FINAL

Recommendations for Canada's Proposed Mandatory Reporting of Greenhouse Gas Emissions

Nashina Shariff[1] *and Johanne Whitmore*[2]

In July 2004, the federal government established the Stakeholder Advisory Committee on Reporting (SACR), which provides recommendations on Canada's GHG reporting system to the National Steering Committee on Reporting (NSCR). SACR is composed of representatives from industry and environmental non-government organizations (ENGOs), while NSCR is made up of representatives from federal and provincial governments. Over the last two years, ENGOs have communicated their views to the federal government through SACR consultation meetings and its technical working groups. In addition, ENGOs have provided written reports including *Discussion of Canada's Proposed Mandatory Greenhouse Gas Reporting System* (early 2005), *ENGO principles and questions regarding public access to information reported under the national reporting system for emissions of greenhouse gases (GHGs) and related information* (summer 2005) and *Recommendations for Canada's Greenhouse Gas Emissions Reporting System* (early 2006). The following report builds on these documents, providing up-to-date recommendations on Canada's GHG reporting system and the detailed rationale behind these recommendations to enable the construction of a strong and credible system.

Due to the recent lack of significant movement by the federal government on Canada's GHG reporting system, many of the recommendations in the following report are similar to those presented in previous reports by ENGOs. ENGOs nevertheless welcome the opportunity to take part in the NSCR process, and have attempted in this report to bring forward new ideas and rationales in response to comments brought forward by the federal government during the NSCR-SACR meeting on June 15–16, 2006. ENGOs expect that a response by the federal government will be forthcoming to address the concerns that have been identified by ENGOs. ENGOs believe that the resolution of these concerns is essential if Canada's proposed GHG reporting system is to be credible.

[1] Toxics Watch Society of Alberta, Email: nashina.shariff@toxwatch.ca, Tel: (403) 998-9983
[2] The Pembina Institute, Email: johannew@pembina.org, Tel: (819) 483-6288 ext. 33

0. Executive Summary of Recommendations

1. Requirement for facilities to report 2006 emissions:

- The federal government should move expediently to publish this year's *Gazette* notice for 2006 data.
- The government should put in place reporting provisions in a regulation that includes a mandatory requirement to report.

2. Public disclosure:

- Where emissions intensity targets are set, the Minister must indicate her intention to publish both emissions and production information at the facility and activity level.
- ENGOs support the government's intention to make compliance information public.
- ENGOs recommend that compliance not be judged at the operator level but instead be judged at the facility and the activity level.

3. Confidentiality:

- ENGOs recommend that a provision under the LFE cross-cutting regulation elaborate on the confidentiality provisions under the Canadian Environmental Protection Act (CEPA). In particular:
    - When determining whether to grant confidentiality status to information, the Minister should also consider whether the type of information being granted the exemption would ordinarily be, or has in the past been, considered confidential.
    - Information should be considered confidential for no more than a 2-year period, after which time it should be publicly disclosed.
- If the government is not able to elaborate on the confidentiality provisions in a regulation, then it should advocate that the above changes be made to CEPA in the current CEPA review.
- In the case where provincial regulation requires a higher degree of transparency or more stringent environmental standards than the federal law, the province should not be required to harmonize to the federal standard in this area. In particular:
    - Alberta should not be required to harmonize down to the federal standard regarding the time limit on confidentiality and should be allowed to keep its provisions that require the release of confidential information after a limited period.

4. Verification:

- ENGOs recommend that energy and fuel use data be collected, so that this information can be used in Canada's inventory submissions to the UN.
- ENGOs also recommend that the government collect sufficient supporting data to ensure that energy and fuel use data is of a high quality.
- LFEs should be required to have their emissions and production verified by an independent third party verifier.
- The collection of energy and fuel use data for inventory purposes should be considered additional to the need for LFEs to report emissions that have been verified by a third party.

5. Data comparability and consistency:

- Methodologies should be prescribed by sector. The methodologies used to calculate reported emissions must be:
    - Consistent across facilities in a particular sector.
    - Consistent with IPCC guidance.
    - Consistent for a given emitter year over year to ensure comparability of the data over time.
    - The same as those used to set baselines for target setting purposes.

- A consistent method for dividing GHG emissions from integrated facilities should be provided in order to ensure that like facilities performing the same activity will have emissions profiles that are comparable.
- Cogeneration is one of the most important of these integrated activities and the federal government should determine an appropriate allocation methodology for dividing emissions between the power and steam outputs of cogeneration units.
- The government should also examine other integrated activities in order to ensure that emissions are always split in a consistent manner.

6. Accuracy:

- Canada should require LFEs to report to a required accuracy, and ensure that the uncertainty of emissions estimates is no more than 5%.
- LFEs should be required to report the uncertainty of reported information to the government.
- Emission estimation methodologies should require LFEs to use the most accurate data available to them.

7. Completeness of the emissions reporting system:

- The mapping exercise to determine how the facility definition proposed by the facility definition working group of the SACR[3] compares to other facility definitions in use should be completed as soon as possible.
- Additional guidance on the application of the facility definition as proposed by the working group of the SACR is needed. Specifically, for a given threshold:
    - All sources whose emissions exceed the source threshold should report emissions information disaggregated by activity and industrial site.
    - In sectors where there are large numbers of small facilities, such as oil and gas, operators responsible for more than one facility that does not exceed the threshold should report on the emissions from these facilities in aggregate, if the sum of the emissions from these facilities exceed the emissions threshold.
- ENGOs support the threshold proposed for LFEs of 200 tonnes CO_2e for oil and gas facilities and zero for all other facilities provided the facility definition is adjusted as recommended above.
- For facilities that are not LFEs, thresholds should be set at 20 kilotonnes CO_2e.

[3] *Recommendation from the Small Team on Facility Definition to SACR and NSCR*, October 28, 2005, p. 3

1. Introduction

Canadians overwhelmingly support taking action in reducing Canada's GHG emissions. And a mandatory measurement and public reporting of GHG emissions is a basic, fundamental element of any effective plan to reduce emissions. In Alberta, for example, 86 per cent of citizens feel that oil sands operations should be required to reduce the GHG emissions associated with their development.[4] In May 2006, Alberta Environment Minister Boutilier announced that Alberta would regulate GHG emissions from the province's large industrial emitters.[5] However, despite this support, Canadian governments have yet to put in place GHG regulations for large industries.

The first step in enacting a successful emission reduction scheme must be to ensure that there is high quality comparable data publicly available. Public awareness of emissions alone can give companies the impetus to start reducing emissions.

Canada has committed to a mandatory GHG reporting system and has been collecting GHG data for two years under the *Canadian Environmental Protection Act, 1999* (CEPA). However, a number of improvements must be made to the GHG reporting system to ensure that the data collected:

(i) can be publicly used to evaluate compliance with regulatory emission reduction targets
(ii) gives a comprehensive view of Canada's GHG emissions from large emitters
(iii) is as accurate as is feasible
(iv) is comparable and consistent across facilities
(v) is transparent and accessible to the public.

For these reasons, reporting requirements should be put in place as part of a GHG regulation as soon as possible. The credibility of Canada's GHG reporting system and data depends on it being comprehensive, transparent, having accurate data that is collected in a consistent manner, and most importantly, on the ability for the public to have access to sufficient data to ascertain whether or not large emitters are complying with their legal requirements.

2. Requirement for facilities to report 2006 emissions

In our previous reports, ENGOs were concerned that Environment Canada had not yet published a notice in the *Canada Gazette* requiring large emitters to report GHG emissions at the facility level in 2006. Generally, *Canada Gazette* notices have appeared in spring (March or April), which provided sufficient time for large emitters to take steps to report that year's emissions data. It would be unacceptable for Canada to have a year gap in its reporting of GHG emissions from large emitters simply because Environment Canada failed to publish a notice.

ENGOs welcome the announcement by Environment Canada officials at the NSCR meeting on June 15–16, 2006, in Ottawa, that a notice would be published in July 2006. However, to prevent a similar delay from occurring in the future, we recommend that the federal government put in place reporting provisions in a regulation, such as in Alberta[6], Quebec[7] and the European Union[8] which sets a yearly deadline for submitting facility GHG emissions in the preceding calendar year. Such provisions should include a mandatory requirement to report, ensure that emissions information is collected in a complete and

[4] Pembina Institute. 2006. *Albertans' Vision at Odds with Government Plans for Oil Sands*. Press release, 8 June; http://www.pembina.org/media/media-release.php?id=1236.
[5] Brethour, P. 2006. Province won't meet its Kyoto targets, but says new laws will be toughest yet. *Globe and Mail*, 27 May.
[6] http://www3.gov.ab.ca/env/air/pubs/ghg_specified_gas_reporting_standard.pdf
[7] *Gazette Officielle du Québec*, March 1, 2006, Vol. 138, No. 9, Section 4.
[8] European Commission. 2004. *Establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council*. Commission Decision of 29/01/2004, p.22; http://ec.europa.eu/environment/climat/pdf/c2004_130_en.pdf .

consistent manner, would remove the annual requirement to issue a *Gazette* notice, and would ensure that the requirement to report GHG emissions is impervious to political changes.

3. Public disclosure

ENGOs strongly believe that to meet the test of public credibility, the Large Final Emitters (LFEs) regulation must disclose sufficient data to enable the public to independently verify that LFEs' legal requirements and targets are being met. Therefore, LFEs' production data and targets at the activity level must not be considered confidential in the absence of compelling evidence that a particular company's data should be confidential. Otherwise, public confidence in the LFE system and subsequent emissions trading, which is already a major challenge, is likely to suffer further if parts of the system are made secret.

Environmental public's right to know is a widely accepted principle in Canada and elsewhere and has been the strongest driver for national emissions reporting initiatives like the NRPI and the pollutant transfer and release registries in jurisdictions such as the United States, the European Union and Australia. Just as publicly-traded corporations accept the legal requirement to routinely publish detailed financial data to satisfy the needs of investors, so large emitters should expect a legal requirement to publish emissions data to satisfy the needs of affected citizen.

Some have argued that the lack of local environmental impacts associated with GHGs[9] obviated the need to publish facility-level emission data. This ignores the critical issues of responsibility for pollution: the public has the right to know the level of responsibility of individual facilities and corporate entities that are significant contributors to climate change (regardless of whether the GHG sources are subject to regulated limits). As noted in the European Union's Directive on public access to environmental information, "increased public access to environmental information and the dissemination of such information contribute to a greater awareness of environmental matters, a free exchange of views, more effective participation by the public in environmental decision-making and, eventually, to a better environment."[10]

Canadian industry argued hard to have its climate change performance evaluated not on absolute emissions, but on emissions intensity. The federal government accepted this argument. But now some industries say that their emissions intensity is confidential because it reveals production data. It is not defensible to allow industry to be evaluated by government (for regulatory purposes – i.e. LFE system) on an intensity basis, but by the public only on an absolute emissions basis. (If, on the other hand, the government reverted to an LFE system with absolute emission targets, there would no longer be a compelling public interest in production data.)

The public accountability and credibility of the LFE system requires that for each company complying with the LFE targets, physical production data and emissions information from covered activities be publicly disclosed. In the absence of compelling evidence that a particular company's data should be confidential, all data needed for the public to measure actual emission intensities and check compliance against emissions intensity targets must be available. This level of disclosure is already required for intensity-based systems in Alberta[11] and for the United Kingdom's GHG emissions trading scheme. In Alberta, the oil and gas conservation regulations state that the Energy and Utilities Board, "at any time, shall make available to the public, from records, reports or information submitted to or acquired by it …, monthly totals of crude

[9] In fact, some GHGs (e.g., methane) do have local environmental impacts in addition to contributing to global climate change.

[10] European Parliament and Council. 2003. *Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information and repealing Council Directive 90/313/EEC.* Official Journal L 041, 14/02/2003, p. 0026; http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32003L0004:EN:HTML .

[11] The proposed regulations for an emissions trading system for NOx and SO_2 in Alberta states that the underlying data used in determining the baseline information of a unit and the detailed generation and emissions data with respect to a unit are public information and must be disclosed by the registry operator.

bitumen, gas or water production from a well other than an experimental well."[12] Answers provided by companies in the Carbon Disclosure Project also show that a number of companies are already reporting GHG emissions intensity as corporate policy:[13]

- ***Suncor:*** "Given our aggressive plans for growth, particularly in our Oilsands operation, measuring our progress on climate change from an emissions intensity perspective is an important component of our approach to defining success internally as well as benchmarking ourselves against our peers. … Information on our emissions per unit of production data and emissions intensity targets are … presented [for] each business unit …"
- ***Exxon Mobil*: "**We calculate our GHG emissions, and in our reporting we do provide absolute and normalised emissions by function (exploration and production, downstream, and chemicals). It is necessary to look at intensity by major business type since each business requires different levels of fuel consumption."
- ***Duke Energy*** has been estimating the greenhouse gas emissions intensity of its electric operations (CO_2 per unit of electricity produced) for a number of years.
- ***EnCana*** measures emissions intensity for its Canadian operations on Tonnes CO_2e per m^3 of oil equivalent production basis.
- ***ConocoPhillips*** reports GHG intensity for global refining and for exploration and production.
- ***Dow***'s principal means of measuring progress on climate change is by improving GHG intensity – a measurement of direct GHG emissions per unit of production.

Given that production data is already reported in other jurisdictions and that reporting emissions intensity is an integral part of many companies' reporting practices, there are no compelling reasons why this information should not be publicly disclosed.

There is also a compelling interest in other jurisdictions in having access to information that will allow them to verify compliance in their own communities. National compliance means that municipalities and provinces across Canada will have to depend on the federal government to ensure that emission reduction requirements in their own backyards are met. Allowing the publication of GHG information at the facility and activity level would be useful to these governments, especially those that are actively pursuing emission reduction targets.

3.1 *Access to Information Act* vs. public disclosure policy

It is important to distinguish between the need for public disclosure of information to ensure transparency and the public's right to government information. The *Access to Information Act* is based on the principle that government information should be available to the public, and that exceptions to the right of access should be limited and specific.[14] However, despite this safeguard, the federal government has the responsibility to actively disclose to the public environmental information that is in their interest. As noted in the European Union Directive on access to environmental information, "it is necessary to ensure that any natural and legal person has a right of access to environmental information held by or for public authorities without his having to state an interest."[15] As such, where environmental regulations are in place, there is a public interest in having transparency with respect to the compliance of those regulations.

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[12] Alberta Regulation 151/71, *Oil and Gas Conservation Act, Oil and Gas Conservation Regulations*, section 12.150 2.d; http://www.eub.gov.ab.ca/bbs/requirements/actsregs/ogc_reg_151_71_ogcr.pdf .

[13] http://www.cdproject.net/response_list.asp?id=3&letter=A

[14] *Access To Information Act*, section 2.1, http://laws.justice.gc.ca/en/A-1/8.html#rid-14

[15] European Parliament and Council. 2003. *Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information and repealing Council Directive 90/313/EEC.* Official Journal L 041, 14/02/2003, p. 0026; http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32003L0004:EN:HTML .

CEPA requires that the Minister, when requesting information to be reported, indicate whether she also intends to publish this information. It is essential that the Minister agree to release information for which there is a public interest in disclosure. In the case of GHGs, the public interest requires that where emissions intensity targets are set, emission intensity and targets and production information must be published at activity levels for each facility subject to the LFE regulation.

3.2 Transparency in compliance with GHG requirements

At the SACR meeting in November 2006, federal government officials indicated that compliance in the LFE system would be evaluated at the "operator level" (i.e., company level).[16] For compliance purpose, operators with facilities across the country with many different activities would therefore only be required to submit a single, national compliance report which combines activity and facility GHG data.

However, given that the proposed LFE regulation would allow provinces to pursue equivalency agreements, it is not clear how a company with facilities across Canada would be required to comply and report GHG emissions at an "operator level" under separate provincial regulations. Alberta is already pursuing an equivalency agreement with the federal government to allow the province to administer its own LFE system. Given that both federal and provincial compliance systems could be implemented under the LFE system, it is not clear how an operator with facilities across Canada would report GHG emissions by activity on an operator level if it is required to so under separate provincial regulations. The complexity of administering equivalency agreements therefore reinforces the need for compliance to be evaluated at the facility and activity levels.

The only viable approaches are either that operators report GHG emissions by activity and comply at both national and provincial levels, or that "national compliance" be defined as compliance in all provinces except those with equivalency agreements. However, in the former option, companies would submit the same GHG data a number of times, which would be inefficient, while in the latter option, provinces without equivalency agreements would not be able to monitor LFE compliance within their jurisdictions. ENGOs therefore strongly recommend that the federal government revert to its original position and evaluate LFE compliance at the facility level.

In November 2006, at the SACR meeting, federal government officials committed to publish compliance information and said they would consider publicly disclosing the following information:

- General information on the LFE system [17]
- Compliance information
- Facility-level GHG information

ENGOs welcome this commitment to publish compliance information. However, the publication of only national compliance information will not make available sufficient information to the public to ensure that LFE facilities in their communities are complying with their obligations. For this reason we recommended that compliance be evaluated at the facility and activity level, and that full compliance information be made available to the public.

4. Confidentiality

In July 2006, Environment Canada officials reiterated at the SACR meeting that GHG emissions data would likely be collected under the provisions of CEPA.[18] CEPA contains provisions to ensure that where there is a legitimate reason for information to be kept confidential, this information will not be disclosed.

[16] Environment Canada. 2006. *Update on the Large Final Emitters Regulations*. Presentation made to the Stakeholders Advisory Committee on Greenhouse Gas Reporting, November 16-17, slide 2.
[17] Environment Canada, 2006. *Public Accountability Under the LFE System*. Presentation made to the Stakeholders Advisory Committee on Greenhouse Gas Reporting November 16-17, slide 8.

ENGOs support the use of CEPA for the collection of facility-level emissions information. However, LFE emission and production data must not be kept confidential, and a particular company's data should not be kept confidential, in the absence of compelling evidence that its publication would be significantly harmful. The onus should be placed on industry to show that its data should be kept confidential, not on government to demonstrate the public's right to emissions data.

ENGOs recommend that the government consider making the following elaboration of the CEPA confidentiality rules in the reporting section of the LFE regulation. If the government deems this approach to be inappropriate, then the government should advocate that these changes be made to the legislation through the current CEPA review.

(i) When determining whether to grant confidentiality status, the Minister should consider whether or not the type of information being granted would ordinarily be, or has in the past been, considered confidential. If the information is, or was in the past, not conventionally treated as confidential, confidentiality status should not be granted. This criterion is applied in Alberta, where decisions on confidentiality consider whether the information contained in the report is available from other public sources.[19]

(ii) When granted, confidentiality should not be limited to a maximum period of time. In Alberta's GHG reporting system, confidentiality is granted for a maximum of five years.[20] A provision under CEPA should allow confidential data to be re-evaluated at a later date, when concerns over the disclosure of the data may no longer be valid.

(iii) Where provinces are pursuing equivalency agreements to administer the LFE system, and have more progressive provisions governing confidentiality (e.g., Alberta), these jurisdictions should not be made to harmonize to the less progressive national standard.

If these recommendations are implemented, the confidentiality provisions under CEPA and other provincial jurisdictions would provide a robust framework that would protect the public's right to have access to transparent and credible information about compliance with LFE regulations, and would also ensure that data for which there exists a legitimate reason to be kept confidential is protected.

5. Verification

The verification of emissions reporting is essential to ensuring the high quality of the reporting. In the case of Canada's reporting system, verification must occur in two ways.

Canada is required to use the most accurate data available to it in its inventory submissions to the United Nations Framework Convention on Climate Change (UNFCCC). The reported emissions used in its GHG inventory must also be verified in accordance with the Intergovernmental Panel on Climate Change (IPCC) good practice guidance. Following this guidance is a requirement for Canada under international law. This guidance requires that emissions be verified using corresponding energy and fuel use information.

In addition, Canada is expected to put in place an emissions trading system for large emitters. This system will place a legal requirement to reduce emissions on large industry, and will create tradable emission credits for those who reduce their emissions beyond the target levels. Because the emissions trading system is a market, where credits can be traded as currency, it is important that a higher level of verification be

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[18] Environment Canada, 2006. *Data Security, Confidentiality and User Access Frameworks of Reported Information.* Presentation made to the Stakeholders Advisory Committee on Greenhouse Gas Reporting. June 15-16, slide 14.
[19] Alberta Regulation 251/2004, Climate Change and Emissions Management Act, Specified Gas Reporting Regulation, Section 5(2). http://www.qp.gov.ab.ca/documents/Regs/2004_251.cfm?frm_isbn=0779733134
[20] Alberta Regulation 251/2004, Climate Change and Emissions Management Act, Specified Gas Reporting Regulation, Section 5(1). http://www.qp.gov.ab.ca/documents/Regs/2004_251.cfm?frm_isbn=0779733134

applied to the emissions of facilities that are subject to emission reduction obligations. It is also important that all credits – whether created by large emitters or created in the offset system – be subject to the same degree of verification, as the two types of credits will be indistinguishable on the market. For this reason, facility-level emission reduction reports from large emitters with emission reduction obligations must be verified by an independent third party. This would be a similar level of verification to that expected to be applied in Canada's offset system, as well as to the level of verification applied in many other emission trading systems in other jurisdictions.

5.1 Energy and fuel use

Energy and fuel use information must be collected in order for the government to verify that emissions reported under the UNFCCC are of a high quality. ENGOs have advocated for this to occur because it is a requirement under international law. This requirement should not be confused with the need for the publication of production information for LFEs. Energy and fuel use data must be collected for all reported emissions included in Canada's inventory, not just LFEs. Quebec already requires the reporting of energy and fuel use data along with GHG emissions information.[21] Although this information does not need to be publicly released, it is important that it be collected and made accessible to Environment Canada so that it can be used to verify information before it is included in Canada's GHG inventory.

- Article 5.1 of the Kyoto Protocol states that "[e]ach Party included in Annex I shall have in place, no later than one year prior to the start of the first commitment period, a national system for the estimation of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol. …"[22]

- Under the Marrakech Accords, Canada agreed that its national system will develop "estimates in accordance with the methods described in the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, as elaborated by the IPCC good practice guidance, and ensure that appropriate methods are used to estimate emissions from key source categories."[23]

- The IPCC *Good Practice Guidance* states that "[t]he 'bottom-up' approach is generally the most accurate for those countries whose energy consumption data are reasonably complete. Consequently, inventory agencies should make every effort to use this method if data are available."[24]

Given that Canada has already begun to collect facility-level GHG emissions data, it seems logical that this data should be used in Canada's inventory submissions and to meet its commitment to put in place a national system. However, Canada has also agreed to "collect sufficient activity data, process information, and emission factors as are necessary to support the methods selected for estimating anthropogenic GHG emissions by sources and removals by sinks."[25]

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[21] Section 5, *Gazette Officielle du Québec*, March 1, 2006, Vol. 138, No. 9

[22] *Kyoto Protocol to the United Nations Framework Convention on Climate Change,* Article 5.1 http://unfccc.int/essential_background/kyoto_protocol/items/1678.php

[23] Decisions adopted by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol, Annex to Decision 19/CMP.1, *Guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol*, entitled *Guidelines for national systems for the estimation of anthropogenic greenhouse gas emissions by sources and removals by sinks under Article 5, paragraph 1, of the Kyoto Protocol*, section VI, B, Specific functions, Inventory preparation, part 14. b.), pg. 18. http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=14

[24] *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, pg. 2.8*

[25] Decisions adopted by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol, Annex to Decision 19/CMP.1, *Guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol*, entitled *Guidelines for national systems for the estimation of anthropogenic greenhouse gas emissions by sources and removals by sinks under Article 5, paragraph 1, of the Kyoto Protocol*, section VI, B, Specific functions, Inventory preparation, part 14. c.), pg. 19. http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=14

With respect to verification, the IPCC *Good Practice Guidance* states that "[f]or carbon dioxide (CO_2) from fossil fuel combustion, a reference calculation based on apparent fuel consumption per fuel type is mandatory according to the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*."[26]

The *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* states that "With respect to CO_2 emissions from energy, all users are asked to provide a standard set of information that will assist the verification process. This means that:

- Users who have used their own methodology or the IPCC Sectoral Approach to estimate CO_2 emissions from energy should present the results of their work in the Sectoral Table for Energy provided in the Reporting Instructions, along with the worksheets used for calculations. They should also estimate their CO_2 emissions from energy using the Reference Approach provided in *Volume 2* of the *Guidelines*…."[27]

Thus, if Canada uses the facility-level emissions data collected in its inventory submissions, it must have sufficient data to support this information. In particular, the government must have sufficient energy and fuel use information to enable it to complete its own internal check on the emissions information.

This would be best enabled through the collection of detailed energy and fuel information. For example, good practice guidance states that"[f]or traded fuels in common circulation, it is *good practice* to obtain the carbon content of the fuel and net calorific values from fuel suppliers, and use local values wherever possible." [28]

ENGOs recommend that energy and fuel use data be collected, so that this information can be used by the government to ensure that the reported emissions information is of a sufficiently high quality that the emissions information can be used in Canada's inventory submissions to the UN. We also recommend that the government collect sufficient supporting data to ensure that energy and fuel use data is of a high quality, and to allow suitable verification of emissions estimates.

5.2 Third-party verification of emissions from Large Final Emitters

Verification is an important element of an emissions trading system. While the collection of energy and fuel use data will allow Canada to verify the nations emissions for inventory purposes, compliance with emission reduction obligations requires a significant guarantee that emissions have been reported in a complete and accurate manner. Because emission credits will be indistinguishable in the market, it is also important that all emissions for which credits are allotted require the same degree of verification. Federal offset credits are already expected to undergo verification. [29] For these reasons, in addition to collecting energy and fuel use data, LFEs reporters should be required to have their emission and production data verified by an independent third-party verifier.

This type of requirement is already common practice in many other jurisdictions. In the U.K., emissions trading participants wishing to sell allowances must have their energy use or emissions data verified by an accredited verifier and, where relevant, also have their output and product mix data verified by an accredited verifier. [30] The EU also requires third-party verification for operators to ensure that reports

[26] IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, section A2.1.2.1
[27] Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reporting Instructions, pg. 2.6.
[28] *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, pg. 2.11*
[29] Offset System for Greenhouse Gases - Overview Paper, http://www.climatechange.gc.ca/english/publications/offset_gg/credit.asp
[30] Summary of the UK Greenhouse Gas Emissions Trading Scheme, 2001

contain no omissions, misrepresentations or errors that lead to material misstatements of the reported information[31]. In Alberta, the NOx / SO_2 emissions trading regulation states that an application for emission credits must include verification by a third-party auditor of the information and data provided[32].

5. Data comparability and consistency

Reported emissions must be comparable across facilities in a particular sector and for any given facility over time. This will also be important to allow emissions to be estimated in accordance with IPCC good practice guidance. Good practice guidance also requires that the emission methodologies used to set targets be the same as those used to measure emissions during the commitment period. For these reasons, the government must prescribe the use of particular emission estimation methodologies for each sector and place requirements on the application of those methodologies.

The government will also need to assure consistency in the reporting of emissions by activity. Because emission targets are expected to be set per unit of activity, activity level emissions estimates must be consistent across facilities for a particular activity. This may be easily achievable in some sectors. For facilities where activities are highly integrated, however, there exists a need to prescribe methodologies to divide emissions between activities, and for the same methodology to be applied across facilities performing a particular activity.

5.1 Methodologies for measuring emissions

It will be important that the emissions reporting system require the consistent use of methodologies across a particular sector.

The EU states that, "the complete, transparent and accurate monitoring of greenhouse gas emissions requires decisions to be taken when determining appropriate monitoring methodologies. This includes deciding between measurement and calculation as well as selecting specific tiers for the determination of activity data, emission factors and oxidation or conversion factors. The sum of approaches used by an operator for an installation for the determination of its emissions is referred to as a monitoring methodology."[33]

Methodologies similar to those described above should be prescribed for all facilities, as is the case under many other reporting systems. The EU has prescribed emission methodologies for LFEs participating in the emissions trading scheme. In particular, the scheme requires that "monitored and reported emissions … be comparable over time, using the same monitoring methodologies and data sets. …".

A similar approach to monitoring methodologies should be taken in the Canadian system. First and foremost, due to Canada's legal requirement to follow IPCC good practice guidance, all emission estimation methodologies must be consistent with this guidance. Canada should also follow the good example of the EU's rules and require that the same methodologies be used by all facilities performing the same activity, and that these methodologies be consistent over time. In addition, ENGOs understand that the targets for some sectors may be expressed as a percentage reduction below a base year's emissions. In these instances, it will be necessary that the same methodologies used for the calculation of base year emissions be used for reporting emissions during the commitment period. If this is not the case, it is possible that

[31] Commission Decision of 29 January 2004 establishing guidelines for the monitoring and reporting of greenhouse gas emissions, Section 7.4. Verification and materiality

[32] Alberta Regulation 33/2006, Environmental Protection and Enhancement Act, Emissions Trading Regulation, section 41.2 c.), http://www.canlii.org/ab/laws/regu/2006r.33/20060412/whole.html

[33] Commission Decision of 29 January 2004 establishing guidelines for the monitoring and reporting of greenhouse gas emissions, Section 4.2 Determination of greenhouse gas emissions

emissions will appear to have reduced or increased not as a result of real emission reductions, but simply because of changes to the methodology used.

For these reasons, methodologies should be prescribed by sector to give specific guidance on how emissions should be calculated. The methodologies used to calculate reported emissions must be consistent across facilities in a particular sector, with IPCC guidance, and for a given emitter year over year to ensure comparability of the data over time. The methodologies used to calculate reported emissions must also be the ones used to set baselines for target-setting purposes.

5.1 Consistent disaggregation of emissions information by activity

Compliance is expected to be monitored on an operator basis by activity. To avoid discrepancies, GHG emission data from all facilities must be disaggregated in a consistent and standardized manner. The federal government has, in conversations with the ENGO community, proposed that companies could determine themselves how to best divide GHG emissions. This may be suitable where the method for division of GHG emissions is clear. However, where activities for a single facility are highly integrated, differences in the methodology used to divide emissions could cause large discrepancies in reported emissions from identical facilities. This would be the case, for example, for the split of emissions between power and steam from cogeneration facilities. For a given activity, methodological variations to allocate GHG emissions to an activity could result in differences in the apparent environmental performance of similar facilities. Methodologies for calculating GHG emissions from facilities in which there are more than one integrated activity should therefore be defined.

Other fora have expended significant time and energy on determining the split in emissions for integrated activities, particularly to determine a fair and consistent method for allocating emissions between the power and steam outputs of a cogeneration facility. According to the GHG sub-group of the Clean Air Strategic Alliance's Electricity Project Team, "for GHG management, the subgroup agreed that division of emissions between electricity and thermal energy is desirable and necessary for establishing an accurate view of the emissions in the electricity sector."[34]

Electricity generation associated with co-generation is expected to increase significantly in the future. For this reason, emissions from cogeneration, in particular in parts of the country with substantive large industry (such as Alberta) are expected to make up an important and growing part of emissions from large industry. There are many methodologies for allocating co-generation emissions between steam and electricity, and all have a rational basis. In addition, a variety of commercial arrangements exist for co-generation units in terms of ownership, operation and responsibility for emissions. Thus, there is no one accepted way to allocate emissions from cogeneration units. For this reason, it is important that the emissions be split in a consistent manner across all cogeneration units. If not, sectoral targets for the electricity sector (as well as targets for individual facilities) will be meaningless, as the emissions intensity is highly variable depending on the emission allocation methodology used to determine that intensity.

The allocation of co-generation emissions is required for several reasons, including:

1. allowing for the calculation of sector average GHG emission intensity and total sector GHG emissions
2. judging compliance with percentage GHG reduction obligations on individual co-generation units
3. aiding in determining future reduction obligations or credit generation for individual units

Example methodologies for dividing co-generation emissions include:

[34] Report of the Clean Air Strategic Alliance's Electricity Project Team – Greenhouse Gas Allocation Subgroup, July 2004, pg. 32 http://casahome.org/uploads/EPTGHGASG_final_report_AUG-27-2004.pdf

1. **Energy**: This methodology simply equates Gigajoules of steam to the energy equivalent in MWh of electricity (i.e., it assumes that steam can be converted to electricity at 100% efficiency)
2. **Exergy:** This approach attempts to reflect the relative work potential of the two energy streams by adjusting the work output of the steam produced on the basis of conversion factors
3. Reference facility for steam, electricity receiving the residual emissions.
4. **Component facilities:** This method divides the total cogeneration emissions between electricity and steam in proportion to the emissions from the actual facilities (often a simple cycle gas turbine and an industrial boiler) operating on a stand-alone basis. (The boiler would be assumed to burn natural gas in place of using heat recovered from the turbine exhaust.)
5. **Stand-alone reference facilities:** This is the division of total cogeneration emissions between electricity and steam in proportion to the emissions from reference facilities operating on a stand-alone basis. [35]

Figure 1 shows the range of emissions that are possible from applying various methods of split in emissions intensity. The figure demonstrates that, for all units, a significant difference in reported emissions intensity will result from the application of different emissions allocation methodologies.

[35] Report of the Clean Air Strategic Alliance's Electricity Project Team – Greenhouse Gas Allocation Subgroup, July 2004, pg. 33 http://casahome.org/uploads/EPTGHGASG_final_report_AUG-27-2004.pdf

Figure 1: Co-generation emissions intensity under several different allocation methodologies[36]

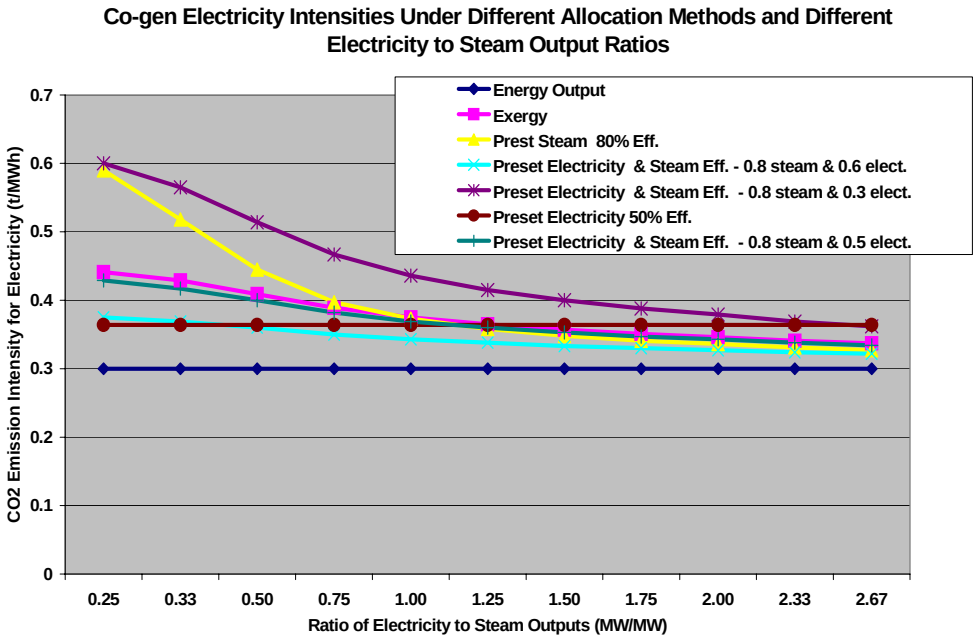

Table 1: Emissions Intensities of 16 Co-generation Units in Alberta[37]

Units	Allocation Method		
	Energy Output	**Preset Steam**	**Preset Electricity & Steam Eff. - 80% steam & 50% elect.**
	Intensity for Electricity (t/MWh)	Intensity for Electricity (t/MWh)	Intensity for Electricity (t/MWh)
1	0.323	0.366	0.401
2	0.225	0.213	0.467
3	0.384	0.443	0.463
4	0.235	0.414	0.486
5	0.227	0.396	0.466
6	0.259	0.386	0.454
7	0.220	0.334	0.374
8	0.340	0.400	0.440
9	0.370	0.410	0.430
10	0.335	0.389	0.424
11	0.351	0.405	0.434
12	0.221	0.207	0.378
13	0.254	0.295	0.408
14	0.336	0.349	0.470
15	0.271	0.338	0.436
16	0.273	0.359	0.462
Weighted Average	**0.294**	**0.352**	**0.429**
Total Emissions	**5,179,133**	**6,195,995**	**7,562,509**

[36] From the work of the CASA Electricity Project Team, Cogeneration Allocation Sub-Group
[37] From the work of the CASA Electricity Project Team, Cogeneration Allocation Sub-Group

Table 1 shows the emissions intensities of 16 cogeneration units in Alberta under a number of different allocation methodologies. As the Table shows, cogeneration units in the Alberta electricity sector can be said to emit 5.2Mt or 7.6Mt, depending on the allocation method used to determine the emissions. Because of the high variability that results from the use of different methodologies, it is imperative that a consistent methodology be applied to all cogeneration units. In this way, emissions performance below target levels will reflect real environmental performance and not simply differences that result from changes in methodologies applied across facilities or years.

The GHG subgroup of the Clean Air Strategic Alliance's Electricity Project Team concluded that method 5 from the previous examples (the stand-alone reference facility approach) has the widest appeal. Further analysis on the efficiency assumptions led the subgroup to conclude that total greenhouse gas emissions from natural gas combustion at cogeneration facilities should be divided by assigning 50% efficiency to electricity based on combined cycle natural gas turbines and by assigning 80% efficiency to heat, based on stand-alone industrial natural gas boilers. [38]

This method is seen as appealing because:

- It divides the efficiency benefits of cogeneration in an even-handed way between electricity and the heat host activity
- At the present time, it is consistent with what the federal government is proposing for Alberta.
- The reference facilities represent a plausible assumption that, in the absence of the cogeneration, the power producer would build a NGCC plant to sell to direct customers and the wholesale electricity market, and the heat host would build an industrial boiler.
- This particular method reflects the nature of most of the cogeneration industry in Alberta. [39]

Emission intensity targets must be applied in a manner that is consistent across all industry and accommodates the realities of existing business structures. Providing a consistent method for dividing GHG emissions from integrated facilities will ensure that like facilities performing the same activity will have emissions profiles that are comparable, regardless of their commercial arrangements. Cogeneration is the most important of these integrated activities, and the federal government should embark immediately on determining an appropriate allocation methodology. The government should also examine other integrated activities in order to ensure that emissions are always split in a consistent manner.

The application of consistent methodologies will allow for the easy application of emission intensity targets in a consistent manner. To take the example of an oilsands operation, emission intensity targets could be applied to an industry as follows:

1. The intensity target for an industrial operation with cogeneration covers both oil and electricity production
   - Intensity targets are applied to each of the oil produced and electricity generated, so that cogeneration emissions will be covered by the combined oil and electricity components of the overall target of the operation.
   - For intensity targets of, for example,
     - .3 t/MWh for cogen electricity and
     - .08 t/bbl of oil,
     - the annual GHG target in tonnes of CO_2e for the operation is:
     - .3 t/MWh x MWh/year + .08 t/bbl x bbl/year
2. Emissions associated with steam/hot water used by the oil sands operation, whether produced or purchased, are included in the oil sands emissions.

[38] Report of the Clean Air Strategic Alliance's Electricity Project Team – Greenhouse Gas Allocation Subgroup, July 2004, p. 34 http://casahome.org/uploads/EPTGHGASG_final_report_AUG-27-2004.pdf
[39] Report of the Clean Air Strategic Alliance's Electricity Project Team – Greenhouse Gas Allocation Subgroup, July 2004, pg. 34 http://casahome.org/uploads/EPTGHGASG_final_report_AUG-27-2004.pdf

3. Emissions associated with generated or purchased electricity are viewed as indirect to the oil side of the operation and direct emissions of electricity generation.
4. An allocation of cogeneration emissions between electricity and steam/hot water is required for reporting and target purposes.

6. Accuracy

Accuracy is an important part of an emissions trading system. Currently, emissions intensity targets are expected to be set at 15% below "business as usual" levels. If the uncertainty is allowed to reach to high a level close to 15%, the targets would become irrelevant. That is, if the target and the uncertainty level are too close together, it will become impossible to tell whether emission reductions or increases are real, or whether they are simply a result of variations in the emission reports that result from uncertainty in measurement and calculation. For this reason, it is necessary for boundaries to be placed on the level of allowable uncertainty in emissions reports.

In addition to this high-level bound on uncertainty, it is important that reporters be required to achieve the lowest level of uncertainty feasible. In this way, the overall uncertainty bound is not a level that reporters must meet, but a floor below which uncertainty levels cannot fall. In order to achieve this, the emissions estimation methodologies should require reporters to meet the best data that is available to them.

6.1 Overall accuracy of emission reports

LFEs should be required to report emissions as accurately as possible. The requirement to use the most accurate information available is already applied in Section 6 of Quebec's GHG reporting regulation.[40] Under the European Union system, permissible uncertainty shall be expressed as a 95 per cent confidence interval around the measured value.[41] In Alberta, production data must be reported at an uncertainty level of 5% or less.[42]

Canada should follow these examples and require LFEs to report to a required accuracy, and ensure that uncertainty of emissions estimates are no more than 5%. At the very least, because Canada is required by the UNFCCC to report the uncertainty of each source in its inventory[43], LFEs should be required to report the uncertainty of reported information to the federal government. This information should then be disclosed to the public for accountability and transparency reasons.

6.2 Accuracy in emission estimation methods

Emission estimation methodologies should require LFEs to use the most accurate data available to them. In this way, reporters will not only meet the overall uncertainty levels but will also minimize their level of uncertainty.

Emission estimation methodologies could allow for a tiered approach, where each tier would yield emissions estimates of a varying degree of accuracy based on the availability of information. Thus, LFEs

[40] Section 6, *Gazette Officielle du Québec*, March 1, 2006, Vol. 138, No. 9.
[41] Commission Decision of 29 January 2004 establishing guidelines for the monitoring and reporting of greenhouse gas emissions, Section 4.3 Uncertainty Assessment
[42] EUB Directive 017, Measurement Requirements for Upstream Oil and Gas Operations, http://www.eub.gov.ab.ca/bbs/documents/directives/Directive017.pdf
[43]Guidelines for national systems for the estimation of anthropogenic greenhouse gas emissions by sources and removals by sinks under Article 5, paragraph 1, of the Kyoto Protocol, Section B: Inventory Planning, Par. 14d, The Guidelines were recommended for adoption by the first session of the Conference of the Parties serving as the meeting of the parties in COP decision 20/CP7. http://unfccc.int/resource/docs/cop7/13a03.pdf#page=2

could be required to choose the tier that will deliver the highest degree of accuracy given the data available to the emitter.

Through the work of the emissions factor group, Environment Canada has proposed a decision tree for determining the level of detail of emission methodology an emitter should use. Under this system, reporters with CEMS that are in compliance with operational guidelines should report their emissions using CEMS. For simple fuels and complex fuels that make up less than 2% of a facility's emissions, emissions should be reported using default emission factors. Reporters with complex fuels should report using facility-specific emission factors.[44]

ENGOs believe Environment Canada should require all LFEs, regardless of whether they burn simple or complex fuels, to use the most accurate method of measurement available to them. Thus, we believe not only that facilities burning substantial amounts of complex fuels use facility specific emission factors, but so should facilities burning simple fuels or small quantities of complex fuels, provided that they have the information available to do so. For example, a reporter that burns simple fuels and has collected the carbon content and heating value information for its facility, should calculate its emissions using this information rather than using a default emission factor.

The details of what would make up the facility-specific emission factor have not been elaborated. These details must be further elaborated to ensure that the principle that the most accurate information available should always be used is adhered to. Specifically, once the decision has been made to use a facility-specific emission factor, the most accurate factor possible must be developed. In order to do this, the most detailed information available must be applied in creating each facility-specific emissions factor. For example, a combustion facility burning simple fuels, which has facility-specific information on the higher heating value for its fuel, but not on the carbon content, should at the least use the facility-specific higher heating value in its emissions calculation.

The application of the principle of using the most accurate information available does not pose an additional burden on reporters, but does ensure that a reasonable degree of accuracy in the data is met.

7. Completeness of the emissions reporting system

The emissions reporting system must achieve complete coverage of emissions in Canada. For this reason, it is important that facility definitions be set in a manner that requires all relevant emissions to be reported through the system. In order for the coverage of the system to be complete, it is also important that thresholds be set in a manner that captures all significant LFEs of GHGs in Canada.

7.1 Facility definition

A decision must be made on a "going forward process" for determining the facility definition, as the facility definition working group of the SACR has not yet completed its work. In particular, the mapping exercise to determine how the facility definition proposed by the working group of the SACR[45] compares to other facility definitions in use by, for example, the National Pollutant Release Inventory and the establishment definition used by Statistics Canada, should be completed as soon as possible.

[44] Environment Canada. 2006. *Decision tree for quantification approach.* Presentation on decision trees to be made to the Stakeholders Advisory Committee on Greenhouse gas Reporting at the June 15-16 meeting ,Draft May 26.
[45] *Recommendation from the Small Team on Facility Definition to SACR and NSCR*, October 28, 2005, p. 3

In addition, because the facility definition proposed by the working group of the SACR allows for flexibility in the application of the definition, some clear guidelines are necessary to ensure that the definition captures all relevant emissions.

Specifically, for a given threshold:

1. All sources whose emissions exceed the source threshold should report emissions information disaggregated by activity and industrial site.
2. In sectors where there is a high level of disaggregation of facilities, such as oil and gas, operators responsible for more than one facility that does not exceed the threshold should report on the emissions from these facilities in aggregate, if the sum of the emissions from these facilities exceeds the emissions threshold.

7.2 Thresholds

The thresholds expected to be applied to LFEs is zero for all industry except oil and gas, who would have a threshold of 200 tonnes. As has been indicated in previous submissions, ENGOs feel it is important that the facility definition be broad enough to allow corporations to aggregate facilities that may have small emissions per facility, but in aggregate may represent a substantial amount of emissions. Oil wells in Alberta emit in aggregate 3.8Mt, and a 200t threshold will only capture 6% of these wells.[46] For this reason, especially for facilities like oil wells, the facility definition must require the aggregation of facilities that have low emissions on their own, but that have substantial emissions when combined. Failing that, significantly lower emission thresholds will be necessary for the oil and gas industry.

It is important to set thresholds for facilities that are not LFEs in an expedient manner. ENGOs believe that this threshold should be set at 20kt. It is expected that the thresholds working group will complete further analysis that will allow the group to come to a decision on an appropriate threshold for these units in the near future.

[46] Based on information gathered for the Clearstone study on upstream oil and gas emissions.