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1. Introduction

The *Greenhouse Gas Industrial Reporting and Control Act* (the *Act*) received Royal Assent on November 27, 2014. The main intent of the *Act* is to enable performance standards to be set for industrial facilities or sectors by listing them in the Schedule to the *Act*. The *Act* also streamlines several aspects of existing greenhouse gas legislation and regulations into a single legislative and regulatory system, including:

- *Greenhouse Gas Reduction (Cap and Trade) Act* (to be repealed)
- *Greenhouse Gas Reduction Targets Act*, *Reporting Regulation* (to be repealed and replaced by a new *Reporting Regulation* under the *Greenhouse Gas Industrial Reporting and Control Act)*
- *Greenhouse Gas Reduction Targets Act*, Offsets Regulation (to be repealed and replaced by a new Offsets Regulation under the *Greenhouse Gas Industrial Reporting and Control Act)*
- *Environmental Management Act* section 6.1 (repealed and replaced by the requirement for coal fired electricity generation facilities in the Schedule to the *Greenhouse Gas Industrial Reporting and Control Act*

Liquefied natural gas (LNG) operations are regulated under the new *Act* and an annual greenhouse gas emissions intensity limit of 0.16 carbon dioxide equivalent tonnes per tonne of liquefied natural gas produced (tCO_2e/tLNG) has been listed in the Schedule.

The *Reporting Regulation*, a regulation respecting the annual reporting of industrial greenhouse gas emissions, existed under the *Greenhouse Gas Reduction (Cap and Trade) Act* and was aligned to the industrial reporting requirements of the U.S. Environmental Protection Agency and the member jurisdictions of the Western Climate Initiative. The methodologies and procedures of the existing *Reporting Regulation* are proposed to be largely maintained in the new *Reporting Regulation* under the *Greenhouse Gas Industrial Reporting and Control Act* with the addition of new requirements addressing the liquefied natural gas sector.

In addition to the proposed *Reporting Regulation*, the Climate Action Secretariat in the Ministry of Environment (the Ministry) is in the process of developing proposed Offset and Compliance Regulations under the *Act* to include the provisions respecting the creation and management of greenhouse gas offsets, the assessment of compliance and penalties for non-compliance with the *Act* and its regulations, the registry, "earned credits", and the price for a "funded unit". Intentions papers will follow in 2015 on these regulations.

The process for establishing this regulation on the annual reporting of industrial greenhouse gas emissions consists of five phases:

1. Scoping – Ministry assessment of requirements of the legislation and identification of implementation options.
2. Intentions Paper – identifying the proposed approach for annual reporting of industrial greenhouse gas emissions.
3. Consultation – with affected stakeholders and the general public.

4. Drafting – preparation of legal language for consideration by the Minister and Lieutenant Governor-in-Council.
5. Implementation – informing Ministry staff and external stakeholders, and developing guidelines and/or best management practices.

The purpose of this paper is to communicate Ministry intentions, and to seek comments from stakeholders and the general public on the proposed regulation.

This consultation paper provides a summary of government goals and objectives for the proposed regulation and its intended purpose. This is followed by a discussion of the Ministry's intentions regarding the contents of the proposed regulation. The paper also describes the way in which stakeholders, First Nations and the public can provide feedback on the proposed regulation prior to it being drafted and implemented.

Though the intentions paper outlines particular approaches for achieving the stated regulatory objectives, the Ministry welcomes feedback on all aspects of the proposed regulation for consideration. It is anticipated that this regulation will come into force for the 2016 reporting year.

Information on the proposed regulation can be accessed at this website:
http://www2.gov.bc.ca/gov/topic.page?id=60E1E7810BC145C6B6FC00EE31F41EC5

2. Government Goals and Objectives

The Province has two over-arching goals in the new *Reporting Regulation*:

1) Ensuring B.C. has the cleanest liquefied natural gas operations in the world.
    - The benchmark established in the *Greenhouse Gas Industrial Reporting and Control Act* relies on robust and timely greenhouse gas emissions and LNG production reporting by the LNG sector.
2) Robust industrial greenhouse gas emissions information to inform climate policy in B.C.
    - Understanding where emissions come from enables companies to take action at their operation and save money on carbon taxes and energy costs.
    - Understanding the industries and activities that generate greenhouse gas emissions allows government to use regulations and economic tools to incent reductions in critical economic sectors and better understand the costs of low carbon transition.

3. Background Information

3.1 Context

The Province's Climate Action Plan describes the legislative, regulatory and program initiatives intended to achieve our legislated greenhouse gas emission reduction commitments. A major component of the plan is to reduce emissions from industrial facilities and other large emitters. The *Cap and Trade Act* provided the legislative authority to regulate emissions from large industrial emitters, including provisions for establishing reporting, offset and compliance

requirements under regulation. These requirements are now being instituted under the new *Act* covering industrial greenhouse gas reporting, offsets and emissions limits.

At the federal level, Environment Canada has stated that it intends to implement sectoral "intensity-based" benchmarks under the *Canadian Environmental Protection Act*. Recognizing regional differences and existing efforts, Environment Canada has indicated a willingness to enter into equivalency agreements with provinces/territories whose programs have similarly (or more) stringent outcomes. The programs in B.C.'s Climate Action Plan as well as the new *Act* will help the Province to demonstrate that its regulations will meet or exceed emerging federally-mandated targets should B.C. pursue equivalency.

The *Reporting Regulation* is based on rigorous and internationally recognized science from the Intergovernmental Panel on Climate Change and the United Nations Framework Convention on Climate Change. The thresholds for reporting remain at current levels: all industrial emitters in the province over 10,000 carbon dioxide equivalent tonnes per year (tCO_2e) report their emissions annually according to prescribed methodologies consistent with the Western Climate Initiative provinces and States and the United States Environmental Protection Agency; those industrial emitters over 25,000 tonnes CO_2e per year must have their emissions verified by an accredited third party annually prior to submitting their report.

The Ministry intends to include items in the *Reporting Regulation* to address particular characteristics of potential liquefied natural gas operations including:

- The means by which to calculate liquefied natural gas related emissions;
- LNG production; and
- An electricity grid greenhouse gas emissions factor for liquefied natural gas operations.

These are the main topics for discussion and comment in this consultation paper as the existing provisions contained in the existing *Reporting Regulation* will remain as the base of industrial reporting in B.C. The paper will also summarize minor changes to reflect stakeholder feedback and the Ministry's experiences following the *Reporting Regulation*'s approval in November 2009.

3.2 Design principles for emissions reporting

In developing the *Reporting Regulation*, the Ministry is using the following design principles (in common with the underpinnings of most mandatory reporting systems):

- Compatibility – the reporting system (including accuracy of quantification methods, timing of reports, level of confidentiality, source categories covered, and level of verification) require consistency with international standards and transparency for other legislative requirements such as the provincial targets. To prepare sectors for potential future regulation, the reporting requirements are also intended to be comparable to other leading Canadian jurisdictions and meet the requirements of the federal government;
- Prioritization – industrial greenhouse gas reporting and verification effort is focused on larger emitters or those with large cumulative emissions, and those listed in the Schedule;

- Prescribed quantification methods – standard quantification approaches set consistent requirements across similar facilities such that all are treated in the same manner and their emissions reports are comparable;
- Risk-based third-party verification – ensures the accuracy of reported emissions and reduces cost for low risk operations; and
- Access to information – the Province is committed to open government through the publication of industrial greenhouse gas emissions data.

4. Definitions

The Ministry includes definitions in the regulation to specify application and interpretation of the regulation. They build on Western Climate Initiative and Environment Canada terms and definitions, supplemented with province-specific definitions as required for B.C. circumstances or regulatory needs. Definitions fall under the following general categories:

- Greenhouse gas, related measurement units, and conversion factors (i.e., carbon dioxide equivalence);
- Industrial operations, individual facility, and related greenhouse gas emissions and production definitions (e.g., points of regulation, types of reporting operations, emission source categories, emission types and fuel types, feed stocks);
- Industry and facility-specific terms (e.g., lime kiln, calcination, Söderberg process); and
- Reporting and compliance terms (e.g., quality control, verification, audit and compliance).

The definitions will largely be the same as in the existing regulation's Section 1 as these definitions are believed to be clear and have been effective to date. In order to regulate the potential new liquefied natural gas sector, a liquefied natural gas operation definition and related liquefied natural gas production definition will be included. Some minor modifications may be made in order to ensure that all definitions are consistent with the new *Act*.

4.1 Liquefied Natural Gas Operation

The *Greenhouse Gas Industrial Reporting and Control Act* includes a *Schedule of Regulated Operations and Emission Limits* with an annual limit of greenhouse gas emissions for Liquefied Natural Gas Operations of 0.16 carbon dioxide equivalent tonnes per tonne of LNG produced (0.16 tCO_2e/tLNG). A clear description of the greenhouse gas emission sources included in the scope of this operation type is important to provide certainty for future operators.

The *Liquefied Natural Gas Income Tax Act* (Part 1, Sections 7 and 8) includes a definition of a liquefied natural gas facility that forms a reasonable foundation for the definition of a Liquefied Natural Gas Operation for the purposes of the *Greenhouse Gas Industrial Reporting & Control Act*.

The sources of greenhouse gas emissions attributable to a liquefied natural gas operation are from all activities and greenhouse gas emissions sources between the point in the natural gas supply where custody transfers to the liquefaction facility operator (usually the feedstock pipeline inlet custody transfer point on the side of the liquefied natural gas operation including

the metering point for the CO_2 content in the feedstock gas – see Figure 1-M1) and the point where liquefied natural gas is transferred to a vessel for transport to customer (usually the loading transfer point or custody meter – see Figure 1-M6 and M8) include:

- Carbon dioxide removed from the natural gas supply after receipt at the Operation and vented to the atmosphere;
- Stationary combustion of fossil fuels at the Operation or attributable to the Operation as defined in the *Act*, including emissions from electricity generation onsite;
- Greenhouse gases associated with electricity generated offsite and consumed by the operation;
- Products of combustion from flaring and incineration; and
- Fugitive or vented emissions of carbon dioxide and methane from onsite infrastructure, piping and other equipment.

These sources of greenhouse gas emissions are consistent with emissions sources required to be reported from other similar industrial facilities in the natural gas sector in British Columbia. Mobile equipment will not be included in the definition of a liquefied natural gas operation.

Rationale

British Columbia is committed to have the cleanest liquefied natural gas facilities in the world. The Province surveyed leading liquefied natural gas facilities worldwide to determine that a 0.16 tCO_2e/tLNG emissions intensity limit would have a clear and lasting justification to this "cleanest liquefied natural gas facility" distinction.

The comparison of global leading facilities' greenhouse gas emissions intensities covered all greenhouse gas emissions from the point where natural gas enters the plant, to where it is loaded onto a ship, train or other transportation system for delivery to market.

To ensure that facilities that achieve the emissions intensity limit have a credible claim to be the world's cleanest liquefied natural gas facilities, B.C. must ensure consistency between the sources of greenhouse gas emissions used to design the benchmark and those covered by the *Reporting Regulation*.

5. Reporting Requirements

5.1. Addition of job title of operation representative to registration requirements

The current *Reporting Regulation* does not require the reporting of the job title of the operation representative. However, the Ministry has identified that many reporting operations employ consultants regularly for this purpose.

The Ministry's intention is to require reporting operations to report the job title of the operation representative, as part of the registration requirements outlined in section 9(3) of the *Reporting Regulation.*

Rationale

This addition will aid in the Ministry's due diligence and ensure that the operation representative is an officer of the company.

5.2 First Year of Regulation

Industrial operations in B.C. will continue to report greenhouse gas emissions on an annual basis beginning January 1 and ending December 31. Reporting begins the first year that an operation exceeds 10,000t CO_2e. As LNG Operations have an associated greenhouse gas intensity benchmark obligation, the Ministry intends to standardize the point at which an LNG operation's obligations under the *Act* begin, to avoid uncertainty for operators as to when their facility must begin monitoring and reporting emissions. The Ministry is considering a date based on a set period such as three months post receipt by an LNG operator of their Leave to Operate from the British Columbia Oil and Gas Commission. The Ministry is in consultation with the relevant Ministries and agencies regarding the specific date or criteria.

Section 11 of the Liquefied Natural Gas Facility Permit Application and Operations *Manual (http://www.bcogc.ca/node/11268/download)* states:

- *Before commissioning and operation of the liquefied natural gas facility can begin, the permit holder must submit, in writing, to the Deputy Commissioner of Pipelines and Facilities, notice of their intent to begin commissioning the liquefied natural gas facility by introducing hydrocarbons, followed by the beginning of operations. Further testing and cooling of the liquefied natural gas tanks will take place before liquefied natural gas will be produced on a commercial scale.*

Rationale

The Ministry is interested in this approach because it is a clear and uniform point in the project development cycle that is common to all LNG facilities, meaning it is administratively efficient and simple to demonstrate for verification.

5.3 Revised 'de minimis' approach so it applies to each individual facility within a linear facilities operation

Section 13(4) of the current *Reporting Regulation* allows for the use of replacement methods for estimating greenhouse gas emissions, provided that the total amount of emissions quantified using these methods does not exceed the lower of 3% or 20,000 tCO_2e of the emission associated with the reporting operation. In the case of a linear facilities operation comprised of many smaller facilities, this may lead to a significant fraction of an individual facility's emissions being quantified via replacement methods since the 'de minimis' threshold inappropriately applies to the linear facility operation as opposed to the sub-facility.

The Ministry's intention is to not replicate this approach in the new *Reporting Regulation* such that the 'de minimis' approach for using a replacement methodology in a linear facility operation is applied to each individual facility within it with emissions of 10,000 tCO_2e or above.

Rationale

This approach intends to correct the 'de minimis' approach so that it is applied to each individual facility within a linear facilities operation, consistent with other operations, as it was originally intended.

5.4 Requirement to report changes in management and control of reporting operations

The current *Reporting Regulation* does not require reporting operations to report/notify of changes in management and control, for example of sales, acquisitions, or closures of facilities.

The Ministry intends to include a requirement that reporting operations report the following when submitting their annual emissions report:

- The sale of a facility they manage or control;
- The acquisition of a facility they manage or control;
- The closure of a facility they manage or control; and
- The opening of a facility they (would) manage or control.

In each case the reporting operation would report the facility's administrative details as applicable similar to those listed in section 12(1.1) of the current regulation, and also, if sale or acquisition, the other company's name.

Rationale

It is difficult and time consuming for program staff to track the year to year industrial emission sources and their attribution in B.C. There is some voluntary reporting of management and control changes through an already-existing module in the Single Window Greenhouse Gas reporting system used by reporting operations for reporting. Adding this requirement in the new Reporting Regulation will formalize this practice and ensure costly auditing and verification activities for industry are avoided.

6. Quantification Methods to be used in Reporting

6.1 Annual Liquefied Natural Gas Production

The liquefied natural gas greenhouse gas emissions intensity benchmark requires the reporting and verification of an Operation's liquefied natural gas production annually. The Ministry of Environment, in communication with the Ministry of Finance, is anticipating the requirements for quantification of annual production of liquefied natural gas will be aligned between the *Liquefied Natural Gas Income Tax Act* and the *Greenhouse Gas Industrial Reporting and Control Act* to reduce monitoring and reporting burden for the liquefied natural gas industry and ensure consistency.

A liquefied natural gas operation will measure liquefied natural gas throughput (in cubic metres at reference conditions) at the point of sale, downstream of the cryogenic storage tank (see figure 1-M8) for each calendar year. Liquefied natural gas in storage (see figure 1-M7) will be measured on the first and last day of the calendar year, and the difference between the January 1

and December 31 measurements will be added to the total annual throughput for the same calendar year. The Operation would report this combined amount as total annual production of liquefied natural gas, and use as the denominator in the calculation of the greenhouse gas emissions benchmark for the Operation.

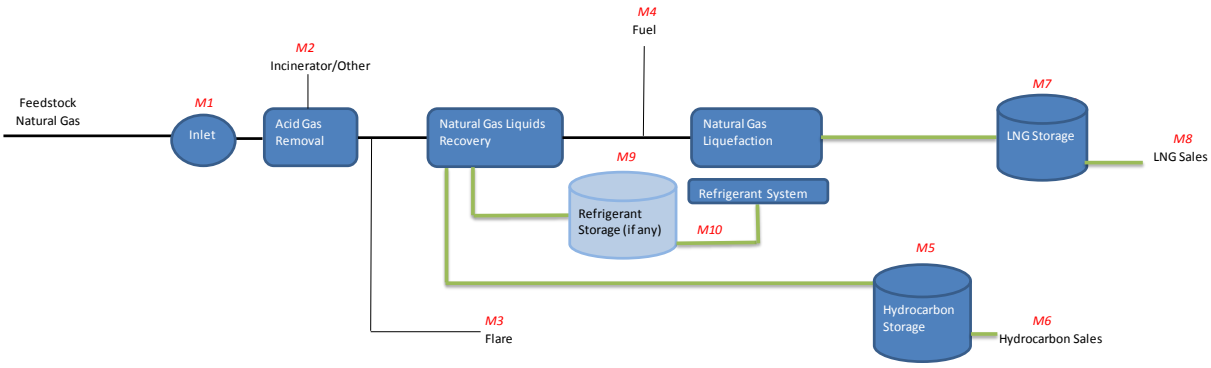

Figure 1. Measurement at liquefied natural gas operations

Liquefied natural gas production will be reported in metric tonnes of liquefied natural gas. The Western Climate Initiative (WCI.363 sections q and r) "Final Essential Requirements of Mandatory Reporting", available at http://www2.gov.bc.ca/gov/DownloadAsset?assetId=7269E09CE89D4EAE8A5D083D6E314767&filename=unofficial_2013-wci-360-petroleum-ng-production-ng-processing-redline.pdf) provides the methodology required for the conversion of cubic metres to metric tonnes and other required conversions for the accurate reporting of associated greenhouse gas emissions.

Rationale

Section 3(1)(b) of the *Greenhouse Gas Industrial Reporting and Control Act* authorizes the collection of production data for those facilities required to meet a benchmark. This addition enables the calculation of the operation's emissions intensity limit as that standard depends on the mass in tonnes of liquefied natural gas produced.

6.2 CO_2 in feedstock gas

The concentration of CO_2 in the feedstock gas for liquefied natural gas operations is not expected to be greater than the current pipeline specification limit of 2%. The CO_2 removed during processing is likely to be vented to the atmosphere. Operations are required to monitor the volume of CO_2 vented, in accordance with the prescribed methodology WCI.360 in the existing *Reporting Regulation*, including calculation based on CO_2 concentration reports received from a pipeline service provider. Emissions are commonly calculated based on the volume of raw gas purchased, multiplied by the molar fraction of CO_2 in that gas.

Rationale

New liquefied natural gas operations that will link to existing and new pipelines will have real-time measurements of gas composition. The use of this real CO_2 data is consistent with a methodology already used by other industrial operations in B.C.

6.3 Electricity Generated Off-Site

Operations' emissions from electricity generated on-site continue to be reported using WCI.40 through WCI.46 quantification methodologies: (http://www2.gov.bc.ca/gov/DownloadAsset?assetId=D720E3126B0C4DCDA05F42A0EA0AADBA&filename=final-essential-requirements-of-mandatory-reporting-dec-17-2010.pdf).

For LNG Operations the Ministry intends to include greenhouse gas emissions resulting from purchased or bartered electricity quantified and reported as per Schedule D, Section 4 and Schedule A, Table 1, Row 9 of the current *Reporting Regulation*.

The Ministry intends to establish a standard factor for electricity purchased from BC Hydro based on the average greenhouse gas intensity of B.C.'s electricity grid calculated on an annual basis and published on the Ministry's website by October 31st of each year. The calculation will incorporate electricity generation in B.C. and electricity imported into B.C. The intensity will be calculated on a three year rolling average to smooth the effect of variation in annual water inflow and actual import amounts, without discounting any actual greenhouse gas emissions.

$$\text{Utility GHG system intensity} = \frac{(GHG_{generation} + GHG_{imported})}{(GWh_{generation} + GWh_{imported})}$$

Where:

$GHG_{generation}$ is the stationary combustion greenhouse gas emissions attributable to electricity generation supplied to the electric utility on the integrated B.C. grid from facilities located in British Columbia, which are owned by or contracted to supply electricity to the electric utility, quantified and reported pursuant to the *Reporting Regulation* in metric tonnes of CO_2e.

$GHG_{imported}$ is the stationary combustion greenhouse gas emissions attributable to electricity imported into British Columbia for the electric utility, quantified and reported pursuant to the *Reporting Regulation* in metric tonnes of CO_2e.

$GWh_{generation}$ is the electricity supplied to the electric utility and the integrated B.C. grid from facilities located in British Columbia that are owned by or contracted to supply electricity to the electric utility.

$GWh_{imported}$ is the electricity imported into British Columbia for the electric utility, quantified and reported pursuant to the *Reporting Regulation.*

Sample calculation based on representative annual data:

$GWh_{generation}$ = 55,000 GWh $GHG_{generation}$ = 1,000,000 tCO_2e

$GWh_{imported}$ = 10,000 GWh $GHG_{imported}$ = 950,000 tCO_2e

$$\text{GHG intensity} = \frac{(1{,}000{,}000 + 950{,}000)}{(55{,}000 + 10{,}000)} = 30\ tCO_2e/GWh$$

If a facility:

i. reports its greenhouse gas emission under the *Reporting Regulation*, but does not quantify its stationary greenhouse gas emissions attributable to electricity generation supplied to the electric utility on the integrated B.C. grid; or
ii. is located in BC and does not quantify and/or report its stationary greenhouse gas emissions attributable to electricity generation supplied to the electric utility on the integrated B.C. grid pursuant to the *Reporting Regulation*; then
iii. such a facility shall quantify and report its stationary combustion greenhouse gas emissions attributable to electricity generation supplied to the electric utility on the B.C. grid directly to the electric utility in such a manner reasonably acceptable to the electric utility and that accurately reflects the stationary combustion greenhouse gas emissions that are directly associated with electricity generation supplied to the electric utility on the B.C. grid.

Should a facility not report their stationary combustion greenhouse gas emissions to the electric utility in such a manner, then the electric utility may prescribe the stationary combustion greenhouse gas emissions attributable to that facility in a manner acceptable to the Ministry of Environment to support the timely and reasonable calculation of the annual electricity emissions intensity.

Rationale

Liquefied natural gas operations should report emissions from powering their facilities comprehensively and consistently in order to maintain the integrity of the benchmark. Emissions from on-site sources and emissions from off-site electricity generation will be included. Voluntary users of the electricity intensity of B.C. grid supplied electricity may consistently and reliably calculate their associated greenhouse gas emissions.

7. Verification

7.1 Verification Deadline

The deadline for receipt of verified emissions reports will be similar to Part 4 of the existing regulation. Facilities reporting over 25,000 tonnes of greenhouse gas emissions in any given year, excluding CO_2 from combustion of biomass, will continue to obtain third party independent verification for their emissions reports. The existing regulation was amended in 2014 to change the verification deadline to May 31 of the year in which the emissions report is due.

The existing regulation requires that verifiers be accredited by a recognized accreditation body, such as the Standards Council of Canada or the American National Standards Institute. The same

verification body would not be able to verify reporting data at a given company's facilities for longer than a six-year time period.

7.2 Requirements for verification site visits

Section 23(3) of the current *Reporting Regulation* requires verification site visits for each reporting period (every year).

The Ministry's intention is to:

1) Allow for verification site visits once every two reporting periods, provided:
   - There are no significant facility changes as determined to the satisfaction of the verification body, and
   - The last two verification statements are positive without qualifications; and
2) Enable a Verification Body to require submission of acceptable photographic and other direct evidence in support of (1) above.

Rationale

Based on accumulated experience and feedback from industry and verification bodies, there is sufficient evidence that this requirement may contribute to significant cost and effort for no material gain in accuracy or completeness.

8. General requirements

This section is intended to be similar to Part 5 of the existing regulation, which covers record retention, publication of information, inspections and appeals.

8.1 Introducing a regular process for quantification methods review and update if needed

Currently the greenhouse gas emissions quantification methods are included in the *Reporting Regulation* by reference. The methods are the ones adopted by the Western Climate Initiative and published on their website. The methods are updated in an ad hoc fashion as the need arises, initiated by the Province. While frequent updates were required initially, the current version of the methods has been stable for a few years and no major updates or changes are anticipated.

The Ministry's intention is to include provisions in the new regulation to require:

- Regular review and update (if needed) by B.C. every third calendar year following the year in which this updated regulation comes into force; and
- Ensure that this does not preclude ad hoc updates necessitated by major changes or scope expansion (industry activities additions).

Rationale

Introducing a regular B.C. review process on a known timeline would mean more certainty for industrial operations as they will be able to better plan for changes as a result of updated methods.

9. Providing Comment

Written comments on the proposed intentions of the Ministry outlined in this paper are being solicited for a 30-day period. Following review of comments and submissions, the Ministry will complete legal drafting of the regulation for legislative review and implementation.

Comments received will be treated with confidentiality by Ministry staff and contractors. Please note that comments you provide and information that identifies you as the source of those comments may be publicly available if a Freedom of Information (FOI) request is made under the *Freedom of Information and Protection of Privacy Act*.

Those interested are invited to submit comments in writing to: climateactionsecretariat@gov.bc.ca. Please include the following subject line "GGIRCA Reporting Regulation comments" in your email.

Comments to the Ministry should be made on or before April 20, 2015.

Thank you for your time and consideration.