

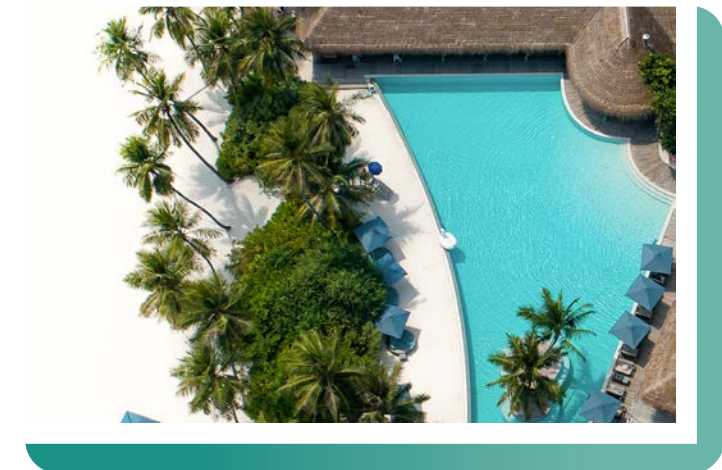
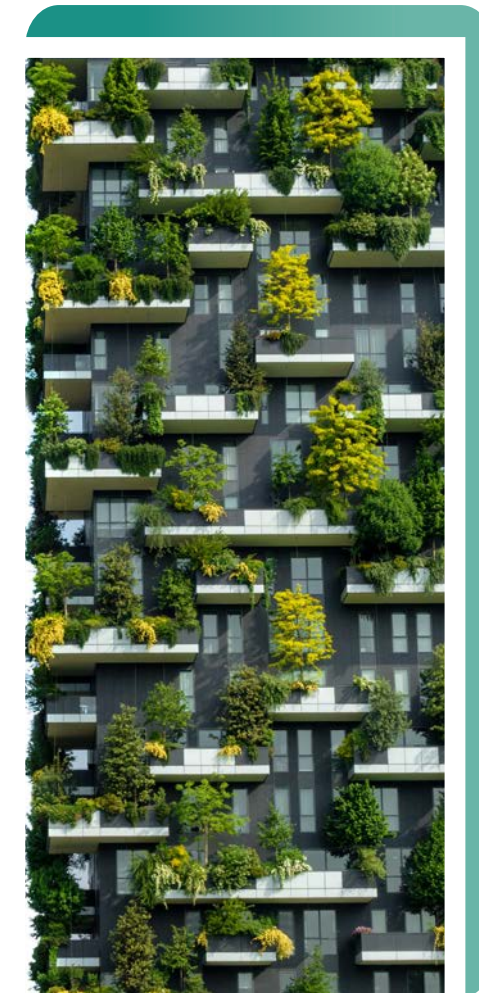
NET ZERO METHODOLOGY FOR HOTELS

2ND EDITION • JUNE 2023

APPENDIX H

INVENTORY MANAGEMENT PLAN (IMP)


GREENVIEW



APPENDIX H: INVENTORY MANAGEMENT PLAN (IMP)

An Inventory Management Plan (IMP) documents an organization’s greenhouse gas (GHG) emissions inventory process. The Inventory Management Plan (IMP) is an internal process for an organization to institutionalize the completion of a high-quality inventory. The IMP checklist outlines what components should be included in an IMP and can be used as a guide for creating an IMP or pulling together existing documents. The checklist does not represent and should not be used as a substitute for an IMP.

	IMP COMPONENT	DETAIL REQUIRED	ISSUES TO CONSIDER
VERSION INFORMATION			
A.	Version Number	Version number of IMP	
B.	Date	Date IMP completed	
C.	Table of Contents	Include each section and sub-section including Appendices	
1.0 INTRODUCTION			
	Document Parameters	<p>Provide a summary of the IMP contents by introducing the document’s purpose to outline the parameters and process for how energy, water, waste and Scope 1, 2 & 3 Greenhouse Gas (GHG) emissions are calculated within the [Company Name] portfolio.</p> <p>The summary should include a list of specific instances for which parameters should be outlined.</p>	<p>The parameters may include energy, water, waste and GHG emissions.</p> <p>List the inventory metrics being outlined with a high-level parameter:</p> <ol style="list-style-type: none"> 1 The total inventory for a calendar year, 2 The progress of reductions against the baseline established when setting reduction targets, and 3 The year-over-year comparison (YOY) from the most recent year versus the year prior (i.e., 2022 vs. 2021). Like-for-Like (LFL) comparison are a subset of YOY and compare the most recent calendar year against the same values for the preceding year for those properties that were within the portfolio entirely for both current and preceding calendar year and with the same leased floor area for both years.
2.0 ORGANIZATION INFORMATION			
	Organization Name	Legal name of entity	
	Corporate Address	Physical and mailing address	
	Inventory Contact Name	Contact name and title	
	Contact Information	Contact information (telephone/email)	

IMP COMPONENT	DETAIL REQUIRED	ISSUES TO CONSIDER
3.0 BOUNDARIES		
<p>3.1 Organizational Boundary</p>	<p>A description of what the organizational boundary consists of.</p> <p>A description of how the company defines its boundary approach for reporting energy and emissions data.</p> <ul style="list-style-type: none"> ■ Equity Approach ■ Control Approach: <ul style="list-style-type: none"> ● Financial control criterion ● Operational control criterion <p>In either control approach, list the different configurations of facility control that exist within some of its properties. Indicate whether each facility type is Included or Excluded in the Annual Inventory, Baseline/Target Calculations, and Year-Over-Year Change.</p> <p>A list of all facilities with location, % ownership, or % control.</p> <p>Define if inventory is U.S. only or includes optional non-U.S. operations.</p> <p>Define the process for identifying facilities.</p>	<p>A company reports using the operational control approach if it has complete authority to introduce and implement operating policies at the entity i.e. Hotel Operators such as Four Seasons, Marriot International, Mandarin Oriental.</p> <p>A company reports uses the financial control approach if it retains the majority of risks and rewards of the operation's assets and have overall control of financial policies i.e. Hospitality REITs</p> <p>Here is a list of possible facility types to consider:</p> <ul style="list-style-type: none"> ■ Managed and leased hotels ■ Rental Program portion of a residence in a Condo Hotel ■ Portion of a residence not within the Rental Program in a Condo Hotel ■ Private residences / Residential Clubs within a mixed-use property ■ Stand-Alone Branded Residences ■ Wholly owned hotels ■ Joint Venture of non-controlling interest ■ Corporate Offices ■ Company Vehicles ■ Other
<p>3.2 Building Type Boundary</p>	<p>List the building types that exist in the company portfolio. Indicate whether each building type is included, partially included, or excluded in the annual inventory and baseline/target calculations.</p>	<p>Is the list complete and does it include all building types in the company portfolio (including parking lots if applicable)? Are Corporate Offices also included? Here is a list of possible building types to consider:</p> <ul style="list-style-type: none"> ■ Hotels ■ Condo Hotel ■ Other Mixed-Use Property ■ Corporate Offices ■ Parking Lots ■ Branded Residences
<p>3.3 Energy Source Boundary</p>	<p>List the energy sources consumed at sites. Energy sources should be included in the inventory boundary if they are consumed at sites. Indicate whether each data point is included or excluded in the annual inventory or baseline/target calculations sections. Indicate N/A if the data point does not exist.</p>	<p>Is the list complete and does it include all Energy Sources in the company portfolio?</p> <p>Here is a list of possible Energy Sources to consider:</p> <ul style="list-style-type: none"> ■ Stationary combustion of natural gas ■ Stational combustion of propane ■ Purchased electricity ■ Purchased renewable electricity ■ Renewable energy - generated/consumed at property ■ Renewable energy from grid mix ■ Purchased municipal steam ■ Purchased municipal chilled water ■ Stationary combustion of fuels onsite for emergency generator ■ Fleet vehicle fuel ■ Fugitive emissions from refrigerant leakages ■ Other

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3.4	Scope 1 & 2 GHG Emissions Boundary	<p>A list of GHGs included in inventory, and those which are not emitted from organization operations.</p> <ol style="list-style-type: none"> 1 State the emissions included, excluded, and missing from the emission data (ex.: CO₂, CH₄, etc.) 2 State the biogenic emissions included and excluded, whether any are accounted for separately, and why 3 List types of GHG emissions. Describe where each of these GHG Scope emissions come from. List the sources of GHG emissions for each Scope. Refer to above sections to indicate whether they are included or excluded in the emission boundary. 	<p>Are all of the seven major GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, SF₆, and NF₃) accounted for? Are small sources of a GHG overlooked? Has the organization at least made an estimate of the emissions from small sources and included those estimates in their inventory?</p> <p>Types of GHG emissions include Scope 1 (direct), Scope 2 (indirect), and Scope 3 (Other Indirect).</p> <p>Scope 1 GHG emissions come from sources that are owned or controlled by the company. Here is a list of possible sources of Scope 1 GHG Emissions to consider:</p> <ul style="list-style-type: none"> ■ Natural gas ■ Propane ■ Diesel ■ Butane <p>Scope 2 GHG emissions come from the generation of purchased electricity and heat consumed by a company. Here is a list of possible sources of Scope 2 GHG Emissions to consider:</p> <ul style="list-style-type: none"> ■ Purchased electricity ■ Purchased steam ■ Purchased chilled water ■ Purchased hot water
3.5	Scope 3 GHG Emissions Boundary	<p>The following scope 3 categories were considered. Indicate if each category is included or excluded.</p>	<p>Scope 3 GHG emissions come from the company's activities, but occur from sources not owned or controlled by the company. There are about 15 categories of scope 3 per GHG Protocol. However, for hotel not all are material. Please refer to Appendix E for full list of Scope 3 emission quantification approaches and sources for all material categories. Some key categories of possible sources of Scope 3 GHG Emissions to consider:</p> <ul style="list-style-type: none"> ■ Employee commute ■ Business travel ■ Outsourced Laundry ■ Grid loss ■ Waste ■ Purchased goods & services ■ Capital Goods
3.6	Emission Source Identification Procedure	<p>A description of the procedure / method used to identify each of the scope 1, scope 2 and scope 3 emission sources.</p>	<p>Is the procedure likely to identify all sources? Has the procedure captured all stationary, mobile, indirect, process, and fugitive sources, including small sources? If a new source is added (e.g. emergency generator), what is the process to ensure that it is included in the inventory?</p> <p>Does the emissions source identification procedure include coordinating with all the appropriate people, whose roles and responsibilities are defined below.</p> <p>In some cases, a source may have existed in the past, but not in the current year. In that case, it should be noted that the source is included when present.</p>
3.7	RECs	<p>Use of RECs to reduce GHG emissions. State whether the organization will use green power to reduce its Scope 2 indirect electricity emissions. These emissions should be reflected in scope 2 market-based reporting.</p>	<p>Consider the type of renewable energy, age of facility, and vintage.</p>

	IMP COMPONENT	DETAIL REQUIRED	ISSUES TO CONSIDER
3.8	Offset Projects	Use of Offset Projects to reduce GHG emissions. State whether the organization will use offsets to help achieve its GHG reduction goal.	
3.9	Floor Area Boundary	Explain that Floor areas are used for the purpose of calculating energy and emission intensity targets, noting what parts of the floor area are included/excluded from the boundary Note whether energy supplied to the excluded areas is part of the overall energy consumption.	Here is a list of possible inclusions and exclusions: 1 Included - all conditioned front of house and back of house areas, i.e. with HVAC systems for heating and cooling providing environmental control. There may also non-conditioned areas that are openly ventilated that are part of the Gross Floor Area and included on a per property basis. 2 Excluded - all non-conditioned areas, such as carparks, balconies, terraces and outdoor pool areas when they are able to be quantified separately
3.10	Intensity Metrics	An intensity metric is the amount of carbon expressed in terms of a normalizing unit. Identify which intensity metrics may be used for the inventory.	Here is a list of possible intensity metrics: 1 Floor Area Intensity Metric - the total amount of usage or emissions for a period divided by floor area available within the same period. 2 Occupied Room Intensity Metric- the total amount of usage for a period divided by the occupied rooms within the same period.
4.0 INVENTORY AND EMISSIONS QUANTIFICATION			
4.1	Inventory Quantification	A description of the emission quantification methodologies and reference for each emission source and offset project. Where multiple methods are used, specify which facility / source uses the respective method.	1 Explain how GHG Emissions are quantified, what unit of measurement all sources of energy are converted to (e.g., kWh), and what unit all GHG Emission Factors are converted to (e.g. kgCO ₂ e/kWh) to perform a uniform calculation of energy to GHG emissions, with reference to the appendix that has the conversion factors listed. 2 Explain how the emissions are prepared (e.g., in market-based reporting of Scope 2). 3 Are there instances where location-based EFs (e.g., available supplier-specific EFs or Residual Mix EFs) are applied per geography?
4.2	GHG Emission Factors	A list of emissions factors and other constants and reference for factors and constants (i.e. Global Warming Potentials and conversion factors) for each emission category. Descriptions of the process for how emissions factors are kept current. Where multiple factors are used, specify which facility / source uses the respective factor.	1 State whether the latest published version of emission factors available for the corresponding calendar year are used 2 State the emission factors used for the base year and note that they may vary from the current year, with reference to a table of the EFs (if applicable). 3 Indicate which unit all values are presented in (e.g., All values are indicated in CO ₂ e) 4 Indicate what source EFs are based on and what identifying information is used to obtain the EF. Include a table on EF of energy sources by nation/region so auditors can see the exact factors being used. Are emission factors for a certain region only applicable for a particular time period onward? Here is an example of how the information can be presented: 1 For Geographic areas indicated with * in the table on the next page, the emission factors are only applicable from 2021 onwards. For calculations before that, please use the sources indicated in "All Other Countries and Territories" 2 [INCLUDE FOR US] Emission factors for Purchased Electricity within the United States are based on its EPA eGRID region, obtained using the zip code of each property. 3 [INCLUDE FOR US] Unincorporated territories without specific eGRID region are assigned the eGRID region of HIOA or PRMS as a proxy. Note that prior to 2021, Puerto Rico was assigned the HIOA region. From 2021 onward, its own region is used.

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4.3	Global Warming Potential (GWP) Coefficients	<p>Explain what GWP value is used and in which scenario</p> <p>When EFs provide separate values for CH₄ and N₂O, use the latest IPCC Assessment report available at the time of calculation.</p>	<p>Here is an example of how the information can be presented:</p> <ol style="list-style-type: none"> 1 Where the Emission Factor is provided in CO₂e, the source document's GWP value is used. 2 Where the Emission Factor provides separate values for CH₄ and N₂O, the following GWPs are applied using the latest IPCC Assessment report available at the time of calculation. Where a change in GWP occurs, it is not updated retroactively: <ol style="list-style-type: none"> c. GWP of CH₄: 28 (IPCC Fifth Assessment Report, 100 Year horizon) d. GWP of N₂O: 265 (IPCC Fifth Assessment Report, 100 Year horizon)
4.4	Renewable Energy Emission Factors	<p>List the types of renewable energy being used and the associated EF for each source.</p>	<p>Here are some commonly used types of renewable energy and their associated EFs:</p> <ul style="list-style-type: none"> ■ Purchased renewable energy from market mechanisms such as EACs, RECs, Green Tariffs or Feed-in Tariffs use an emission factor of 0. ■ Power Purchase Agreements for renewable energy sources with direct feed to the property use an emission factor of 0. ■ Onsite renewable energy also uses an emission factor of 0.
5.0 INVENTORY CALCULATION PROCESS			
5.1	Annual Inventory	<ol style="list-style-type: none"> 1 Indicate the time boundary for each year's inventory (whether the inventory is aggregated on a calendar year or other basis) and the frequency for reporting facility data to the corporate level. 2 Indicate in which circumstances the usage and emissions from these partial-year properties are generally included or excluded (e.g., A property must be operational within the portfolio for the full calendar year to be included in the inventory). <ol style="list-style-type: none"> a Explain what is done if the partial-year exclusions are found to be a significant source of energy or GHG emissions? Note and explain if there is a separate rationale for excluding a partial-year property. 	<p>Some circumstances to consider for exclusion:</p> <ul style="list-style-type: none"> ■ Sites that undergo a closure due to major renovation or other event for within the year ■ Sites that enter or leave the portfolio within a calendar year and are not operated by the company for all 12 months <p>How often are the year's partial year properties reviewed to determine the potential contribution to the inventory that each property may have (e.g., annually)?</p> <p>Is there a materiality threshold (e.g., 5%) for the total inventory to test/determine if the data for a partial-year property should be estimated or extrapolated?</p>
5.2	Source Data Collection and Aggregation	<p>A description / name of the source of activity data documents or processes required to complete quantification methodology (e.g., monthly fuel purchase records, fuel meter, internal tracking and aggregation documents, etc.) for each item of activity data.</p> <p>Where multiple data sources are used, specify which facility / source uses the respective data source.</p> <p>Describe the process in the current systems to output with any documentation file names, system names, etc. (e.g., utility providers provide monthly energy bills to properties and/or third-party management companies. A description of how data collection system security is maintained.</p> <p>A description of how the GHG inventory procedures are integrated into existing organization tools or procedures.</p>	<p>Is activity data based on appropriate sources?</p> <p>Is the right activity data being collected for the quantification method described above?</p> <p>Is activity data the most accurate available (e.g., fuel purchases adjusted for stock, fuel use based on physical units not \$)?</p> <p>Does a consultant assist properties with data upload and data extrapolation as needed on property-by-property basis?</p> <p>How likely are errors to occur within the data collection and management system due to spreadsheets being damaged or otherwise transformed, unauthorized access to databases, and other information system problems?</p>

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5.3	Data Analysis	<p>A description of the process for collecting and processing activity or monitoring data from its original source to the final emission data entered into the inventory. Indicate who performs an initial review of the data received and formats the data into a usable spreadsheet for analysis.</p> <p>Includes a description of roles and responsibilities for all organization representatives involved in developing and maintaining the organization's GHG inventory.</p> <p>A description of how GHG data collection process is integrated with other reporting tools and processes. Including the tracking of a normalization factor (units of product, \$ revenue, etc.) used to calculate emissions intensity if relevant.</p>	<p>Is the process likely to avoid data errors in computing final rolled up inventory totals?</p> <p>Are there any queries or gaps identified at this stage flagged for clarification with the Entity?</p>
5.4	Inventory Calculation	<p>A description of the inventory calculation methods including the following detail:</p> <ul style="list-style-type: none"> ■ File names and locations ■ Application of GHG emission quantification methods described above ■ Process to review and check calculation ■ Methods of estimation and extrapolation ■ Preliminary check of data, prior to internal audit/quality check described below. 	<p>What is done with the data after the aggregate output is completed? How is it transformed into the Annual Inventory? Are there any other sources being used to create the Annual Inventory file?</p> <p>How are updates in data handled? Are these updates logged? If so, where can they be found?</p> <p>If the energy usage includes renewable energy from the grid, consider explaining: Where renewable energy is purchased in market mechanisms the corresponding amount of renewable energy in kWh attributed to the calendar year's electricity is subtracted from the total usage prior to applying the GHG Emission Factor.</p> <p>Is there a process for minimizing error? Are all likely error sources considered?</p> <p>How are uncertainties and data gaps being addressed? Are the methods specific to each year's inventory and each building's characteristics?</p>
5.5	Inventory Quality	<p>A description of the major sources of uncertainty and quality assurance measures for the data process flow, including information on how measurement system accuracy is assessed.</p> <p>A description of the internal quality check process.</p> <p>Timing of the audit.</p>	<p>Is there an audit process that is likely to identify gaps and errors in inventory management?</p> <p>Key objectives of a quality check to consider:</p> <ul style="list-style-type: none"> a. To verify that data is accurately collected, processed, consolidated and reported b. To identify and address errors, omissions, and misrepresentations. c. To ensure that environmental performance documentation delivered to clients is accurate and complete d. To prepare for 3rd party verification
5.6	External Verification	<p>If applicable, a description of the process for external review.</p> <p>Timing of the audit.</p> <ol style="list-style-type: none"> 1 Indicate who sends the data files to the 3rd party verifier for review (on behalf of [Company]). 2 Indicate who receives comments from the 3rd party verifier, works with [Company] to make updates or provide explanations, and replies with an itemized rebuttal of comments, (on behalf of [Company]). 3 [Company] receives the final verification statement from the 3rd party verifier. 	<p>Is a consultant facilitating the company's third-party verification process?</p> <p>What protocol is the external validation / verification performed to?</p> <p>What are the overall results of the validation / verification?</p>

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5.7	Corrections and Restatements	<p>When prior year mistakes are found, such as a data error, new methodology for calculation and allocation i.e. mixed use, additional source found, extraneous source removed, restatements are made in the performance tables of the [Company] Annual Sustainability Report and ...</p> <p>Outline the steps for when corrections or adjustments are made in prior years.</p>	<p>What files are updated and what are they renamed? When the values in the file are updated, where are the updates logged?</p>
5.8	Scope 3 Related Analysis	<p>[Placeholder, to be updated as data, approach and calculations are developed]</p> <p>The approach for Scope 3 calculations and quantification methods will continuously improve as higher quality activity data becomes available and documentation of [Company] supply chain enhances over time.</p>	
6.0 BASE YEAR AND TARGET VALUES			
6.1	Baseline Parameters	Indicate what is considered the baseline year for the portfolio.	Are there any properties that are using a later year as a proxy for the portfolio-wide baseline?
6.2	Reduction Targets	List the reduction targets established for the portfolio - including the percent reduction target, unit of measurement, target year, and baseline year being used for each target category.	What is being targeted (e.g., energy, GHG emissions, water, waste, renewable energy, net zero)?
6.3	Progress Against Baseline	<ol style="list-style-type: none"> 1 Provide a definition of the baseline. 2 Noting the frequency (e.g., For each year), explain how progress against the baseline is calculated and which source is used (e.g., using the actual 12-month calendar data). 3 Explain where YOY Change and Target Progress Against the Baseline is populated and how it is calculated (e.g., baseline figures are hard-coded for intensity). 	<p>Example of baseline definition: Baseline is a static measure of intensity; it does not change unless there is a major shift in the portfolio.</p> <p>Are there any conditions where data is excluded from the YOY Change and Progress Against Baseline calculations? (e.g., Properties within the portfolio for partial periods of the calendar year are excluded from the progress calculation, even if their data have been estimated for the inventory calculation to meet a threshold of materiality)</p>
6.4	Restatements of Base Year Emissions	<p>State why a periodic adjustment of base year emissions would be warranted.</p> <p>List the instances that trigger a significant cumulative change in base year emissions that will warrant an adjustment of the base year inventory.</p> <ol style="list-style-type: none"> 1 A description of the approach for adjusting base year emissions for mergers, acquisitions, divestitures, and outsourcing. 2 A description of the approach for adjusting base year emissions for changes in calculation methodologies, emissions factors, or error correction. <p>An indication of whether a significance threshold is used to define whether adjustments are made.</p> <p>This includes defining the process for determining when changes are necessary, or not.</p>	<p>Have there been any organizational structure changes? Can a meaningful comparison be made?</p> <p>Is there an effective and accurate process for adjusting base year emissions and normalization factor for structural changes? For methodology changes? Are procedures in place to trigger adjustments when structural and/or methodology changes occur?</p> <p>Are changes implemented consistently (e.g., for emissions decreases as well as increases)?</p> <p>If actual data back to base year for acquired facilities is unavailable, how will it be estimated?</p>

IMP COMPONENT	DETAIL REQUIRED	ISSUES TO CONSIDER
7.0 YOY CHANGE AND LFL COMPARISONS		
7.1 Year-over-Year and Like-for-Like Comparisons	<ol style="list-style-type: none"> 1 Define Year-over-Year (YOY) comparisons. 2 Define Like-for-Like (LFL) comparisons. 3 Indicate which properties would be excluded from these calculations. 4 Indicate exactly where the YOY and LFL calculations are found in the calculation files (e.g., which tab). 5 Explain that potential factors that would warrant Corrections or adjustments to be made to years prior to the current inventory calculation year after final verification and publication. 	<p>Ex.: YOY comparisons compare the most recent calendar year against the same values for the preceding year.</p> <p>Ex.: LFL comparisons are a subset of YOY comparisons. LFL comparisons compare the most recent calendar year against the same values for the preceding year, <i>for those properties within the portfolio entirely for both current and preceding calendar year and with the same leased floor area for both years.</i></p> <p>Are there properties included in the boundary that should be excluded from these calculations?</p> <ul style="list-style-type: none"> ■ Was the property within the portfolio entirely for both the current and preceding calendar year? ■ Was the property’s square footage consistent from the preceding year to the current year? <p>Factors to consider:</p> <ol style="list-style-type: none"> a. a. Adjustment of conversion factors or emission factors b. b. Correction of floor area or energy sources c. c. Correction of actual or estimated energy data d. d. Adjustments due to structural changes in calculation methodology, assumptions, and extrapolations
8.0 MANAGEMENT TOOLS		
8.1 Roles and Responsibilities	<p>A description of overall roles and responsibilities for corporate GHG inventory development and maintenance, include discussion of management role(s).</p>	<p>Are roles and responsibilities sufficiently spelled out to ensure that tasks are completed?</p> <p>Are roles and responsibilities adequately defined and institutionalized?</p> <p>Are consultants and third-party verifiers involved in the development and maintenance of GHG inventory?</p>
8.2 Training	<p>A description of inventory development training received by inventory development team members.</p>	<p>Is sufficient training provided to ensure that tasks are completed accurately?</p> <p>Are new staff properly trained and aware of their roles and responsibilities?</p>
8.3 Document Retention and Control Policy	<p>A description of how version control is maintained for GHG inventory management guidelines.</p> <p>A description of the organization’s document retention policy for activity data records and calculation tools.</p>	<p>Is there a reasonable process for ensuring that all participants are working to the same IMP guidelines?</p> <p>Does the document retention policy ensure that data beginning with the base year is maintained at least through the end of the goal period?</p>