

**Data Requirements**  
for  
**Greenhouse Gas, Waste and Energy Audits**  
Small Office Application

Prepared By

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BRITISH COLUMBIA  
BECOME CARBON  
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***FINAL***

## 1.0 Preamble

This document is intended to help clients prepare for audits or inventories of their greenhouse gas emissions, waste production and/or energy consumption. While the auditor is responsible for the design, implementation and reporting of the audit and results, it is up to the client to disclose as much information as possible and facilitate resources to help make the process efficient and provide the best outcome in terms of identifying and implementing improvement programs.

The scope of this document is intended to be applicable to small office environments and peripheral functions related to its operation. Where multiple facilities are being considered, e<sup>3</sup>solutions will provide a preparation guide as appropriate.

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## 2.0 Greenhouse Gas Inventory

### 2.1 Approach

e<sup>3</sup>solutions uses the approach recommended by World Resources Institute's (WRI) [Greenhouse Gas Protocol Corporate Standard](#), and for small businesses, the WRI provides a [guidance document](#). If all data are compiled correctly, the small business audit itself should not take longer than one day. The audit is applicable to the previous financial year, and is typically conducted at year end when accounting reviews are active (for efficiency).

### 2.2 Data Requirements

Greenhouse gases are broken into three groups of activities:

- Scope 1 emissions – are direct business-generated emissions such as those from company owned natural gas heaters, and company owned cars;
- Scope 2 emissions – are emissions by generation facilities from electricity purchased by the business; and
- Scope 3 emissions – are emissions created to make products consumed by businesses (e.g. office supplies) and emissions created while doing

business but not owned by the business (e.g. employee commuting in non-company vehicles or natural gas heaters not owned by the company).

The following table summarizes the specific items needed to be flagged or compiled prior to the audit:

| Activity Category   | Specific Activity          | Examples                    | Preferred Units         | Alternate Units** |       |
|---|----------------------------|-----------------------------|-------------------------|-------------------|-------|
| Scope 1 (Direct Emissions)  | Union-sponsored Car Travel | All except VP/EC            | km                      | \$                |       |
|   |                            | VP's-President              | km                      | \$                |       |
|   |                            | Councillor/Committee Travel | km                      | \$                |       |
| Scope 2 (Indirect Emissions – Purchased electricity, steam or heat) | Electricity                | BC Hydro                    | kw-h                    | \$                |       |
| Scope 3 (Indirect Emissions – other)                                | Heating and Cooling        | Terasen                     | GJ                      | \$                |       |
|   |                            | Publications                | Reams                   | kg                |       |
|   |                            | Copy Paper                  | Reams                   | kg                |       |
|   |                            | Print Jobs                  | Reams                   | kg                |       |
|   | Paper Use                  | Recycling                   | Reams                   | trees*            |       |
|   |                            | Travel via 3rd Party        | Air Travel (short haul) | km                | trips |
|   |                            |                             | Air Travel (long haul)  | km                | trips |
|   | Employee Commuting         | Ferry                       | km                      | trips             |       |
|   |                            | Small/Compact               | km                      | \$                |       |
|   |                            | Medium/Passenger            | km                      | \$                |       |
| Large/Light Truck   |                            | km                          | \$                      |                   |       |
| Bus   |                            | km                          | \$                      |                   |       |
| Union-funded meals  | Vegetarian/Meat            | servings                    | people                  |                   |       |
| Courier (Outbound)  | Ground Courier             | km                          | trips                   |                   |       |
|   | Air Courier                | km                          | trips                   |                   |       |

There is very little data on the conversion factors for food

\* trees "recycled" is often quoted by recyclers for the calendar year

\*\* alternate units are typically indirect measures of the GHG impact and are based on market prices and/or approximate distances/efficiencies

e<sup>3</sup>solutions requests that the client provide either a summary of or access to records of the above uses in time for the audit process. It is not expected that the client is going to get all of the data assembled – the scope of the review may change depending on the audit review – but there are several tasks that can be carried out prior to the audit:

- Expense review: all applicable expenses in the annual expense account should be flagged for review, and grouped by transportation mode;
- Invoices: all applicable invoices should be flagged for review and grouped by activity (e.g. courier, paper product/type, etc.);

- Mileage: all commuting distances and types should be documented by employee/committee member; and
- Lease accounts: annual lease agreements should be flagged.

If this is the first year of the audit, there will be some efficiencies gained for future audits by applying the following suggestions:

- GHG tags: “tag” invoices and expense account entries according to their applicability to this audit; and
- Supplier information: request that suppliers provide information on invoices to support GHG audits, and furthermore, that they calculate their greenhouse gas footprint associated with the billed activity.

### 3.0 Energy Consumption Audit

#### 3.1 Approach

An inventory of all energy uses will be conducted and broken down into 20 categories of the office area (of which only some may be applicable to the small business in question) to identify management opportunities. [e<sup>3</sup>solutions](#) uses the approach laid out in Thumann’s (1992<sup>1</sup>) “self-evaluation” checklist. The points awarded in this audit are compared against the targets for each category to highlight opportunities for improvement. In addition, a summary of energy consumption within the office will be tabulated by examining each consumptive device and activity.

The energy audit can be conducted at any time assuming that most aspects are not transient (e.g. building components). However, there are obvious efficiencies with combining audit timing with other inventories.

#### 3.2 Data Requirements

There are 20 categories identified in the checklist:

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<sup>1</sup> Thumann, Albert, 1992. Handbook of Energy Audits (3<sup>rd</sup> Ed.). Published by Fairmont Press, Lilborn, GA, USA.

- Windows
- Doors
- Ceiling
- Wall
- Roof
- Storage Area
- Shipping and Receiving
- Illumination
- Food Area
- Heat Generation
- Heat Distribution
- Electrical Power Distribution
- Hot Water Service
- Laundry
- Compressed Air
- Water
- Process Heating
- Transportation

Access to each applicable area is to be provided by the client. In lease arrangements, heat generation and distribution, electrical power distribution and building construction (ceilings, walls and roof) aspects may not be applicable to the audit.

## 4.0 Waste Audit

### 4.1 Approach

e<sup>3</sup>solutions uses the [BCIT Waste Audit Methodology](#) developed for the BCIT campus in Burnaby BC. It involves up to 3 waste evaluations to generate a waste profile for the small business from which both waste impacts and opportunities to reduce waste can be identified. The timing of the waste audit should coincide with high-office activity to ensure that the most conservative estimates of waste are developed.

### 4.2 Data Requirements

Access to the small business waste is required for up to 3 waste collection periods. This can be accomplished in one of two manners, as specified by the client:

- Direct observation- working with cleaning staff/office staff (whomever is in charge of removing waste from the office), sorting and accounting for waste during cleanup; or
- Post cleanup observation (preferred) – a waste storage container is provided by e<sup>3</sup>solutions into which the cleaning staff is instructed to place

waste for each day specified. Once the waste “quota” is met, [e<sup>3</sup>solutions](#) will conduct the audit during normal business hours (hygiene and practicality will dictate this be done in the waste disposal area out of office).

The office manager will determine the approach, and make the arrangements to facilitate the work. [e<sup>3</sup>solutions](#) will provide the materials and signage as requested/required.

## **5.0 Next Steps**

During the audit planning session, [e<sup>3</sup>solutions](#) will review the data requirements, determine the point of contact with the office and arrange dates for conducting each audit/inventory. Any questions can be directed to [info@e3solutions.ca](mailto:info@e3solutions.ca) or by calling 604.626.0464.