Proposed Federal Large Final Emitters System: Cost to Industry

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The government possesses ample analysis and evidence indicating that the costs of a robust system of mandatory greenhouse gas (GHG) emissions targets for Large Final Emitters would be manageable for industry.

1. An analysis of Canada-wide, provincial and sectoral cost curves was conducted by Mark Jaccard and Associates (Simon Fraser University) for NRCan in March 2002.[1] The study found that at an economy-wide carbon price of $15/tonne CO_2e:

- about 20 megatonnes (Mt) of reductions in annual emissions would occur in industry (excluding electricity production) with net financial savings[2]
- about 49 Mt of reductions in annual emissions would occur in the electricity production sector at negligible net financial cost.[3]

2. The *Climate Change Plan for Canada* (November 2002) provided the following illustrative costs for a Large Final Emitters system delivering a total of 55 Mt of reductions in annual emissions. Targets could be toughened for some sectors and weakened for others to even out the distribution of costs.

Table 4: Illustrative Costs for Selected Industries with 85 Percent Free Permit Allocation (at $10/Tonne Carbon Price)

Sector	$ per Unit	Cost as % of Price	Sector	$ per Unit	Cost as % of Price
Conventional Oil ($/barrel)	0.03	0.09	Electricity-Coal (¢/KWHr)	0.14	1.94
Heavy Crude Oil ($/barrel)	0.015	0.05	Electricity-Oil (¢/KWHr)	0.12	1.57
Oil Sands-Bitumen ($/barrel)	0.10	0.34	Electricity-Gas (¢/KWHr)	0.04	0.60
Oil Sands-Synthetic ($/barrel)	0.12	0.31	Cement ($/tonne)	1.18	1.18
Natural Gas ($/mcf)	0.005	0.14	Lime ($/tonne)	1.85	2.50
Pipelines ($/mcf)	0.0014	Not avail.	Pulp and Paper ($/tonne)	0.59	0.06
Refined Petrol Products ($/$m^3$)	0.17	0.03	Aluminum ($/tonne)	4.73	0.23
Steel-Conventional ($/tonne)	2.10	0.29	Industry Chemicals ($/tonne)	0.31	Not avail.
Steel-Electric Arc ($/tonne)	0.60	0.08	Agriculture Chemicals, Fertilizers, etc. ($/tonne)	2.63	1.46

[1] M.K. Jaccard and Associates (March 7, 2002), *Construction and Analysis of Sectoral, Regional and National Cost Curves of GHG Abatement in Canada – Part IV: Final Analysis Report.* Contract No: NRCan-01-0332. Submitted to Michel Francoeur of Natural Resources Canada.
[2] Ibid., p.19.
[3] Ibid., p.169.

3. Major companies in the oil and gas sector who have adopted voluntary GHG targets have discovered unexpectedly large amounts of emission reductions that actually save money:

> *To focus our efforts, we set a target to reduce our own emissions to 10% below 1990 levels by 2010 in line with the spirit of the Kyoto Protocol. We were able to meet that target by the end of 2001, 9 years ahead of plan... we found that efficiency and emission reduction was good business. So while some remained locked in a debate about predicting the cost of reductions, our staff were pursuing activities that added value. In fact within the first three years we added $650M of value, for an investment of around $20M.*
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> — John Browne, CEO of BP, Speech to the Institutional Investors Group, London, November 26, 2003

4. Industry has a well established track record of exaggerating the costs of proposed constraints on emissions. A relevant example is provided by the U.S. Acid Rain Program — the largest emissions trading system (for sulphur dioxide, not GHGs) implemented to date. During the negotiations leading to the establishment of the program, the companies targeted argued strenuously that the program would jeopardize their competitiveness. Estimates of marginal compliance costs and allowance prices were in the range of $300 to $1,000 per ton of SO_2.[4] In comparison, a typical SO_2 allowance price in 2000 was $150 per ton, while electricity prices remained stable through the 1990s.[5]

5. One of the key advantages of emissions trading systems like Canada's proposed Large Final Emitters system is that they stimulate innovation in response to the opportunity to make money by reducing emissions. The discovery of innovative ways to reduce emissions is poorly captured in economic models but should not be underestimated when considering likely costs to industry of the proposed Large Final Emitters system. Unexpected innovations stimulated by emissions trading were a key reason why costs were much lower than predicted in the U.S. Acid Rain Program cited above.

[4] Robert W. Halm and Carol A. May (1994), "The Behaviour of the Allowance Market: Theory and Evidence," *Electricity Journal*, Vol. 7, p. 28–33.
[5] Andrew Aulisi et al. (September 2000), *From Obstacle to Opportunity: How Acid Rain Emissions Trading is Delivering Cleaner Air*, Environmental Defense.