BRITISH COLUMBIA PUBLIC SECTOR EMISSIONS REPORTING: QUALITY CONTROL AND QUALITY ASSURANCE GUIDANCE DOCUMENT

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Table of Contents

List of Tables

List of Figures

1. Introduction

1.1 Background

In 2007, the B.C. Government passed the *Greenhouse Gas Reduction Targets Act* (GGRTA), which legally requires all public sector organizations (PSOs) to be carbon neutral beginning in the calendar year of 2010. The carbon neutral commitment applies to core government (Ministry) operations as well as crown corporations, health authorities, post secondary institutions and school districts across the province of British Columbia.[1] All PSOs will need to perform the following key tasks to comply with the Province's carbon neutral government regulation (*CNGR*):

1. Measure greenhouse gas emissions
2. Plan and implementing carbon reduction initiatives
3. Invest in carbon reduction offset projects to achieve carbon neutrality
4. Report publically

1.2 The need for quality controls

To increase confidence in the relevance, completeness, consistency, transparency, and accuracy of GHG estimates, BC has established a formal approach for the collection and compilation of consumption data from building, fleet, paper and fugitives in addition to business travel for core government.

For many PSOs, collecting data, estimating and reporting GHG emissions may be a new concept, and in some cases standards of formal GHG accounting may be unfamiliar. To reach the standard of quality required by the regulation, PSOs need to set up processes, if they do not already exist, to support reliable and accurate reporting.

1.3 Document purpose

The objective of this manual is to aid PSOs in the development of processes that support the collection and reporting of high quality energy, fuel and paper consumption data for greenhouse gas (GHG) emissions measurement. Additionally, this manual will provide guidance regarding the development of governance structures required to ensure these processes are appropriately maintained and managed. The processes and structures described in this manual are designed to support self certification and verification of public sector energy, fuel and paper consumption data reporting.

1.4 Document audience

This guidance document is intended to provide advice for individuals within PSOs who are involved in or responsible for reporting consumption data from building, fleet, paper and fugitives (and business travel for core government), under the *GGRTA* and *CNGR.*

[1] PSOs encompass core government entities funded through the Consolidated Revenue Fund (e.g., ministries, special offices, tribunals) and broader public sector agencies – health authorities, school districts (K-12), colleges and universities, and Crown corporations under the Government Reporting Entity.

1.5 Guidance document structure

The Guidance manual is structured to first provide an overview of key quality control and quality assurance concepts, then to describe the application of these concepts to PSOs. In describing the application of these concepts, this manual makes use of the GHG Reporting Framework, which helps to structure the discussion around the quality control and quality assurance procedures. Following a broad discussion of which controls may apply to which part of the GHG reporting framework, the guidance manual provides an overview of how an organization can customize controls to their situation. The appendix at the end provides examples of common risks associated with each part of the GHG Reporting Framework, and possible controls that may be put into place to address these risks.

2. Key GHG quality reporting concepts

2.1 Section objective

This section is intended to provide background information on key quality control concepts which will later aid in the development of customized controls.

2.2 GHG reporting principles

Before designing and implementing controls to support reliable reporting, it is important to understand the underlying principles that define quality reporting. The World Resource Institute/ World Business Council (WRI/WBCSD) for Sustainable Development have identified five key accounting reporting principles that drive quality reporting: relevance, completeness, consistency, transparency and accuracy. The Climate Registry[2] has adopted the WRI principles. The definitions of these principles are as follows[3]:

1. **Relevance** – Ensure the GHG inventory appropriately reflects the GHG emissions of the company and serves the decision-making needs of users – both internal and external to the company.
2. **Completeness** – Account for and report on all GHG emission sources and activities within the chosen inventory boundary. Disclose and justify any specific exclusions.
3. **Consistency** – Use consistent methodologies to allow for meaningful comparisons of emissions over time. Transparently document any changes to the data, inventory boundary, methods, or any other relevant factors in the time series.
4. **Transparency** – Address all relevant issues in a factual and coherent manner, based on a clear audit trail. Disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used.

[2]The Climate Registry is a non-profit collaboration among North American states, provinces, territories and Native Sovereign Nations that sets consistent and transparent standards to calculate, verify and publicly report greenhouse gas emissions into a single registry. The Registry supports both voluntary and mandatory reporting programs and provides comprehensive, accurate data to reduce greenhouse gas emissions. http://www.theclimateregistry.org.

[3] The World Resource Institute/World Business Council for Sustainable Development. *GHG Protocol: A Corporate Accounting and Reporting Standard*, Revised Edition, p 7

5. **Accuracy** – Ensure that the quantification of GHG emissions is systematically neither over nor under actual emissions, as far as can be judged, and that uncertainties are reduced as far as practicable. Achieve sufficient accuracy to enable users to make decisions.

Because verifiers assess GHG reports based on their adherence to these five reporting principles, PSOs should design and implement controls that drive GHG data which is relevant, complete, consistent, transparent and accurate.

2.3 Customizing controls to suit the PSO

There is no uniform approach or a list of "standard" controls that will ensure quality GHG reporting. Controls will need to be tailored to suit the reporting structure and size of the organization. Section 7 provides an overview of the processes that can be used by PSOs to design and implement custom controls for GHG reporting.

2.3.1 Reporting structure

The design structure of the GHG reporting function will define where responsibilities and accountabilities for data and reporting are assigned across the PSO. Organizations will need to determine or decide whether their reporting structure follows a centralized or decentralized model.

- A highly centralized model will assign reporting roles, such as capturing and recording GHG consumption data, to a limited number of key individuals at the center of the organization.
- A highly decentralized model will assign reporting roles to numerous individuals across the PSO with the data then being compiled and reported by key individuals at the center of the organization.

The reporting design structure can follow either a highly centralized or decentralized model, or a combination of both. The type of reporting structure will have an impact on the inherent control strengths and weaknesses of the PSO and the type of controls needed to address control gaps. For example, in a highly decentralized model there is an inherent risk of inconsistent application of reporting procedures because data processing is conducted by numerous individuals. In this circumstance the PSO should develop controls that formalize procedures across the organization and establish training to reinforce consistent application of procedures.

2.3.2 Size of organization

PSOs will need to access data sources, which provide evidence that support emission totals, when compiling GHG reports and assigning responsibilities and accountabilities for data sets to a data owner.[4] Data-handover from individuals charged with capturing the data to individuals charged with reporting the data is an important part of designing an effective and controlled GHG reporting process.

4 Data Sources are discussed in more detail in Section 2.4 GHG reporting resources

The amount of data handover may be dependent on the size of the PSO and the design of the reporting structure:

- A smaller organization may only have one data handover, from the person charged with emissions source data collection to the person charged with data compilation and reporting for the entire PSO.
- A larger organization may have several data handovers, from the various individuals charged with emissions source data collection for the various emissions sources, such as building, fleet, paper and fugitives, through the individual charged with data compilation, to the individual charged with uploading and certifying consumption data for the entire PSO.

The number of data-handovers will have an impact on the inherent control strengths and weaknesses of the business and the type of controls needed to address control gaps. For example, in a small organization where data is controlled by a key individual there is an inherent risk that there is no segregation of duties and the same individual charged with data collection is conducting reviews on the accuracy of the data. In this circumstance the PSO should develop controls that formalize reviews of data by independent third parties that are not charged with data collection, or to document processes to double-check accuracy.

2.4 GHG reporting resources

GHG reporting infrastructure: SMARTTool is a BC government run web-based emissions aggregation/estimating and reporting tool that provides a standardized approach to calculating and reporting an organization's greenhouse gas emissions. Final, compiled usage data is entered into this tool by the Data Compiler.

GHG Data Sources: Data Sources provide evidence that support emission totals. Typical data supporting the four emissions are described in Table 1.

Table 1: GHG Reporting Categories and Supporting Data

	Category	Examples of supporting data
1.	Buildings	• Lists of buildings/office space leased or owned • Electricity and heating invoices or usage reports • Property area totals with % usage by the PSO • Buildings sold or acquired during the reporting period • Leases closed or signed during the reporting period • Subleases signed and to whom (e.g. another PSO, private organization, public organizations not part of the Government Reporting Entity, such as a local government) • At times, Utility Vendor Disclosure Authorization Forms may need to be obtained from landlords to obtain permission to energy usage data for leased buildings
2.	Fleet	• Lists of vehicles leased or owned with description of intended use (e.g. operations, business travel); type of vehicle, type of fuel used • Data provided from an outsourced vehicle management company • Fleet purchases made on a vendor specific fuel cards • If applicable, mileage records, gas consumptions totals, odometer readings

	Category	Examples of supporting data
3.	Fugitives	• Maintenance records • Estimation methodologies
4.	Paper	• Invoices from vendors, which contain the type and quantity of paper • Purchasing records from Accounts Payable

2.5 Control types

There are a number of types of controls that a PSO can implement to establish an effective GHG reporting structure. The different variations of controls along with related examples are listed below.

2.5.1 Preventative vs. detective controls

Preventative Controls are designed to prevent a misstatement from occurring in the first place. Examples of preventative controls include:

- A requirement to include the 'unit of measure' along with the related GHG source data.
- Training on how to upload data into SMARTTool

Detective Controls are focused on detecting a misstatement that has already occurred. Detective Controls provide evidence that an error has occurred but do not prevent the error from occurring. Examples of detective controls include:

- Reconciliations in which the person charged with data capture reconciles paper purchase invoices received against supplier statements on a periodic basis.[5]
- Reviews consumption data for reasonableness, identifies inconsistencies, investigates and corrects any errors found and documents the review performed.

While preventative controls are generally considered stronger than detective controls, a well controlled GHG reporting process should have a combination of both types.

2.5.2 Manual vs. automated controls

Manual Controls are predetermined activities that are physically initiated and completed by employees. For example:

- Individual charged with GHG reporting physically validates that fleet inventory assets match those listed in PSO records.
- Year end consumption data is reconciled against data owners' total to ensure they match; management reviews and investigates significant variances.

[5] This function may be completed by accounts payable staff as a part of the financial accountability for an organization.

Automated Controls are check points in an application or information system to enhance the likelihood that established control objectives will be achieved. Once system controls have been properly initiated, they do not require employee interaction to function, however monitoring and testing of system controls is beneficial. For example, formulas can be built into spreadsheets to minimize manual calculation/compilation errors and locked down to prevent manipulation.

Manual controls are generally considered less effective than automated controls due to the potential for human error, however even a heavily automated reporting process should have some level of manual controls to provide comfort that automated controls are functioning as designed.

2.5.3 Quality controls, quality assurances and audits

Quality Controls are controls activities carried out by the individuals that produce the data. While not foolproof, Quality Controls are considered most effective, as they are focused on getting reporting right in the first place.

Quality Assurances are control activities performed by individuals other than those primarily charged with reporting. Quality Assurance controls are considered useful for setting the tone and expectation for the organization. As such, absence of effective Quality Assurance controls often drives lax Quality Controls, as primary individuals charged with reporting perceive it to be less important.

Internal Audit (IA) is a review within an organization of the accuracy of GHG reports and whether proper Quality Controls and Quality Assurance controls have been in place. Internal audits or checking should be performed by people external to the reporting function. Audits should ideally only detect minimal errors that have occurred, due to the effective presence of quality controls and quality assurance activities. Any errors found during audits should give rise to concerns about the effectiveness of Quality Controls and Quality Assurance in place. Some organizations may also engage with a third party external auditor in advance of self-certification and verification. However, this is not required.

PSOs should work to improve Quality Controls and Quality Assurance and audits should be used as complimentary activities to assess the effectiveness of controls and identify gaps for improvements. In many cases, involving an organizations' internal audit group to examine the quality control and quality assurance procedures, and the self-certification check-list documentation will help to improve internal confidence in the GHG statement and further promote GHG reporting as a part of an organization's culture.

3. GHG quality reporting framework

3.1 Section objective

This section is intended to provide information on how quality control and quality assurance should be developed across the entity and throughout reporting process to enable quality GHG reporting.

3.2 Introducing the framework

A well designed process coupled with internal controls is needed throughout the organization to drive accurate GHG reporting. Below is the description of a GHG Quality Reporting Framework (Framework).[6] The Framework can be used as a guide to help design and implement stronger processes and controls to develop complete and accurate GHG reports.

Controls are specific activities that ensure consumption data is accurate, risks are addressed, and in turn, that organizations comply with GHG reporting requirements. A GHG reporting process refers to the series of actions taken to complete a GHG report. Controls are built into the broader GHG reporting process to achieve accurate data.

The design structure of the process itself is also vital to developing quality GHG reports. While using the Framework does not provide PSOs with absolute certainty that regulatory data quality requirements will be met, it provides guidance that gives flexibility to reporters on how PSOs can choose to design and implement specific processes and controls.

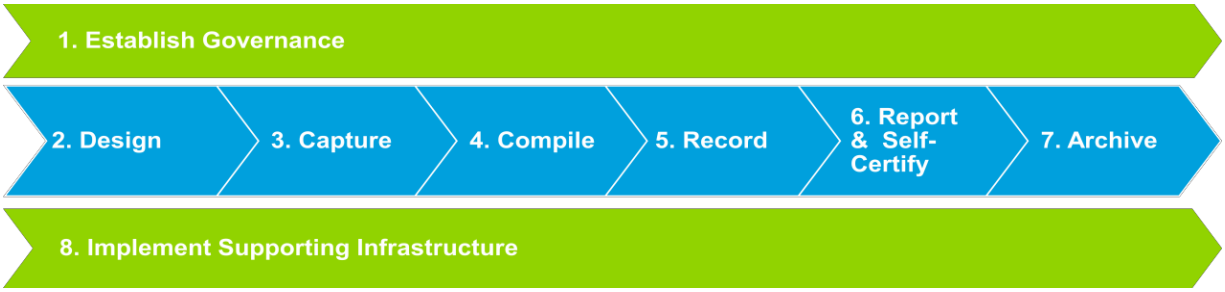
The Framework (see Figure 1) is divided into components tied to key reporting processes (identified in blue) and related entity level controls (identified in green), which are defined below.

Both reporting process specific and entity-level controls are required to drive accurate GHG reporting. Each of the eight components of the Framework is discussed in greater detail in this Manual. To enable PSO's to develop specific controls for each Framework component the next section of the Manual describes the key concepts in developing quality controls for GHG reporting.

Entity-level controls are controls that apply to the whole organization, including Establish governance, and Implement supporting infrastructure (identified in green below). They are designed to help PSO's establish the foundation and organizational culture that enable quality GHG reporting. Process specific controls, Design, Capture, Compile, Record, Report and self-certify, and Archive (identified in blue below), should be designed to support consumption data adherence to one or more of the five reporting principles.

[6] The Framework has been designed with leading risk management theory in mind. The Committee of Sponsoring Organizations (COSO) is a leading risk management think tank that has developed a control model which outlines how organizations can develop a reporting control structure. The COSO model is widely used in areas such as internal audit and internal controls over financial reporting, and therefore the Framework is aligned with what is already in place at many of the PSOs.

Figure 1: GHG Reporting Framework



3.3 Entity-level (organization-wide) controls

Governance and Supporting Infrastructure have a pervasive effect on the organization's environment and do not necessarily relate to only one process or emission source. Establishing a governance/oversight structure and supporting systems/tools is essential to establishing an environment that promotes quality reporting across the organization. These types of controls may include:

- a defined and documented GHG reporting governance structure listed in a policy document,
- systems in place that automate the reporting process, and
- automated controls such as lock down functions.

3.4 Process-specific controls (key process controls)

The Framework components in the middle band of the diagram represent the specific sub-processes necessary for GHG reporting. Controls are needed to address the issues described in Table 2 related to each reporting sub-process that is a part of the system.

Table 2: Key Reporting Processes

Process-Specific Controls	Related control issues
2. Design	How is the overall reporting structure set up to meet *CNGR* requirements?
3. Capture	How is all relevant data timely and accurately captured?
4. Compile	How is data compiled and aggregated for reporting?
5. Record	How is data prepared for reporting and recorded into SMARTTool enabling traceability of the data?
6. Report & Self-Certify	How is the GHG report reviewed and validated? How is the submission self –certified?
7. Archive	How is data documented and retained for future verification?

4. Establish governance

4.1 Section objective

This section is intended to provide guidance on how to develop a reporting governance and monitoring structure that sets the foundation and culture to support quality GHG reporting.

4.2 Defining a GHG reporting governance structure

Establishing an effective GHG reporting governance structure sets the tone of the organization by influencing the GHG reporting control consciousness of its people. It is the foundation for all other elements. A weak or poorly defined governance structure for GHG reporting can lead to:

- Unclear definition of roles and responsibilities which causes key activities to be missed or duplicated
- Insufficient or unqualified resources executing reporting duties resulting in increased errors
- Lack of management oversight setting a poor tone around data quality resulting in reporting errors going unnoticed.

Conversely an appropriately resourced reporting governance structure drives accountability across the organization, allows for effective oversight and sets a tone of quality GHG reporting across the organization. Defining roles and responsibilities clarifies expectations and helps ensure that reporting duties are neither missed nor unnecessarily duplicated.

4.3 GHG reporting roles

The roles and responsibilities of individuals involved in the GHG reporting process may differ from PSO to PSO depending on the size and complexity of the organization. Smaller organizations are expected to be flatter, and one person may take on more than one role. Larger organizations are expected to be more stratified, with separate individuals taking on different roles in the process.

Designated Representative: The Designated Representative is responsible for the financial accountability of the organization at a senior level. Ideally, they are independent from the data collection and compilation processes. Their primary responsibilities are to provide oversight of the data collection policies, process and associated control activities. They also perform an important authorization role, reviewing and signing off on the accuracy and completeness of consumption data. The Designated Representative is ultimately responsible for ensuring that Data Compilers and Owners have the necessary skills and capabilities, their responsibilities are included in their job descriptions, and they have adequate time to complete their data collection and reporting responsibilities.

The Designated Representative is responsible for reporting the consumption data required to complete the GHG report and certifying the quality of that data. A Designated Representative must be at the Executive level, such as the Chief Financial Officer or an individual normally responsible for public disclosure.

Data Compiler: The Data Compiler performs a key facilitation role in ensuring the consistency, accuracy and completeness of data. The Data Compiler is responsible for either collecting and aggregating data, or providing oversight over data collection from each of the data owners. They are tasked with either uploading the data into SMARTTool or ensuring that data was uploaded appropriately. They are also charged with checking the GHG report generated by SMARTTool and ensuring that the related documentation/evidence is in place for self-certification by the Designated Representative.

Data Owner: Ideally, the Data Owner is a separate individual from the Data Compiler. The role of the Data Owner is to collect and, when appropriate, aggregate usage data related to the emission category(ies) for the period. For example, a buildings data owner is responsible for collecting electricity and heating invoices for their buildings. Depending on the split of responsibilities between the Data Owner and Data Compiler, the Data Owner may be tasked with data upload into SMARTTool as well.

Figure 2 below illustrates typical GHG reporting roles and responsibilities for a medium to large PSO, while Figure 3 illustrates typical GHG reporting roles and responsibilities for small PSOs.

Figure 2: Sample Roles and Responsibilities for GHG Reporting in a Medium to Large PSO

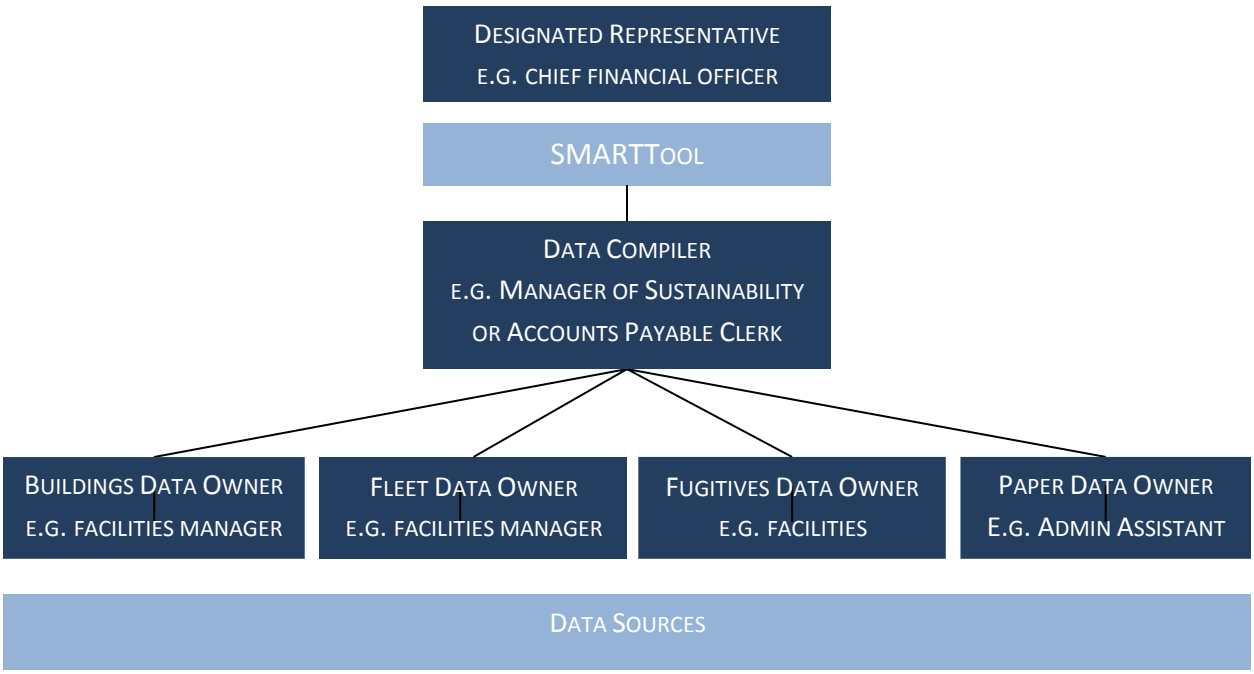
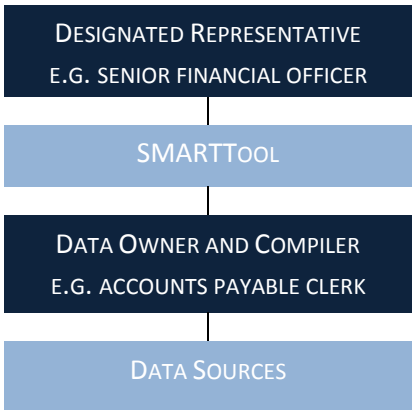


Figure 3: Sample Roles and Responsibilities for GHG Reporting in a Small PSO



4.4 Documenting a GHG reporting governance structure and process

Documented reporting procedures provide direction to stakeholders on how to properly execute their roles and responsibilities as they pertain to GHG reporting. This can be particularly important if:

- The PSO has numerous internal and external stakeholders involved in the reporting process, such as internal staff, external data providers, such as B.C. Hydro or Terasen Gas, etc.,
- The reporting process has multiple data handoffs, or
- Data requirements are complex and require detailed direction.

PSOs will want to document procedures in order to achieve consistency in reporting practices and provide adequate instruction to all stakeholders involved in the process. Consistency will minimize the potential for errors. Documented procedures also minimize 'key person risk' by driving consistent reporting when staff turnover occurs.

Procedures should be sufficiently detailed to provide direction on GHG roles and responsibilities across the organization and map data flows from the Data Owner to the Designated Representative. Providing clear details to Data Owners minimizes the potential for error at the start of the process. Typical details provided to Data Owners in a GHG reporting procedures document are described in Table 3.

Table 3: Typical Details Provided to Data Owners

Procedural reporting directions	Examples
Name of GHG category	Paper from facility A
Type of GHG data required	Invoices from paper purchased
GHG data unit of measure	Reams of paper
Consumption data source	Invoices pulled from Accounts Payable database
Individual charged with data capture of data from data stream	Facilities Manager from facility A: John Smith
Reporting period	Invoices of paper purchased within calendar year (January 1st to December 31st)

Procedural reporting directions	Examples
Reporting timeline	Invoices for previous year to be reported as soon as possible, following calendar year end, and no later than March 31st annually to meet CNGR requirements (or alternatively establishing a quarterly reporting requirement)
Data handoff	Invoices to be provided to Manager of EHS: James Miller
Data retention requirements	Original invoices provided by supplier are to be sent with consumption data to Data Compiler for retention; data is to be retained for 7 years (In many cases this work is already being completed by Accounts Payable staff).
Data quality control activities	On a quarterly basis invoices pulled from Accounts Payable database will be reconciled against supplier summary statements. (In many cases this work is already being completed by Accounts Payable staff).

Similar detail should be documented whenever there is data handover to other stakeholders involved in the reporting process. For example, a procedures document should also detail how data streams from individual Data Owners are aggregated by the Data Compiler and what steps are taken to categorize data appropriately in preparation for reporting into SMARTTool.

Furthermore, additional information on activities completed to support the GHG reporting should be included within procedures to provide direction on steps taken to provide high quality data. Some supporting content typically included in GHG reporting procedures includes:

- Introduction, purpose of document and directions on how to use it,
- Description of any interpretation , assumptions, and decisions made around the reporting boundaries as described in the *Methodology for Reporting B.C. Public Sector Greenhouse Gas Emissions*, Annex 7.3,
- Description of roles and responsibilities for GHG reporting,
- Contact information for people responsible for GHG reporting across the organization,
- Overview of reporting process, governance, oversight & change management procedures,
- Entity wide QA/QC activities and data retention policy,
- Infrastructure maintenance processes.

4.5 Communication and training

Implementation of a procedures document should be completed in a well communicated manner. Stakeholders should be notified in advance that they will be expected to use the documents and the value of the initiative should be communicated. If the document defines a mandated procedure then this requirement must also be communicated along with related consequences if procedures are not followed. Getting stakeholders involved in the development of procedures will increase the ultimate acceptance and use.

Procedures should be maintained in a central location by the Designated Representative so that out of date versions are not being used. Version status should be clearly noted within procedure so users are

aware if they are using an outdated document. Procedures must also be readily available to users so they can access the information whenever needed. A glossary should be included in the document to support use by those who lack the technical background in GHG reporting. A support resource can also be made available to provide clarification or additional guidance on top of what was provided in the procedures document. Training should be provided to stakeholders involved in GHG reporting if it is deemed that they have insufficient skills to execute their responsibilities.

5. Develop quality control procedures

5.1 Section objective

This section is intended to provide guidance on how to develop quality controls that address risks throughout specific GHG reporting process steps.

Within this section each specific process step (Design, Capture, Compile, Record, Report and self-certify, and Archive) is defined, the related control areas are identified and discussed. Appendix A includes a table for each of the process steps that lists control objectives, examples of what can go wrong and illustrative controls. PSO's can use this information to learn more about what quality risks are throughout each step of the reporting process and where controls within their existing processes can be improved.

5.2 Design

The Design step refers to designing a GHG reporting process that will allow the PSO to develop a report that meets *CNGR* requirements. This includes defining the PSO's reporting boundary as per regulatory requirements, identifying emission sources across all relevant assets and documenting procedures as to how GHG data will be monitored, collected, reported and retained.

In this reporting step PSOs should develop controls that address risks tied to establishing the reporting boundary, completeness of reporting design structure and documentation of procedures. Related control areas are outlined below. Also see Appendix A, Table 5.

Establish reporting boundary – Reporting boundaries define the areas over which an organization will report. Under the *CNGR*, reporting requirements have been mandated for emissions from Buildings, Fleet, Fugitives, and Paper consumption. Information on reporting boundaries under *CNGR* can be found in the Scope Summary for B.C. Public Sector Greenhouse Gas Emissions. The established reporting boundary step focuses on applying the reporting requirements in the *CNGR* to the organization's assets.

Documentation of the interpretations, assumptions, and decisions made about reporting boundaries under the *CNGR* are critical to form a case history for consistent application. For example, PSOs must identify boundaries around which buildings are in scope for reporting based on how regulations define organizational, operational and geographic characteristics.

Completeness of process design – Completeness of process design is a control area that can improve comfort that data capture, recording and compiling processes are designed to report all required source data. For example, how does the PSO ensure all relevant data for both owned and leased vehicles has been collected? Are there various sources and methods of collecting this data (e.g. invoices from corporate outsource fuel suppliers, and expense reports)? How do you know that all sources have been covered?

Documentation of procedures – Controls in this area provide stakeholders with access to relevant guidance and system documentation when completing their roles and responsibilities. When drafting procedures an independent party not involved in the development of the documentation should review the material to confirm it is adequate to support ongoing reporting and external verification without the original author. That is, the material should stand alone, and not require further input to be understood. Illustrative control examples are included in Appendix A: Illustrative Control Objectives.

5.3 Capture

Capture refers to the process of capturing all primary data required for uploading into SMARTTool and the completion of the GHG Report. This may include:

- Manually collecting invoices of all paper purchases from suppliers,
- Working with a main supplier to provide one aggregated invoice for various office locations, or
- Establishing an automated process where supplier information is pulled from a database that tracks purchasing information.

In this step PSOs will develop controls that address risks tied to completeness, timeliness and accuracy. Related control areas are outlined below. Also see Appendix A, Table 6.

Completeness – This component deals with ensuring that data collected is complete. For example, if information systems are used to capture and transfer data, what procedures are in place to gain comfort that this transfer is complete? Where present, management systems (e.g. Oracle, SAP) that are integrated with primary data capture systems should have manual checks in place to ensure all automatic data transfers occur as designed. If a manual process of gathering invoice data from suppliers is used, what procedures are in place to review that all invoices have been included? For example, checks against supplementary summary statistics. Has a validation process been established to minimize human errors?

Timeliness – Timeliness refers to ensuring data is captured in time for the reporting period. This requires data owners to be notified in advance as to when GHG data needs to start being collected to meet reporting requirements. Data Owners should be familiar in advance with the *CNGR* regulation, which included detailed information about reporting deadlines.

Accuracy – This area concerns ensuring source data is the most accurate available and reconciling any noted inaccuracies to an acceptable level. When designing accuracy controls, it should be noted that individuals are more likely to make the effort to validate the data if they are required to provide primary

data documentation and/or sign off on its accuracy. For example, regular reconciliations between the compiled document (e.g. aggregated Excel spreadsheet) and the original data documentation are performed to ensure that data is inputted completely and accurately.

5.4 Compile

The Compile step is the process of compiling all captured data in each category of emissions. This may include aggregating data from various data sources or classifying consumption data into appropriate categories and reconciling data to ensure no errors are present.

In this step PSOs will develop controls that address risks tied to whether consumption data has been accurately compiled, classified as per regulatory requirements and reconciled to review accuracy. Related control areas are outlined below. Also see Appendix A, Table 7.

Accuracy – This component focuses on ensuring that the compilation is performed accurately. Including whether or not the system performs accurate compilations and whether or not data is calculated or processed through the use of formulas and emissions factors. For example, regular checks of spreadsheet configuration should be completed.

Classification – Controls in this area focus on enforcing integrity and consistency through consolidating data into categories. Classification is about ensuring that each emission source is correctly matched to the reporting requirement and consistently applied. For example, fleet vehicle classification should be consistent and if there is confusion around certain vehicles the PSO should make a decision about how these will be treated. Any decisions or interpretations should be included in documented guidance that is consistently followed by staff when preparing reports.

Reconciliation – Reconciliation controls concern matching current period records to historic and forecasted performance to check its accuracy. Identified anomalies from this review and analysis should be investigated for satisfactory explanation and errors identified should be corrected. If possible, regular reconciliations and analysis of data can reduce the number of errors and irregularities needed to be dealt with near the end of reporting periods.

5.5 Record

The Record step refers to the process of recording all captured and compiled data into the SMARTTool input sheet and uploading them into SMARTTool.

In the recording step, PSOs develop controls that address risks tied to whether or not the consumption data recorded matches the *CNGR* reporting cut-off period, and whether or not the recorded consumption occurred and has been validated. Related control areas are outlined below. Also see Appendix A, Table 8.

SMARTTool entry – The recording process is prone to manual entry errors because individuals are often under time constraints to meet reporting deadlines. Cross-checking data manually entered into SMARTTool against source data reports can reduce the risk of such errors.

Cut-off – Cut-off deals with the risk that data is not recorded in the proper period. Rarely in practice is the consumption data reporting period aligned with the required GHG reporting period. Invoices or usage data may span multiple periods, data may not be received after the reporting period and/or previous period data may overlap the current period. Processes will need to be developed to deal with such situations, removing data where necessary and estimating data that is not available. A degree of judgment may be required to correct cut-off issues, and either a sufficiently experienced person should be responsible for such actions or guidance should be provided.

Occurrence – Occurrence speaks to whether or not recorded data represents real consumption activities. This is especially relevant to data where estimates have been made or there is a high risk of double counting. Automated controls that can detect common errors, such as double counting, can effectively cover occurrence risks. Individuals knowledgeable about the data captured can also perform a reasonableness check to make sure the recorded totals make sense. For example, a high natural gas bill in the middle of a hot summer may be unreasonable since it is unlikely that heating was used. This may indicate that the invoice contains an error and represents emissions that did not occur.

Validation – Validation speaks to controlling the reliability of data streams. Data Compilers, and ultimately the Designated Reprehensive, are responsible for complete, accurate and documented consumption data and cannot blindly rely on the data obtained from the Data Owner. Validation activities are key part of reviewing the integrity of reported data prior to entry and upload into SMARTTool.

Review and validation controls deal with how each data-stream can be appropriately analyzed and reviewed prior to upload into SMARTTool and how this review will be documented. For example, assurance testing procedures such as interviewing, observing, or corroborating can all be used to review and validate how each data stream was analyzed prior to upload into SMARTTool. As the data is submitted for recording and upload, it should be subject to review by the Designated Representative. Data should be presented with context, such as performance trends compared to historic or forecasted data. This allows the Designated Representative to identify and question any anomalies. The Designated Representative can also take greater comfort in the accuracy of GHG data if this information is commonly reported to senior management and used for decision making. Since the Designated Representative is an individual in a senior management position, it is unlikely that they will have time to perform an in depth validation of the accuracy of consumption data being reported. As such, organizations typically rely on evidence that controls are in place throughout the reporting process and that these controls have been executed by responsible individuals throughout the reporting process.

5.6 Report and self-certify

In this step PSOs will look to develop controls that address risks tied to whether or not GHG data has been properly entered into the SMARTTool, management has reviewed/validated the report and self certification has been completed by the appropriate individual. Related control areas are outlined below. Also see Appendix A, Table 9.

Management review and Self Certification - Since SMARTTool conducts the conversions of the consumption data into GHG emissions on behalf of the PSO, the GHG report that is generated will have to be reviewed and validated by the PSO for reasonableness. Ultimately, the Designated Representative certifies that the consumption data submitted by the PSO are complete and accurate and that the GHG report has been reviewed. While the Designated Representative may not be familiar with emission factors and GHG quantification methodologies and the responsibility for their accuracy lays with the Shared Services B.C. Carbon Measurement and Reporting Branch, the review is again a reasonableness check whether the GHG report makes sense. Any issues found may be brought forward to the Shared Services B.C. Carbon Measurement and Reporting team.

It is also recognized that the Designated Representative relies on management, staff or quality control to ensure that processes and resources are in place to ensure data is reported in accordance with requirements. However, the Designated Representatives are responsible for providing appropriate oversight to ensure that the PSO's submissions are true, accurate, and complete, and for personally examining the submissions.

5.7 Archive

The Archive step is the process of documenting and retaining GHG data to provide sufficient evidence to pass future verification. This includes documenting the reporting process and retaining documents in a secure location for the appropriate duration.

In this step, PSOs will develop controls to ensure that appropriate documentation has been established and that it has been retained for 7 years as per verification requirements. Related control areas are outlined below. Also see Appendix A, Table 10.

Documentation – Documentation involves the development of an audit trial, which begins with the documented design of the GHG reporting process, including an evidence trail from source data (e.g. each invoice for fuel deliveries) and each control activity conducted. A guiding principle for developing an audit trail is that, for each item of reported data it should be possible to trace it easily back to the source data and vice versa. The documentation for the audit trail should be electronic and backed-up. Having a well documented audit trail reduces the time and cost associated with the verification and allows businesses to transition reporting roles and responsibilities across staff in case of turnovers. Additionally, an audit trail for consumption data may overlap with established financial accountability systems and in these cases, a part of developing and documenting the audit trail for consumption data may include reference to an existing financial audit trail.

Retention – Retention controls concern the ability to retain the GHG report, self certification document and any other relevant supporting documents securely for the defined period of 7 years required by regulation. Retention of documented audit trail should be in a secure location separate from original documents. Documents should also be stored within a system and the related files should be backed up on a periodic basis.

6. Implement supporting infrastructure

6.1 Section objective

This section is intended to provide guidance on how to design and implement supporting infrastructure that enables quality GHG reporting.

6.2 GHG reporting infrastructure options

The type of information technology systems used to record, compile and report GHG emissions data will drive the type of controls needed to secure the quality and accuracy of data. Many accounting packages currently in use by Accounts Payable staff may be appropriately used for this purpose, and these can be categorized into four broad categories:

1. Excel spreadsheets that are formatted to suit reporting purposes
2. "Custom Build" data systems that have been designed and built to suit the organization
3. "Off the Shelf" emissions management systems purchased as implemented by the supplier
4. Enterprise Resource Planning (ERP) systems that have GHG modules

The use of spreadsheet can be considered the most manual process of all the system options, while the use of an ERP system is considered the most automated. Many systems will have their own automated controls build in to increase data accuracy. In general, the more automated controls are built into the reporting process, the better quality the GHG data is. This is because automated controls minimize the chance of manual error which can easily occur in a process where manual transcription, data handover and data manipulation occurs. No matter what level of reporting automation has been implemented, process controls will be required to compliment and supplement automated controls. In fact, over-reliance on automated controls may cause key process control gaps to go unaddressed. The above technology solutions are options to support data capture and compilation before entry into SMARTTool.

6.3 Building automated controls into a manual process

PSOs that have a heavily manual reporting process will typically rely on the use of spreadsheets to track and report GHG data. Spreadsheets can be prone to error because they are configurable, rely on manual data entry, have limited data backup capabilities and security features. As such, PSOs that rely on the use of spreadsheets should make an effort to automate reporting controls using existing spreadsheet functionality. Examples of automated controls for spreadsheets include:

- Entering formulas into spreadsheet to automate any calculations required for data compilation/aggregation and locking down cells that contain formulas
- Diligently labelling all data rows/columns and locking down labelled cells so report structure cannot be changed
- Include units of measure in data row/column labels
- Put in value restrictions for data cells whenever possible (e.g. fuel supplies are inserted in L)

- Put lock down restrictions on sections of the spreadsheet that should only be accessed by certain stakeholders (e.g. Data Compiler can only access aggregated data on spreadsheet)

Even if a reporting process has heavily automated spreadsheet controls, manual process controls will still be required to conduct activities such as validation, reconciliation and data entry.

7. Custom quality control development process

7.1 Section objective

This section is intended to provide a process PSOs can use to design and implement custom controls for GHG reporting.

7.2 Quality controls development process

Below is a high level three step approach PSO's can use to design controls to drive quality GHG reporting across their organization.

Step 1. Identify GHG reporting risks

Based on the key control components listed in the GHG Quality Reporting Framework, identify any risks within the existing reporting process by conducting a process walk through of all data categories that make up the GHG inventory. This typically involves interviewing all relevant stakeholders in the GHG reporting process, from the Data Owner to the Designated Representative, and tracing how data moves from being captured to being recorded into SMARTTool and archived for retention purposes. When identifying reporting risks, keep in mind the "What Can Go Wrong" examples listed in Appendix A. All significant reporting risks that have been identified should be documented for further analysis and potential treatment. For an example of how an identified GHG reporting risk is documented, refer to the first column of Table 4, below.

Step 2. Define control objectives

Once significant GHG reporting risks have been identified, the underlying control objective to manage that risk should be defined in order to provide direction on what controls are needed. Control objectives should aim to drive GHG reporting quality that satisfies one or more of the five key quality accounting reporting principles: relevance, completeness, consistency, transparency and accuracy. By identifying what principles are being addressed, PSOs can more easily develop appropriate controls. For an example of how a control objective is documented, refer to the second column of Table 4 below.

Step 3. Develop customized controls

Develop customized controls that treat the specific risk identified and help satisfy the related quality reporting principle(s). When designing a control, keep in mind all the different control options listed in the Key GHG Reporting Quality Concepts section of this Manual (e.g. automated, manual, preventive, detective, etc.). Typically an organization will have several options of appropriate controls to choose from. If this is the case then PSOs should select controls based on a review of existing resources

capabilities, the severity of the risk identified and the level of effort required to address the risk. When designing controls it should be noted that controls and risks are managed in aggregate. As such, strong controls in one section of the reporting process may compensate for weak controls in another section. For example, if a PSO has relatively weak quality controls when it comes to data capture and recording, it may compensate by having strong quality assurance controls to review and validate that all relevant data has been captured and recorded. For an example of how a selected control is documented, refer to the third column of Table 4 below. Note that the control developed should be formalized in a GHG reporting procedures document/policy and assigned to specific individuals.

As this control development process only provides high level guidance, it is encouraged that PSOs engage their internal audit team or staff with controls experience when developing customized GHG reporting controls.

Table 4: Developing Custom Quality Controls

GHG reporting risk identified	Control objective	Control to be developed to address risk
The Manager of Sustainability currently reviews the *CNGR*, interprets it and assesses the compliance obligations on the PSO. There is no management or legal review process in place to review the regulation and assess whether it has been properly interpreted. This results in a risk of misinterpretation of the *CNGR* and correspondingly, the risk of noncompliance with its requirements by the PSO.	• Designated Representative confirms that the PSO's reporting boundary has been appropriately defined to meet the *CNGR*. • Needs to addresses the following reporting principles: relevance and completeness.	• Designated Representative reviews the reporting requirements of the *CNGR* and confirms that the PSO's reporting boundary has been appropriately defined to meet the *CNGR* requirements. In case of uncertainty, evidence of the review is retained. • A representative from the legal department reviews the *CNGR* and confirms that it has been properly interpreted. A review of any updates to the *CNGR* is conducted on a periodic basis. • Provide contact information of the appropriate department representative within the procedures document to allow stakeholders to readily access direction or legal assistance as needed when implementing GHG reporting procedures.

Appendix A: Illustrative Control Objectives

Table 5: Illustrative Design Control Objectives

Control area/ objective	Examples of what can go wrong	Illustrative controls
Establish reporting boundary: Ensure understanding of the *Methodology for Reporting B.C. Public Sector Greenhouse Gas Emissions,* Annex 7.3, and develop systems to ensure reporting is complete and in scope.	• The reporting scope of the *CNGR* is not fully understood and not all in scope items are included in reporting. • Buildings are missed due to an unstructured approach to aligning the reporting boundary with regulation (e.g. Data Compiler at a University forgot to include an off-campus Research Institute) • Buildings are missed due to a misinterpretation of *CNGR* scope (e.g. an investment building is not included in the PSO's reporting boundary because it is located outside of B.C.) • Boundary definitions related to regulations are misinterpreted (e.g. fleet vehicles used for operations versus business travel). • Out of scope emission source is included in the reporting boundary • Changes in operations/assets are not identified by GHG reporting team (e.g. a Crown has recently subleased space in one of its leased Buildings to another PSO, and this decision is not reflected in the Report). • Changes in regulations go unnoticed and are not incorporated	• Reporting scope has been reviewed and understood by the Designated Representative and any other relevant groups, such as facilities, purchasing or legal to ensure it conforms with regulatory requirements and all relevant assets have been identified • The *CNGR* requirements are monitored on a continuous basis and the applicability of any change in requirements is assessed • A process is in place to capture ongoing changes to the asset base (e.g. number and type of vehicles owned and leased throughout the reporting period; Buildings sold and new buildings acquired throughout the reporting period; changes to % of leased space by a PSO in buildings throughout the reporting period, etc.) • Appropriate training and clear interpretation of requirements are provided to those tasked with establishing and maintaining reporting boundary as well as the data owners and data compilers
Completeness of process design: identify and map in-scope emissions data sources and design data-capturing process using appropriate methods	• The process is not designed to capture all required data for complete reporting (e.g. The process is not designed to advise the GHG reporting team of buildings sold or new buildings acquired) • The process is not designed to make the required data available (e.g. Executives who use fleet leased by a PSO do not expense the gas mileage, and therefore the associated emission cannot be quantified using typical procedures,) • Infrastructure used to monitor data sources is inaccurate or missing (e.g. The majority of in-scope paper is purchased from a central supplier by a PSO, but rural locations purchase office paper from local vendors and do not track this separately)	• Designated Representative provides a clear interpretation of completeness to those individuals identifying emission data sources across the in-scope emission categories • Process should be designed to capture all relevant data that will be required to enable GHG reporting • If estimation is used, it should be documented
Documentation of procedures*: formalize and describe the GHG reporting procedures and controls	• Informal data collection process provides inadequate guidance to new data collection staff (e.g. new Data Owner obtains energy usage reports for the same buildings that were reported on last year, without updating the asset base for the this year) • Insufficient guidance around data requirements is provided to Data Owner resulting in incomplete/inaccurate data (e.g. lack of clarity as to fleet used for operations vs. fleet used for business travel)	• The organizational boundary, emission sources, methods and criteria, and roles/responsibilities related to GHG reporting are documented in a carbon reporting procedures document • Version controls, standard naming conventions and standard directory structures are applied to all SMARTTool upload sheets and all support documents • An archiving system is in place to ensure retention of records for 7 years

Table 6: Illustrative Capture Control Objectives

Control area/ objective	Examples of what can go wrong	Illustrative controls
Completeness of data capture: capture all relevant emission data during the reporting period as per *CNGR* criteria	• Data sources are missed due to gaps in emissions data capturing processes (e.g. paper purchased data located in Accounts Payable system only contains cost data and not type of paper and quantity data as needed) • Data sources are incomplete because data requirements are not clearly defined for the Data Owner (e.g. Data Owner is only providing fuel usage for vehicles but not equipment, such as that used for lawn maintenance) • No data is collected for some in-scope assets (e.g. no data at all is collected for buildings where actual energy data is not available, as opposed to collecting data such as square footage of the building, age/type of building, etc. that would enable estimation of the GHG emissions)	• Map all data received to emissions data sources and responsible Data Owner within reporting procedures document • Where present, management systems (e.g. Oracle, SAP) that are integrated with primary data capture systems and have manual checks in place to ensure all automatic data transfers occur as designed • Utilize actual rather than estimated data if available, however, if actual data is not available collect data that will enable estimation of the GHG emissions
Timeliness: capture data to enable timely recording and reporting	• Hard copy invoices from suppliers do not arrive in time to meet reporting deadlines • IT Infrastructure (e.g. Automated Supplier Payment System) is undergoing maintenance and not operating in time to meet reporting deadlines	• Provide detailed requirements to Data Owners regarding the timeframe of emissions data sources they are required to report. Require checklist sign off that these requirements have been met • Management system provides automated reminders of reporting deadlines
Accuracy: capture data accurately	• Data capture has errors due to mistakes in invoices provided by supplier and resulting discrepancy is never reconciled • Hard copy invoices from suppliers are transcribed into an electronic version with errors reducing the accuracy of the data capture	• The Data Owner reviews GHG source data for reasonableness, identifies inconsistencies, investigates and corrects any errors found and documents the review performed prior to finalizing GHG source data • Minimize utilization of hard-copy source documents and the number of transcription points; institute self review or QA (where feasible) of the transcribed documents

Table 7: Illustrative Compile Control Objectives

Control area/ objective	Examples of What Can Go Wrong	Illustrative Controls
Accuracy: compile data using accurate calculations and processing data accurately	• Aggregated emissions are inaccurate due to formulas not calculating accurately (e.g. a subtotal field of gasoline used by 5 mid size vehicles is capturing only 4 of the vehicle fields)	• Perform regular reconciliations between the compiled document (e.g. aggregated Excel spreadsheet) and the original data documentation. • Reconciliation documentation is kept for audit purpose. • Exceptions are investigated timely and resolved adequately.
Classification: compile data using appropriate and consistent categorizations	• Aggregated data are inaccurate due to inclusion of inappropriate data or exclusion of required data • Aggregated data is misclassified due to misinterpretation of definitions, resulting in flawed reporting (e.g. heating fuel for buildings owned but leased to another PSO are mistakenly included when data is aggregated) • Data is erroneously aggregated because classification definitions are not updated as changes occur in regulations.	• Clear definitions regarding data classification categories are provided to Data Compiler to minimize errors related to misinterpreting guidance procedures • Classification activities are conducted by a single individual that is properly trained on updated regulations
Reconciliation: compare aggregated data to historic/forecasted data, and if possible, reconcile to other reports	• Compiled data is not reconciled to examine if changes to primary data have occurred (e.g. estimated data is used and never updated to actual data) • Compiled data is not reviewed and data transfer errors in aggregation process go undetected	• Data Compiler reconciles information compiled against other systems and reports, any discrepancies are investigated and addressed. • Reconciliation procedure is documented and approved by management.

Table 8: Illustrative Record Control Objectives

Control area/ objective	Examples of what can go wrong	Illustrative controls
SMARTTool Entry: prepare and record data into SMARTTool input sheets	• Data is mistakenly changed when being transferred from aggregated database into recording format due to manual entry errors	• Implement a check list process to ensure *CNGR* requirements have been met prior to transcribing final data into SMARTTool input sheets • Compilers compare data owner calculations to their own calculations • Reviewer validates figures against prior years and forecasted data • Implement a secondary review process where a qualified individual examines final data for completeness and accuracy prior to submission
Occurrence: document that captured data reflects real activities/consumption	• Data is erroneously transcribed twice into database resulting in a misstatement of emissions	▯ Information system/spreadsheet has the ability to run a variance analysis to detect patterns of repeated data entry ▯ A process is in place to reconcile estimates with actual consumption
Validation: validate source data	• Data captured has errors due to manual mistakes when Data Owner transcribes primary source data into spreadsheet • Data recorded may not be reconciled to changes that have occurred to primary data (e.g. supplier issued erroneous invoice and the correct figures have never been edited in GHG tracking spreadsheet)	• Validation of data-input (e.g. reconciling against another similar data-stream including comparing totals over longer time periods) • Running variance/error reports on data recorded • Validate data transcribed into spreadsheet against primary source

Table 9: Illustrative Report and Self-Certify Control Objectives

Control area/ objective	Examples of what can go wrong	Illustrative controls
Management Review and Self Certification: review and validate GHG report and its evidence for self certification	• Lack of management oversight creates poor control culture where little importance is placed on accuracy and completeness of consumption data • Submission and GHG report are not reviewed and validated by management resulting in errors going unnoticed • Designated Representative self certifies flawed or incomplete data	• A review session/discussion is conducted by the Data Compiler with Designated Representative to allow them to make an informed decision prior to self certification • An escalated signoff is prepared by key individuals throughout the reporting cycle confirming the completion of the tasks they are responsible for

Table 10: Illustrative Archive Control Objectives

Control area/ objective	Examples of what can go wrong	Illustrative controls
Documentation: document data to provide a complete audit trail from point source data to final report	• Documentation contains outdated versions of invoices from suppliers that do not coincide with emissions reported • Data documentation of primary source data is incomplete • Interpretation of regulations and how they were applied was never documented	• Documentation plan is listed in GHG reporting procedures manual and communicated to all stakeholders • Documentation file is reviewed by Data Compiler/management upon conclusion of report • Validation is conducted by Data Compiler to review if invoices documented reconcile with data within final report
Retention: make arrangements to retain data securely for duration stipulated by *CNGR* requirements	• Documentation is never stored in a separate location and is erased by Data Owner because they are unaware of retention requirements • All documentation (including originals and copies) are stored in the same location and accidentally destroyed due to fire	• Documentation is in line with current Accounts Payable procedures wherein: ○ Documentation (copies and originals) are stored in separate locations ○ Documentation is stored off site and periodically backed up ○ If documentation storage is outsourced, contract terms with third party stipulate that the PSO retains ownership right to data and can access it whenever needed

Appendix B: Glossary of Terms and Acronyms

Note: Definitions derived from:

- Environment Canada Glossary.
- International Organization for Standardization (2006), ISO 14064-3: Specification with guidance for the validation and verification of greenhouse gas assertions.
- IPCC Third Assessment Report, Glossary of Terms (available at: http://www.ipcc.ch/pdf/glossary/tar-ipcc-terms-en.pdf)
- Market Advisory Committee to the California Air Resources Board (2007), "Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California"
- The Climate Registry (2008), *General Reporting Protocol*, pp. 153-158.
- World Business Council for Sustainable Development and World Resources Institute (2004), *The Greenhouse Gas Protocol*, pp. 96-102.

Abbreviation or Acronym	Definition
Assurance	The process used to ensure that a PSO's greenhouse gas emissions inventory has met a minimum quality standard and complied with government procedures and protocols for calculating and reporting GHG emissions.
CAS	Climate Action Secretariat
CNGR	Carbon Neutral Government Regulation
CNAR	Carbon Neutral Action Report
Designated Representative	Person responsible for self-certifying that the greenhouse gas assertion and supporting GHG information are correct
Emission factor	A factor allowing GHG emissions to be estimated from a unit of available activity data (e.g. litres of fuel consumed, tonnes of product produced) and absolute GHG emissions.
Emissions	The release of greenhouse gases into the atmosphere.
Fugitive emissions	The unintended or incidental emissions of greenhouse gases from the transmission, processing, storage, use, or transportation of fossil fuels, GHGs, other substances, including but not limited to HFC emissions from refrigeration leaks and automobile air conditioning.
Global Reporting Initiative (GRI)	An international initiative that has developed a sustainability reporting framework for organizations to measure and report on their economic, environmental and social performance (see: www.globalreporting.org).
Greenhouse gases (GHGs)	A wide variety of gases that trap heat near the Earth's surface, preventing its escape into space. For public sector reporting purposes, the relevant gases are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulphur hexafluoride (SF_6), perfluorocarbons (PFCs) and hydrofluorocarbons (HFCs).
Inventory	A comprehensive, quantified list of an organization's GHG emissions and sources. For the purposes of this document, an inventory may also refer to a comprehensive, quantified list of an organization's buildings or fleet.

Abbreviation or Acronym	Definition
Office Paper	Multipurpose copy paper for use in laser printers, fax machines and photocopiers or multifunction devices.
PCT	Pacific Carbon Trust
PIR	British Columbia Greenhouse Gas Inventory Report (Ministry of Environment)
PSO	A B.C. public sector organization subject to the government's carbon neutral commitment under the *Greenhouse Gas Reduction Targets Act*.
Quality Assurance (QA)	Plans and procedures to ensure that data are as precise and reproducible as possible. For example, use of data collection templates to ensure that data have been properly entered to prevent errors.
Quality Control (QC)	Measures regulating the data collection processes and the standard operating procedures of the data, such as procedures for sample collection and instrument calibration. The quality control requirements improve the accuracy and reduce the uncertainty of the data.
Self-certification	A systematic, objective and documented process whereby an organization self-certifies that their GHG assertion is correct.
Verification	A systematic, independent and documented process for the evaluation of a greenhouse gas assertion against agreed verification criteria verification criteria.
Verification Body	Competent and independent person, or persons, with responsibility for performing and reporting on the verification process.