

Third Party Verification of Greenhouse Gas Assertions in Alberta

Extended Abstract #62

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INTRODUCTION

This paper presents experience in Alberta, Canada with some of the fundamentals of third party verification of greenhouse gas (GHG) assertions. Discussion of these fundamentals from a conceptual standpoint is complemented with a pragmatic synopsis of their interpretation and implementation in the province of Alberta's GHG reduction program.

A primary goal in presenting this paper is to provide readers from other jurisdictions, who have upcoming GHG verification obligations, with some concrete understanding of this relatively new practice. This, in turn, could help the reader improve the effectiveness of the verification process, while at the same time minimizing verification risks.

It should be noted that the author is not affiliated with the province of Alberta's environmental regulatory authority and that all of the information presented in this paper is either publicly available or based on field work conducted by the author.

BACKGROUND ON GREENHOUSE GAS PROGRAMS

In order to provide the reader with some context, a summary description of the status of the Canadian federal GHG management program, as well as those programs in a few provinces, precedes a more detailed account of the history and development of Alberta's program.

Canadian Federal Context

Canada, as a result of its size and associated transportation demands, its climate and associated energy demands, and its resource-based economy, is the third largest per capita GHG polluter in the world.¹ There is also strong economic pressure to harvest the country's vast natural resources, particularly in the oil and gas sectors (most notably unconventional oil).

Canada has been tracking its GHG emissions since 2004 through a federally administered mandatory GHG reporting program designed to meet the requirements of the United Nations Framework Convention on Climate Change. The program requires industrial emitters that generate 50,000 tonnes of CO₂-equivalent emissions, or more, annually to report certain details of their operations and emissions to Environment Canada (prior to 2009 the reporting threshold was 100,000 tonnes).

While a number of targeted GHG reduction initiatives have been or are in the process of being drafted at the federal level (e.g., vehicle fuel efficiency standards and the phase-out of much of

the county's coal-powered electricity generation), there is no "economy-wide" carbon reduction scheme such as cap-and-trade or carbon tax in sight.

Provincial/Territorial Context

Canada's 13 provinces and territories are economically diverse. To give a few examples, Alberta and Saskatchewan are typically seen as fossil fuel-rich or energy-rich provinces; British Columbia, Manitoba and Québec have much in the way of hydro-electric power and forestry; and Ontario is often seen as the country's manufacturing and financial centre.

Perhaps due to this diversity of economies and to a desire to accelerate the pace of climate action, many Canadian provinces and territories have set their own targets, made their own commitments and implemented their own policies. Progress in the province of Alberta is of note: climate legislation has been active since 2002 when the province passed its Climate Change and Emissions Management Act.² Also of note is the progress made by British Columbia, Manitoba, Ontario and Québec under the Western Climate Initiative (WCI). WCI is a collaborative partnership of six states and four provinces that share a goal of reducing GHG emissions on a regional scale using a market-based cap-and-trade system. Progress made by WCI's constituent jurisdictions is variable, with the most active planning to start cap-and-trade in 2012.

Alberta Context

Alberta has an abundance of fossil fuels, and hosts a thriving export-oriented oil and gas industry with large proven reserves in the province's oil sands. Also, over 80% of its electricity generation capacity is accounted for by coal or natural gas thermal plants.³ The effects of the development of these resources is seen in the province's GHG emissions. In 2008, 262.6 million tonnes of GHG emissions were reported for large industrial facilities across Canada; Alberta was responsible for approximately 42% of that total.⁴ As a frame of reference, Alberta's population accounts for about 11% of the country's total population⁵ and its GDP accounts for roughly 16% of the country's total GDP.

The Alberta Government has stated that the province has a "unique position as an energy supplier to the world and the reality that, for the foreseeable future, the world will continue to rely on Alberta's secure supply of oil and gas."⁴ Given this intention to continue the development of its energy resources, with emphasis presumably on the oil sands, the province was prudent to act early in developing its own climate legislation.

As mentioned, in 2002 the province introduced its framework for climate policy with the enactment of the Climate Change and Emissions Management Act. In 2003, the environmental regulatory authority in the province of Alberta, Alberta Environment, jumped ahead of the curve by legislating the Specified Gas Reporting Regulation⁶, requiring all facilities that emit more than 100,000 tonnes of CO₂e annually to report their GHG emissions (subsequently reduced to 50,000 tonnes for 2009 emissions). In 2007, Alberta Environment became a pioneer of mandatory third party verification with legislation of the Specified Gas Emitters Regulation⁷ – an intensity based GHG emissions reduction program applying to the province's large emitters. An intensity based program strives to improve production efficiency in terms of GHG emissions. In other words, the relevant metric is not an absolute quantity of total annual emissions; rather it is total annual emissions divided by total production for the year. Therefore, as long as a facility

can reduce the amount of GHG emitted per unit of production as it expands that production, it can continue to increase its total emissions from year to year.

Typically, facilities are required to reduce their GHG emissions intensity by 12% over a 6 year period, with a 2% reduction obligation per year. Reductions are measured against facility-specific baseline intensities that are determined from three years of historical operations. Facilities that cannot meet their reduction obligations by improving their own efficiencies have three alternative compliance options. They can submit offset credits that are serialized on the Alberta Emissions Offset Registry, submit serialized emission performance credits that were generated at another regulated facility that has reduced its emissions intensity below its obligation, or purchase fund credits from the Climate Change and Emissions Management Fund (i.e., Technology Fund).

The benchmark value of \$15/tonne CO₂e set by the Technology Fund compliance option provides some insight into the financial implications of this program for large emitters. These financial implications are among the reasons that AENV requires assurance that reported emissions are reliable.

THIRD PARTY VERIFICATIONS

While the application of suitable, standardized emissions quantification methodologies certainly plays an essential role in generating accurate and consistent GHG assertions, many GHG program operators require additional assurance that reported GHG assertions are true and correct. Third party verification has emerged as a preferred mechanism for providing that assurance. In a process similar to a financial audit, third party GHG verification involves a risk-based assessment of an assertion by independent experts. The assessment may focus on any aspect related to the GHG assertion including emissions calculations and the associated data, equipment maintenance and calibration, quality assurance procedures, and staff training and experience.

The sections below discuss some of the important principles and practices of third party verifications and how they have been interpreted and implemented in Alberta's GHG reduction program.

Verification Process

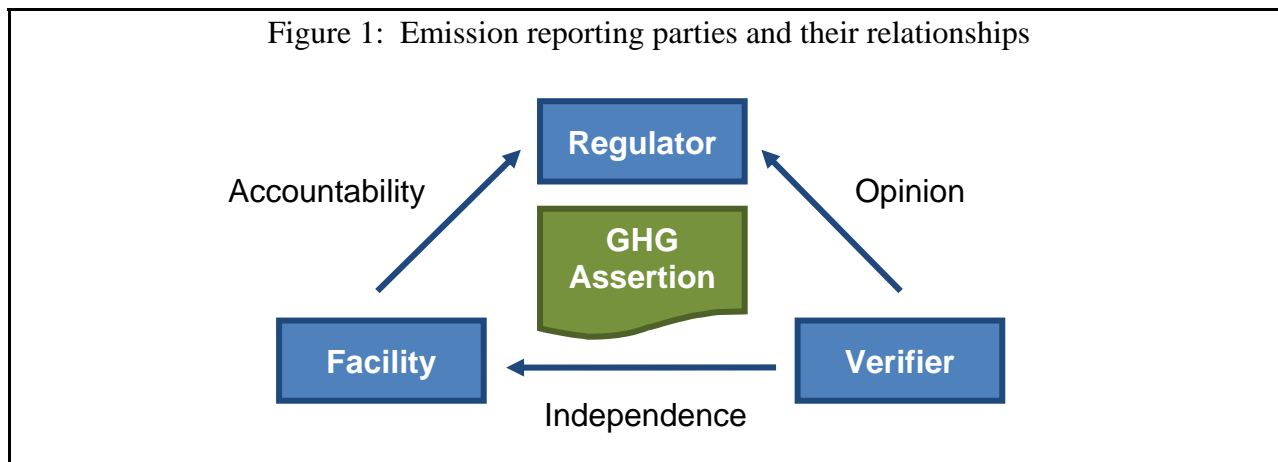
The verification process adopted by third party verifiers under a given program should be generally consistent from practitioner to practitioner and should meet the needs of the overarching program requirements. In Alberta, this process has taken the following basic form: facility hires verifier; verifier drafts verification and sampling plans; verifier conducts site visit and field work; verifier documents errors, inconsistencies or other insufficiencies in the facility's assertion; facility may address deficiencies; verifier reviews significant changes and issues a verification statement to facility; and, facility appends verification statement to their assertion and submits to Alberta Environment.

Typically, there is communication between verifiers and facilities throughout the verification process. The verifiers may need explanations of complex or unconventional methodologies used in the assertion, they may wish to interview staff at the facility to gauge their competence and

expertise, or need additional information, documentation or data that supports the facility's assertion.

Roles & Responsibilities

The relationships of the various parties involved in GHG emissions reporting are shown in Figure 1.



In practice, the roles and relationships among these parties have sometimes become confused. For example, Alberta has seen verifiers slip into the role of consultant for the reporting facility, making recommendations and correcting errors. Also, reporting facilities have erroneously assumed that their verifier has the authority to grant permission to deviate from methodologies used in baseline assessments or standard practices outlined in regulatory guidance documents.

Verifier Qualifications

A GHG program should define specific qualifications required by individuals and/or teams in order to conduct verifications. One universal qualification is independence. In Alberta, a verification team is considered to be independent from the facility submitting the assertion if it can demonstrate that there is no threat of self-interest, self-review, advocacy, familiarity, and intimidation or economic dependence by conducting the verification. Most of these categories are self-explanatory, but for more information the reader is referred to Alberta Environment's Technical Guidance for Completing Specified Gas Compliance Reports.⁸ One detail of note related to the independence requirement in Alberta is that a facility cannot acquire verification services from the same lead verifier or verification team for more than five consecutive compliance cycles.

Alberta Environment has also specified qualifications required by particular roles on a verification team. For example, the team's designated signing authority must be registered under either the Alberta Regulated Accounting Profession Act (or equivalent) or the Engineering, Geological and Geophysical Professions Act (or equivalent); the lead verifier must be able to demonstrate expertise in either ISO 14064-3, CICA Handbook – Assurance Section 5025, or ISAE 3000 – Assurance Engagements Other Than Audits or Reviews of Historical Financial Information. Finally, each team requires a peer reviewer to provide independent judgment of the team's verification activities and conclusions.

Currently, Alberta Environment does not require individuals to be certified or organizations to be accredited before conducting verifications. It has indicated, however, that it is working with national accreditation bodies to adopt certification/accreditation requirements in the future.

Level of Assurance

Level of assurance refers to the degree of assurance or certainty that the intended user (e.g., regulator) requires from a verification.⁹ Level of assurance affects the degree of rigor in the verifier's investigation and testing of data and calculations (i.e., sampling plan) – the higher the required level of assurance, the more extensive and comprehensive the sampling plan.

Since its inception in 2007, the Alberta program has required a limited level of assurance from its verifiers. This level of assurance is more stringent than financial verification at a negative level, but does not provide a positive conclusion regarding the GHG assertion. Starting with 2012 emissions (i.e., for verifications submitted in 2013), Alberta Environment will be adopting reasonable-level assurance⁸, which is more stringent than limited-level and is intended to provide assurance that the statement of emissions is believed by the verifier to be true and correct. In the author's experience many facilities require improvements in the quality of their GHG assertions before verifiers will be able to issue reasonable-level assurance.

Materiality

In essence, materiality can be considered a tolerance for error. A given GHG program should define a threshold to which errors can be compared in order to determine if they are acceptable (immaterial error), or if they are likely to influence the intended user's decisions (material error). It is the responsibility of the verifier to identify and report both material and immaterial errors, but material errors must be rectified before a verifier can provide assurance in their verification statement.

In Alberta, the materiality threshold has been set at two different levels depending on the facility's total annual emissions. If the facility's total annual emissions are less than 500,000 tonnes CO₂e, then the applicable threshold is 5% of total emissions. Otherwise, the applicable threshold is 2%. It may be noted that in Alberta, if multiple errors are found they are to be aggregated rather than netted. Finally, there is distinction between quantitative and qualitative materiality where the former deals with discrepancies of a numerical nature where the magnitude of the discrepancy can be estimated to a reasonable degree of accuracy, and the latter refers to discrepancies or uncertainties that are non-numerical in nature (e.g., lack of transparency, poor data handling or record keeping). Discrepancies have been deemed material on both quantitative and/or qualitative bases.

EVALUATION OF PRACTICE

Alberta Environment hosts annual workshops to discuss historical performance and future plans surrounding the Specified Gas Emitters regulation and associated legislation. One part of these workshops is essentially an evaluation of the practice of third party verification in the province. Much of the evaluation is based on feedback obtained from re-audits of about 10% of the verification reports submitted during a compliance cycle. These re-audits are conducted by verifiers working on behalf of Alberta Environment. Not only do these audits facilitate an evaluation of practice, but they also provide assurance that third party verifiers are performing

satisfactorily. Alberta Environment has indicated that this valuable and informative re-auditing procedure will continue into the future.

SUMMARY

In the Canadian context, the province of Alberta has led the way in terms of developing and implementing GHG reporting, management and verification policy. Debate around the effectiveness of this policy aside, the province's relatively early action and efforts to pioneer untested policy have made it a leader in this area.

Over the course of three compliance cycles, there have been important lessons learned by all parties involved in Alberta's GHG program including regulators, industry and verifiers. The regulations, associated guidance documentation and communication channels will continue to evolve with improving clarity, fairness and effectiveness. Industry is growing accustomed to the regulatory requirements; is investing in well-trained staff and emissions data collection, management and reporting systems; and is including GHG emissions management in its operational and capital budgets, in some cases to make reductions at the source. Finally, through training and certification exercises, verifiers are becoming well-versed in the theory and concepts of third party GHG verification as laid out in authoritative sources such as ISO 14064-3, and are applying these concepts with greater effectiveness. Hopefully the lessons learned in Alberta will be helpful to those jurisdictions about to embark on their own programs with their own verification requirements.

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KEY WORDS

Greenhouse gas (GHG) verification, third party (third-party) verification, greenhouse gas (GHG) auditing (audit), Alberta, Alberta Environment, Specified Gas Emitters Regulation (SGER).