costs associated with negotiating tens or even hundreds of environmental management agreements could become prohibitive. This policy instrument is effective in concentrated industry sectors, but it would likely not be cost-effective in an industry sector with numerous enterprises.

6. Other Policy Approaches

103. The environmental management agreement negotiated with Dofasco is unique in that it covers a wide range of environmental issues under a single agreement. This section discusses briefly the potential use of taxes or tradable permits to address some of the issues covered by the agreement.

6.1 Environmentally Related Taxes

104. Taxes can provide incentives for firms to improve environmental performance, but while the revenue stream generated by the introduction of taxes would most likely prove beneficial to the government, it is unlikely that this particular instrument will be adopted in Canada. The impact on integrated steel mills would be negative (Beddows & Company, 2000, p7-4). Since the fundamental chemical reactions of the steel making process result in a significant portion of a mill's releases, firms would be left with little ability to avoid pollution-related taxes.

105. New environmental taxes could also impact the competitive position of Canadian steel mills. Integrated steel mills in the United States are not subject to a pollution-related tax, and since Canadian mills compete for customers in the United States, the introduction of new taxes in Canada could place domestic firms at a competitive disadvantage.

106. In addition, the Strategic Options Report concluded that there was "considerable uncertainty" as to whether or not economic instruments could effectively reduce releases of toxic substances (Environment Canada, 1997,p57). The findings of the report are summarised in Table 4, below:

Table 4. Assessment of Strategic Options for the Steel Manufacturing Sector in the Reduction or Elimination of Toxic Substances to the Environment: Market Based Instruments

Advantages	Disadvantages
Charges could provide an on-going incentive to reduce releases to the lowest level that is cost effective, relative to the charges	Determining appropriate level and application of charges is difficult and could be very time consuming
Charges could be offset by rebates for adopting technical control options	Considerable uncertainty surrounds the choice of charges which will result in the achievement of specific environmental goals
Could encourage mills to invest in alternative, lower release steel-making processes more quickly than they otherwise would	Could have significant impact on competitiveness depending on the nature and level of the charges. There is no equivalent requirement for U.S. competitors
Establishes legally binding requirements	Would require involvement of federal and provincial finance ministries whose acceptance of the concept is unknown
	No support for the concept from industry at this time Public reaction to charges is very uneven – encouraged by some environmental groups but viewed as a “licence to pollute” by others

Source: Environment Canada (1997).

6.2 Tradable Permit Schemes

107. The Ontario Ministry of the Environment is currently conducting consultations on the introduction of hard emissions caps for major industrial emitters, including the iron and steel sector. The caps would target nitrous oxides and sulphur dioxide, and would provide market incentives to reduce air pollution (Ontario Ministry of the Environment, 2001). An emissions trading scheme would allow firms facing relatively high abatement costs to purchase emission permits from firms with lower abatement costs. Similar to the EMAs, the scheme offers flexibility in selecting the most efficient solution. But, such a scheme would have to involve firms in other sectors in order to create a market for reduction credits.

7. Policy Mixes

108. As described in Section 2, Dofasco participates in numerous voluntary programs, and is also subject to provincial and federal regulations targeted at a wide range of environmental issues. The text of the EMA makes clear links to existing voluntary approaches as well as legal and other requirements and requires continued participation in voluntary and mandatory environmental performance programs.

109. But, while the EMA has been successful in creating a more comprehensive approach to environmental management, critics argue that it is in conflict with the principle of Pollution Prevention.⁹ The Agreement focuses on the prevention of releases, as opposed to the prevention of the creation of pollutants, leading to accusations that they are “inconsistent with the thrust and the intent of the federal definition of pollution prevention” (Muldoon, 1997, p6). It is unclear if the federal government will address this issue in the future.

110. It is noteworthy to mention that since the development of the EMAs, Environment Canada has also developed a new policy framework for environmental *performance* agreements. An Environmental

⁹ Canada has officially adopted the principle of Pollution Prevention. The Federal Government strategy is outlined in the Government of Canada’s publication “Pollution Prevention – A Federal Strategy for Action” (1995).

Performance Agreement (EPA) is “an agreement with core design criteria negotiated among parties to achieve specified environmental results,” (Environment Canada, 2001a) and may be negotiated with single companies, multiple companies, regional industry associations, or sector associations. The EPAs also allow third party organisations (*e.g.* non-government organisations) to be parties to such agreements. The EPA can be used as a complement, precursor, or alternative to regulations, and will be selected based on a determination of cost-effectiveness, supportive policy and regulatory framework, capacity of participants, and appropriateness (Environment Canada, 2001). The EPA policy framework mirrors the design and implementation of the EMA, but the performance agreement calls for more stringent verification mechanisms, as well as more extensive consultation with affected and interested stakeholders. The federal government’s success in negotiating EPAs will no doubt have an impact on the future applicability and success of EMAs.

8. Conclusions

111. Since signing the Agreement, Dofasco has made significant improvements in environmental performance. Although the firm is involved with numerous other voluntary initiatives – making attribution difficult – it can be argued that the Agreement has helped the firm to manage environmental aspects in a more comprehensive manner. Rather than focus on one particular environmental issue, Dofasco is managing its performance at a system-wide level, often achieving multiple benefits from single improvements or alterations in the production process. The firm has also committed to performance targets that extend beyond regulatory requirements, and will strive for continuous improvement.

112. The federal and provincial government’s willingness to pursue an additional environmental management agreement with Algoma Steel Inc. suggests that they were satisfied with their earlier investment in the Dofasco Agreement. It should be noted, however, that the Agreement with Algoma was negotiated during a financially difficult time for the firm, bringing into question its ability to meet commitments. While Algoma continues to operate, it remains under serious financial strain. Furthermore, despite efforts to improve environmental performance, Algoma is not regarded as an environmental leader. Although it has been involved with numerous voluntary programs, it does not have the reputation that Dofasco has achieved. Dofasco came to the bargaining table having already made significant environmental improvements, and carried with it the reputation of an innovative, progressive firm. The firm’s position on sustainable development issues made it an ideal candidate for involvement in a facility-specific agreement

113. The concentrated nature of the integrated steel mill sector, along with the completion of the Strategic Options Process, presented a window of opportunity for the Canadian Government and industry to experiment with a facility-specific environmental management agreement. But, the uniqueness of the sector makes it difficult to determine if EMAs could be used in many other industry sectors or jurisdictions. Furthermore, the progressive nature of Dofasco made it an excellent candidate for participation in an environmental management agreement. It is unclear if an Agreement of this nature would have been pursued in the absence of an environmentally progressive firm. Tracking the progress of the Algoma EMA, as well as the willingness of the federal and provincial government to negotiate Agreements with Stelco Inc. and QIT-Fer et Titane, will shed some light on the broader applicability of this particular policy instrument.

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